

International College of Applied Kinesiology®-U.S.A.

Experimental Observations of Members of the ICAK

Volume I, 2009 – 2010

Proceedings of the Annual Meeting



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Presented

June 11 – 14, 2009

Boston, MA

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Message From the Chairman

David Leaf, D.C., DIBAK

For 33 years, the members of the International College of Applied Kinesiology®-U.S.A. have shared their insights, outcomes, case histories and research through the papers presented in the *Proceedings*. The ICAK-U.S.A. continues to thrive as an “Arena of Ideas” through which members have the opportunity to present their observations and research results. These published works document the first steps toward the furtherance and development of the authors’ hypotheses, concepts and procedural techniques which can culminate in their material becoming part of the accepted body of knowledge we know as applied kinesiology. We invite all members to participate in this endeavor in the future.

Past history shows that the observations of one doctor stimulate the minds of others and the end result can be, as Dr. Goodheart credited Dr. Deal as saying, “and now we have another piece of the puzzle.”

I am pleased to again have the opportunity to read and share with the members the advances and successes of this year.

Thank you and congratulations to all of our contributors. I would like to offer a special thanks to Drs. Allan Zatkan, David Engel, and Janet Calhoun for all their help during the review process, and to Dr. Bart Stark, our Publications Chair. We look forward to seeing you at the Annual Meeting, June 11–14, 2009 in Boston, MA.

Introduction

This fifty first collection of papers from members of the International College of Applied Kinesiology®-U.S.A. contains 55 papers written by 31 authors. The authors welcome comments and further ideas on their findings. You may talk with them at the meeting or write them directly; addresses are given in the Table of Contents.

The manuscripts are published by ICAK-U.S.A. as presented by the authors. There has been no effort to edit them in any way; however, they have been reviewed by the *Proceedings* Review Team for originality and to determine that they follow the “Instructions to Authors” published by the ICAK-U.S.A. The primary purpose of the ICAK-U.S.A. in publishing the *Proceedings* is to provide an interchange of ideas to stimulate improved examination and therapeutic methods in applied kinesiology.

It should be understood that the procedures presented in these papers are not to be construed as a single method of diagnosis or treatment. The ICAK-U.S.A. expects applied kinesiology to be used by physicians licensed to be primary health care providers as an adjunct to their standard methods of diagnosis and treatment.

There are three divisions of the *Proceedings* of the Annual Meeting of the International College of Applied Kinesiology®-U.S.A. Division I consists of papers for members’ information. Division II contains papers inviting constructive comments to be published in future editions of the *Proceedings*. Division III is for constructive comments on papers published in Division II and for subjects that might be included in “Letters to the Editor” of a refereed journal. Papers will be put in Division I or II at the author’s request. It is expected that authors will choose Division I for papers such as anecdotal case studies, thought-provoking new ideas that have not been researched, and other types of papers that are for the membership’s general information. It is expected that Division II will include papers that have a research design, or those the author has thoroughly studied and worked with and believes to be a viable approach of examination and/or treatment. Studies to test methods developed by others, often called validation studies, fit well here. This area also lends itself to editorial-type comments about the practice of applied kinesiology and its procedures. Division III is somewhat similar to the “Letters to the Editor” section of refereed journals. It provides a forum for members to comment on research design or other factors in papers previously presented. Its purpose is for us to improve the quality of our presentations and, in some cases, to provide rebuttal to presented material. Comments on papers will only be published in this area if the paper was presented in Division II inviting constructive criticism.

Neither the International College of Applied Kinesiology®-U.S.A., its Executive Board, nor the membership, nor the International Board of Examiners, International College of Applied Kinesiology, necessarily endorses, approves of, or vouches for the originality or authenticity of any statements of fact or opinion in these papers. The opinions and positions stated are those of the authors and not by act of publication necessarily those of the International College of Applied Kinesiology®-U.S.A., the Executive Board or membership of the International College of Applied Kinesiology®-U.S.A., or the International Board of Examiners, International College of Applied Kinesiology.

Instructions to Authors

Proceedings of the ICAK-U.S.A.

Manuscripts are reviewed for format, technical content, originality, and quality for reproduction. There is no review for authenticity of material.

The ICAK-U.S.A. recognizes that the usual procedure for selection of papers in the scientific community is a blind review. However, the purpose of *The Proceedings of the ICAK-U.S.A.* is to stimulate creative thinking and critical review among its members. These papers are distributed only to the members of the ICAK-U.S.A. for general evaluation, and for the members to put into perspective the validity of the described approaches. The purpose is to put before the membership primary observations that may lead to scientific investigations, new areas of research, and in-depth study, inspiring progress in the field of applied kinesiology.

Statements and opinions expressed in the articles and communications in *The Proceedings of the ICAK-U.S.A.* are those of the author(s); the editor(s) and the ICAK-U.S.A. disclaim any responsibility or liability for such material.

The current ICAK-U.S.A. Status Statement is published with *The Proceedings of the ICAK-U.S.A.* It is recommended that procedures presented in papers conform to the Status Statement; papers that do not will be published and identified in the table of contents as failing to conform. It is recommended that examination or treatment procedures that fail to conform to the ICAK-U.S.A. Status Statement be supported by statistical studies, literary references, and/or any other data supporting the procedure.

Papers are published in three divisions: I) papers intended by the author as informative to the membership and not inviting critical review. II) papers inviting critical and constructive comments from the membership in order to improve the total value of the paper. Comments may be made on such items as research design, methods presented, clarity of presentation, and practical use in a clinical setting. The author must include with his/her paper written indication of desire for the paper to be included in the section inviting critical review or for informative purposes. III) The third section is for review comments on papers published in Division II. These papers are for constructive review. Opinions or editorials with negative connotations only may be rejected.

Manuscripts are accepted by the ICAK-U.S.A. for consideration to publish with the understanding that they represent original unpublished work. Acceptance of the manuscript by the ICAK-U.S.A. does not necessarily imply acceptance for publishing. The author may appeal any paper rejected to a committee composed of members of the Publications and Research Advisory Committees. The decision of this committee on publishing the paper will be final.

The paper must be an original work and deal specifically with applied kinesiology examination and/or treatment techniques. Various techniques may be discussed if they are correlated with applied kinesiology manual muscle testing examination.

All manuscripts (meaning any material submitted for consideration to publish) must be accompanied by a properly completed *RELEASE FORM*, signed by all authors and by employer if submission represents a "work for hire." Upon such submission, it is to be accepted by all authors that no further dissemination of any part of the material contained in the manuscript is permitted, in any manner, without prior approval from the editor; nonobservance of this copyright holder stipulation may result in withdrawal of submission for consideration to publish.

Continuing call for papers includes:

Research Studies (Investigations)—reports of new research findings into the enhancement factors of health, causal aspects of disease, and the establishment of clinical efficacies of related diagnostic and therapeutic procedures.

Hypotheses—preliminary studies that may establish a solid basis for further in-depth investigations.

Literature reviews—critical assessments of current knowledge of a particular subject of interest, with emphasis on better correlation, the pointing up of ambiguities, and the delineation of areas that may constitute hypotheses for further study. Meta-analysis is included here.

Clinical procedures—succinct, informative, didactic papers on diagnostic and therapeutic procedures, based heavily on authoritative current knowledge.

Case reports—accounts of the diagnosis and treatment of unusual, difficult, or otherwise interesting cases that may have independent educational value or may contribute to better standardization of care for a particular health problem when correlated with similar reports of others.

Case reviews—a retrospective comparative assessment of the diagnosis and treatment of several cases of a similar condition, ie, the comparative evaluation of two or more (perhaps hundreds) of case reports.

Clinical Observations (Technical reports)—the reporting and evaluation of new or improved equipment or procedures, or the critical evaluation of old equipment or procedures that have not previously been critically evaluated.

Commentary—editorial-like, more in-depth essays on matters relating to the clinical, professional, educational, and/or politicolegal aspects of health care principles and practice.

Critical Review (Letters to the editor)—communications that are directed specifically to the editor that critically assess some aspect of the ICAK, particularly as such assessment may add to, clarify, or point up a deficiency in a recently published paper; authors are afforded the privilege of a counter-response.

The following editorial policies will apply:

Informed consent—Manuscripts that report the results of experimental investigations with human subjects must include a statement that informed consent was obtained, in writing, from the subject or legal guardian, after the procedure(s) had been fully explained.

Patient anonymity—Ethical and legal considerations require careful attention to the protection of the patient's anonymity in case reports and elsewhere. Identifying information such as names, initials, actual case numbers, and specific dates must be avoided; identifying information about a patient's personal history and characteristics should be disguised. Photographs or artistic likenesses of subjects are publishable only with their written consent or the consent of legal guardian; the signed consent form, giving any special conditions (ie, eyes blocked off), must accompany manuscript.

Authorship—All authors of papers submitted to ICAK-U.S.A. must have an intellectual stake in the material presented for publication. All must be willing to answer for the content of the work. Authors should be willing to certify participation in the work, vouch for its validity, acknowledge reviewing and approving the final version of the paper, acknowledge that the work has not been previously published elsewhere, and be able to produce raw data if requested.

Conflict of Interest—In recognition that it may at times be difficult to judge material from authors where proprietary interests are concerned, authors should be ready to answer requests from the editor regarding

potential conflicts of interest. The editor makes the final determination concerning the extent of information released to the public.

Acknowledgments—Illustrations from other publications must be submitted with written approval from the publisher (and author if required) and must be appropriately acknowledged in the manuscript.

Author responsibility—Manuscripts accepted for publication are subject to such editorial modification and revision as may be necessary to ensure clarity, conciseness, correct usage, and conformance to approved style. However, insofar as authors are responsible for all information contained in their published work, they will be consulted if substantive changes are required and will have further opportunity to make any necessary corrections on the proofs.

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Manuscript preparation

Authors are encouraged to submit final manuscripts on computer diskette along with the printed revised copy. Authors accept responsibility for the submitted diskette exactly matching the printout of the final version of the manuscript. Manuscripts produced on IBM or compatible computers are preferred. Macintosh files should not be saved using the Fast Save option. Identify the diskette with journal name, manuscript number, name of first author, manuscript title, name of manuscript file, type of hardware, operating system and version number, and software and version number. Each article should be on a separate diskette. Please put all manuscript parts (text, references and figure legends) in one file.

The ICAK-U.S.A. does not assume responsibility for errors in conversion of customized software, newly released software and special characters. Mathematics and tabular material will be processed in the traditional manner.

Approved manuscript style

Manuscripts submitted for consideration to publish in *The Proceedings of the ICAK-U.S.A.* must be compiled in accordance with the following instructions, and manuscripts not so compiled are subject to return to the author for revision.

Summary of requirements

Type the manuscript double-spaced, including title page, abstract, text, acknowledgments, references, tables, and figure legends. (Note: footnotes should be avoided by including any necessary explanatory information within the text in parentheses). Do not break any words (hyphenate) at the end of any line; move to the next line if entire word does not fit.

Each manuscript component should begin on a new page, in the following sequence:

- Title page (page 1)
- Abstract and key word page (page 2)
- Text pages (starting on page 3)

- Acknowledgment page
- Reference page(s)
- Table page(s)
- Legends for illustrations pages(s).

Detailed preparation procedure

Begin each of the following sections on separate pages: title (including author name[s], address and phone number of principal author, running head, etc), abstract and key words, text, acknowledgments, references, individual tables, and figure legends.

Units of Measurement—In most countries the International System of Units (SI) is standard, or is becoming so, and bioscientific journals in general are in the process of requiring the reporting of data in these metric units. However, insofar as this practice is not yet universal, particularly in the United States, it is permissible for the time being to report data in the units in which calculations were originally made, followed by the opposite unit equivalents in parentheses; ie, English units (SI units) or SI units (English units). Nevertheless, researchers and authors considering submission of manuscripts to the ICAK-U.S.A. should begin to adopt SI as their primary system of measurement as quickly as it is feasible.

Abbreviations and symbols—Use only standard abbreviations for units of measurement, statistical terms, biological references, journal names, etc. Avoid abbreviations in titles and abstracts. The full term for which an abbreviation stands should precede its first use in the manuscript, unless it is a standard unit of measurement.

Title page

The title page should carry (1) the title of the article, which should be concise but informative; (2) a short running head or footline of no more than 40 characters (count letters and spaces) placed at the foot of the title page and identified; (3) first name, middle initial, and last name of each author, with highest academic degree(s); (4) names of department(s) and institution(s) to which work should be attributed; (5) disclaimers, if any; (6) name, address, phone, and fax number of author responsible for correspondence, proofreading of galley, and reprint requests (usually principal author); (7) the source(s) of support in the form of grants, equipment, drugs, or all of these.

Abstract and key word page

The second page should carry an abstract of no more than 150 words, 250 if using a structured abstract. The structured abstract is now required for all original data reports, reviews of the literature and case reports; prose abstracts will be accepted for use in only certain original papers not reporting data (ie, position papers, historical treatises).

Please visit the following link online for helpful information on structured abstracts:

http://www.soto-usa.org/Newsletter/DCInternetEdition/dc_internet_ed_vol_3_no3Abstrak/StructuredAbstracts.htm

Below the abstract, provide, and identify as such, 3 to 10 key indexing terms or short phrases that will assist indexers in cross-indexing your article and that may be published with the abstract. Use terms from the Index Medicus Medical Subject Headings (MeSH) as much as possible.

Text pages

The text of observational and experimental articles is usually—but not necessarily—divided into sections with the headings Introduction, Materials and Methods, Results, Discussion, and Conclusions. Long articles may need subheadings within some sections to clarify or break up content. Other types of articles such as case reports, reviews, editorials, and commentaries may need other formats.

Please visit the following link online for helpful information on writing patient case reports:

http://www.soto-usa.org/Newsletter/DCInternetEdition/dc_internet_ed_vol_3_no3Abstrak/Green%20Johnson%20Case%20Reports.pdf

Reference: Green BN, Johnson CD, Writing Patient Case Reports for Peer-Reviewed Journals: Secrets of the Trade *Journal of Sports Chiropractic & Rehabilitation*. 2000 Sep; 14(3): 51–9.

Introduction

Clearly state the purpose of the article. Summarize the rationale for the study or observation. Give only strictly pertinent references and do not review the subject extensively; the introduction should serve only to introduce what was done and why it was done.

Materials and methods

Describe your selection of the observational or experimental subjects (patients or experimental animals, including controls) clearly. Identify the methods, apparatus (manufacturer's name and address in parentheses) and procedures in sufficient detail to allow others to reproduce the work for comparison of results. Give references to establish methods, provide references and brief descriptions for methods that have been published but may not be well known, describe new or substantially modified methods and give reasons for using them and evaluate their limitations.

When reporting experiments on or with human subjects, indicate whether the procedures used were in accordance with the ethical standards of the Committee on Human Experimentation of the institution in which the research was conducted and/or were done in accordance with the Helsinki Declaration of 1975. When reporting experiments on animals, indicate whether the institution's or the National Research Council's guide for the care and use of laboratory animals was followed. Identify precisely all drugs and chemicals used, including generic name(s), dosage(s), and route(s) of administration. Do not use patient names, initials, or hospital numbers or in any manner give information by which the individuals can be identified.

Include numbers of observations and the statistical significance of the findings when appropriate. Detailed statistical analyses, mathematical derivations, and the like may sometimes be suitably presented in the form of one or more appendixes.

Results

Present your results in logical sequence in the text, tables, and illustrations. Do not repeat in the text all the data in the tables, illustrations, or both; emphasize or summarize only important observations.

Discussion

Emphasize the new and important aspects of the study and conclusions that follow from them. Do not repeat in detail data given in the Results section. Include in the Discussion the implications of the findings and their limitations and relate the observations to other relevant studies. Conclusions that may be drawn from the study may be included in this discussion section; however, in some cases, they may be more succinctly presented in a separate section.

Conclusions

The principal conclusions should be directly linked to the goals of the study. Unqualified statements and conclusions not completely supported by your data should be avoided. Avoid claiming priority and alluding to work that has not been completed. State new hypotheses when warranted but clearly label them as such. Recommendations (for further study, etc), when appropriate, may be included.

Acknowledgments

Acknowledge only persons who have made substantive contributions to the study itself; this would ordinarily include support personnel such as statistical or manuscript review consultants, but not subjects used in the study or clerical staff. Authors are responsible for obtaining written permission from persons being acknowledged by name because readers may infer their endorsement of the data and conclusions.

Reference pages

References are to be numbered consecutively as they are first used in the text (placed in line in parentheses) and listed in that order (not alphabetically) beginning on a separate sheet following the text pages. The style (including abbreviation of journal names) must be in accordance with that specified by the US National Library of Medicine: see recent January issue of *Index Medicus* for a complete listing of indexed journals.

Only those references that actually provide support for a particular statement in the text, tables, and/or figures should be used. Excessive use of references should be avoided; normally, 1 or 2 authoritative references to support a particular point are sufficient. A short article of up to 5 or 6 manuscript pages may be adequately supported by 5 to 10 references; longer articles of up to 20 pages by 15 to 25.

References must be verified by the author(s) against the original document. Abstracts, “unpublished observations” and “personal communications” may not be used as references, although reference to written (not verbal) communications may be inserted (in parentheses) in the text. Information from manuscripts submitted but not yet accepted may be referred to (in parentheses) in the text. Manuscripts accepted but not yet published may be included in the references with the designation “In press.” When a previously cited reference is used again, it is designated in the text (in parentheses) by the number originally assigned to it by its first use: do not assign it another number or again list it in the references as “op cit.”

For the most part, sources of information and reference support for a bioscientific paper should be limited to journals (rather than books) because that knowledge is generally considered more recent and (in the case of refereed journals) more accurate. Consequently, the basic form for approved reference style is established by journal listings; others (books, etc) are modified from journal listings as may be required. A summary of journal reference style is as follows:

Last name of author(s) and their initials in capitals separated by a space with a comma separating each author. (List all authors when 6 or fewer; when 7 or more, list only the first 6 and add et al.)

Title of article with first word capitalized and all other words in lower case, except names of persons, places, etc.

Name of journal, abbreviated according to Index Medicus; year of publication (followed by a semicolon); volume number (followed by a colon); and inclusive pages of article (with redundant number dropped, ie, 105-10).

Specific examples of correct reference form for journals and their modifications to other publications are as follows:

Journals

1. Standard article You CH, Lee KY, Chey RY, Menguy R. Electrogastrographic study of patients with unexplained nausea, bloating and vomiting. *Gastroenterology* 1980;79:311-4.
2. Corporate author The Royal Marsden Hospital Bone-Marrow Transplantation Team. Failure of synergeneic bone-marrow graft without preconditioning in post-hepatitis marrow aplasia. *Lancet* 1977;2:242-4.
3. No author given Coffee drinking and cancer of the pancreas [editorial]. *Br Med J* 1981;283:628.
4. Journal supplement Magni F, Rossoni G, Berti F. BN-52021 protects guinea-pig from heart anaphylaxis. *Pharmacol Res Commun* 1988;20 Suppl 5:75-8.
5. Journal paginated by issue rather than volume Seaman WB. The case of pancreatic pseudocyst. *Hosp Pract* 1981;16(Sep):24-5.

Books and other monographs

6. Personal author(s) Eisen HN. *Immunology: an introduction to molecular and cellular principles of the immune response*. 5th ed. New York: Harper and Row; 1974. p. 406.
7. Editor, compiler, chairman as author Dausset J, Colombani J, editors. *Histocompatibility testing* 1972. Copenhagen: Munksgaard; 1973. p. 12-8.
8. Chapter in a book Weinstein L, Swartz MN. Pathogenic properties of invading microorganisms. In: Sodeman WA Jr, Sodeman WA, editors. *Pathologic physiology: mechanisms of disease*. Philadelphia: WB Saunders; 1974. p. 457-72.
9. Published proceedings paper DuPont B. Bone marrow transplantation in severe combined immunodeficiency with unrelated MLC compatible donor. In: White HJ, Smith R, editors. *Proceedings of the 3rd Annual Meeting of the International Society for Experimental Hematology*. Houston: International Society for Experimental Hematology; 1974. p. 44-6.
10. Agency publication Ranofsky AL. *Surgical operations in short-stay hospitals: United States—1975*. Hyattsville (MD): National Center for Health Statistics; 1978. DHEW publication no (PHS) 78-1785. (Vital and health statistics; series 13; no 34).
11. Dissertation or thesis Cairns RB. *Infrared spectroscopic studies of solid oxygen [dissertation]*. Berkeley (CA): University of California; 1965.

Other articles

12. Newspaper article Lee G. Hospitalizations tied to ozone pollution: study estimates 50,000 admissions annually. *The Washington Post* 1996 Jun 21; Sect. A:3 (col. 5).
13. Magazine article Roueche B. Annals of medicine: the Santa Claus culture. *The New Yorker* 1971 Sep 4:66-81.

Table pages

Type each table on a separate sheet; remember to double-space all data. If applicable, identify statistical measures of variation, such as standard deviation and standard error of mean. If data are used from another published or unpublished source, obtain permission and acknowledge fully.

Using arabic numerals, number each table consecutively (in the order in which they were listed in the text in parentheses) and supply a brief title to appear at the top of the table above a horizontal line; place any necessary explanatory matter in footnotes at the bottom of the table below a horizontal line and identify with footnote symbols *, †, ‡, §, ¶, **, ††, ‡‡, etc.

Illustration legend pages

Type legends for illustrations double-spaced, starting on a separate page, following the table pages. Identify each legend with arabic numerals in the same manner and sequence as they were indicated in the text in parentheses (ie, Figure 1). Do not type legends on artwork copy or on pages to which illustrations may have been mounted; they must be typed on separate pages from the illustrations themselves.

When symbols, arrows, numbers or letters are used to identify parts of the illustrations, identify and explain each one clearly (if necessary) in the legend. Explain internal scale and method of staining in photomicrographs, if applicable.

Illustration preparation

Illustrations (including lettering, numbering and/or symbols) must be of professional quality and of sufficient size so that when reduced for publication all details will be clearly discernible; rough sketches with freehand or typed lettering are not encouraged. All illustrations (including x-rays) are best submitted as professional-quality, unmounted, black and white glossy prints at least 127 by 173 mm (5 by 7 in) but no larger than 203 by 254 mm (8 by 10 in). Do not place titles or detailed explanations on the illustration; such information should be given in the figure legends. Do not send x-ray film.

Each figure should have a label on its back indicating the number of the figure, author name(s), and top of the figure indicated with an arrow. Do not write on the back of the illustrations themselves; do not mount them on other sheets; do not bend, scratch or mar them with paper clips.

If photographs of persons are used, either the subjects must not be identifiable or their pictures must be accompanied by written permission to publish the photographs.

Cite each figure in the text (generally in parentheses) in consecutive order. If a figure has been published, acknowledge the original source and submit written permission from the copyright holder to reproduce the material. Permission is required, regardless of authorship or publisher, except for documents in the public domain. Articles may appear both in print and online versions, and wording of the letter should specify permission in all forms and media. Failure to get electronic permission rights may result in the images not appearing in the online version.

Electronic illustration submission

Figures may be submitted in electronic format. All images should be at least 5 in wide. Images should be provided in EPS or TIF format on Zip disk, CD, floppy, Jaz, or 3.5 MO. Macintosh or PC is acceptable. Graphics software such as Photoshop and Illustrator, not presentation software such as PowerPoint, CorelDraw, or Harvard Graphics, should be used in the creation of the art. Color images need to be CMYK, at least 300 DPI, with a digital color proof, not a color laser print or color photocopy. Gray scale images should be at least 300 DPI and accompanied by a proof. Combinations of gray scale and line art should be at least 1200 DPI with a proof. Line art (black and white or color) should be at least 1200 DPI with a proof. Please include hardware and software information, in addition to the file names, with the disk.

Manuscript submission summary

Manuscript components

In terms of completeness of submission, the “manuscript” includes the following components:

- Manuscript (the original and 2 clear photocopies). The author should be sure to retain an additional copy in case of loss of the submission copies in transit.
- Illustrations (1 set for each manuscript).
- *RELEASE FORM* (signed by all authors, and by employer if study was a work for hire).
- Letter(s) of permission to use previously published material in all forms and media (if applicable).
- Consent form(s) to publish photographs in which subjects may be identifiable (if applicable).
- Cover letter from principal author (or author specified as correspondent) providing any special information regarding the submission which may be helpful in its consideration for publication.
- Computer disk with manuscript(s).

Mailing instructions

The manuscript should be securely packaged in a heavy-weight envelope (or carton if bulky) with illustrations placed between cardboard to prevent bending; do not use paper clips or in any manner fasten illustrations to cardboard that could scratch or mar them.

The manuscript package should be mailed (first class or express, insured, return receipt requested, if desired) to:

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Applied Kinesiology Status Statement

International College of Applied Kinesiology®-U.S.A.

The International College of Applied Kinesiology-U.S.A. provides a clinical and academic arena for investigating, substantiating, and propagating A.K. findings and concepts pertinent to the relationships between structural, chemical, and mental factors in health and disease and the relationship between structural faults and the disruption of homeostasis exhibited in functional illness.

A.K. is an interdisciplinary approach to health care which draws together the core elements of the complementary therapies, creating a more unified approach to the diagnosis and treatment of functional illness. A.K. uses functional assessment measures such as posture and gait analysis, manual muscle testing as functional neurologic evaluation, range of motion, static palpation, and motion analysis. These assessments are used in conjunction with standard methods of diagnosis, such as clinical history, physical examination findings, laboratory tests, and instrumentation to develop a clinical impression of the unique physiologic condition of each patient, including an impression of the patient's functional physiologic status. When appropriate, this clinical impression is used as a guide to the application of conservative physiologic therapeutics.

The practice of applied kinesiology requires that it be used in conjunction with other standard diagnostic methods by professionals trained in clinical diagnosis. As such, the use of applied kinesiology or its component assessment procedures is appropriate only to individuals licensed to perform those procedures.

The origin of contemporary applied kinesiology is traced to 1964 when George G. Goodheart, Jr., D.C., first observed that in the absence of congenital or pathologic anomaly, postural distortion is often associated with muscles that fail to meet the demands of muscle tests designed to maximally isolate specific muscles. He observed that tender nodules were frequently palpable within the origin and/or insertion of the tested muscle. Digital manipulation of these areas of apparent muscle dysfunction improved both postural balance and the outcome of manual muscle tests. Goodheart and others have since observed that many conservative treatment methods improve neuromuscular function as perceived by manual muscle testing. These treatment methods have become the fundamental applied kinesiology approach to therapy. Included in the A.K. approach are specific joint manipulation or mobilization, various myofascial therapies, cranial techniques, meridian therapy, clinical nutrition, dietary management, and various reflex procedures. With expanding investigation there has been continued amplification and modification of the treatment procedures. Although many treatment techniques incorporated into applied kinesiology were pre-existing, many new methods have been developed within the discipline itself.

Often the indication of dysfunction is the failure of a muscle to perform properly during the manual muscle test. This may be due to improper facilitation or neuromuscular inhibition. In theory some of the proposed etiologies for the muscle dysfunction are as follows:

- Myofascial dysfunction (micro avulsion and proprioceptive dysfunction)
- Peripheral nerve entrapment
- Spinal segmental facilitation and deafferentation
- Neurologic disorganization
- Viscerosomatic relationships (aberrant autonomic reflexes)

- Nutritional inadequacy
- Toxic chemical influences
- Dysfunction in the production and circulation of cerebrospinal fluid
- Adverse mechanical tension in the meningeal membranes
- Meridian system imbalance
- Lymphatic and vascular impairment

On the basis of response to therapy, it appears that in some of these conditions the primary neuromuscular dysfunction is due to deafferentation, the loss of normal sensory stimulation of neurons due to functional interruption of afferent receptors. It may occur under many circumstances, but is best understood by the concept that with abnormal joint function (subluxation or fixation) the aberrant movement causes improper stimulation of the local joint and muscle receptors. This changes the transmission from these receptors through the peripheral nerves to the spinal cord, brainstem, cerebellum, cortex, and then to the effectors from their normally-expected stimulation. Symptoms of deafferentation arise from numerous levels such as motor, sensory, autonomic, and consciousness, or from anywhere throughout the neuraxis.

Applied kinesiology interactive assessment procedures represent a form of functional biomechanical and functional neurologic evaluation. The term “functional biomechanics” refers to the clinical assessment of posture, organized motion such as in gait, and ranges of motion. Muscle testing readily enters into the assessment of postural distortion, gait impairment, and altered range of motion. During a functional neurologic evaluation, muscle tests are used to monitor the physiologic response to a physical, chemical, or mental stimulus. The observed response is correlated with clinical history and physical exam findings and, as indicated, with laboratory tests and any other appropriate standard diagnostic methods. Applied kinesiology procedures are not intended to be used as a single method of diagnosis. Applied kinesiology examination should enhance standard diagnosis, not replace it.

In clinical practice the following stimuli are among those which have been observed to alter the outcome of a manual muscle test:

- Transient directional force applied to the spine, pelvis, cranium, and extremities
- Stretching muscle, joint, ligament, and tendon
- The patient’s digital contact over the skin of a suspect area of dysfunction termed therapy localization
- Repetitive contraction of muscle or motion of a joint
- Stimulation of the olfactory receptors by fumes of a chemical substance
- Gustatory stimulation, usually by nutritional material
- A phase of diaphragmatic respiration
- The patient’s mental visualization of an emotional, motor, or sensory stressor activity
- Response to other sensory stimuli such as touch, nociceptor, hot, cold, visual, auditory, and vestibular afferentation

Manual muscle tests evaluate the ability of the nervous system to adapt the muscle to meet the changing pressure of the examiner's test. This requires that the examiner be trained in the anatomy, physiology, and neurology of muscle function. The action of the muscle being tested, as well as the role of synergistic muscles, must be understood. Manual muscle testing is both a science and an art. To achieve accurate results, muscle tests must be performed according to a precise testing protocol. The following factors must be carefully considered when testing muscles in clinical and research settings

- Proper positioning so the test muscle is the prime mover
- Adequate stabilization of regional anatomy
- Observation of the manner in which the patient or subject assumes and maintains the test position
- Observation of the manner in which the patient or subject performs the test
- Consistent timing, pressure, and position
- Avoidance of preconceived impressions regarding the test outcome
- Nonpainful contacts — nonpainful execution of the test
- Contraindications due to age, debilitating disease, acute pain, and local pathology or inflammation

In applied kinesiology a close clinical association has been observed between specific muscle dysfunction and related organ or gland dysfunction. This viscerosomatic relationship is but one of the many sources of muscle weakness. Placed into perspective and properly correlated with other diagnostic input, it gives the physician an indication of the organs or glands to consider as possible sources of health problems. In standard diagnosis, body language such as paleness, fatigue, and lack of color in the capillaries and arterioles of the internal surface of the lower eyelid gives the physician an indication that anemia can be present. A diagnosis of anemia is only justified by laboratory analysis of the patient's blood. In a similar manner, the muscle-organ/gland association and other considerations in applied kinesiology give indication for further examination to confirm or rule out an association in the particular case being studied. It is the physician's total diagnostic work-up that determines the final diagnosis.

An applied kinesiology-based examination and therapy are of great value in the management of common functional health problems when used in conjunction with information obtained from a functional interpretation of the clinical history, physical and laboratory examinations and from instrumentation. Applied kinesiology helps the physician understand functional symptomatic complexes. In assessing a patient's status, it is important to understand any pathologic states or processes that may be present prior to instituting a form of therapy for what appears to be functional health problem.

Applied kinesiology-based procedures are administered to achieve the following examination and therapeutic goals:

- Provide an interactive assessment of the functional health status of an individual which is not equipment intensive but does emphasize the importance of correlating findings with standard diagnostic procedures
- Restore postural balance, correct gait impairment, improve range of motion
- Restore normal afferentation to achieve proper neurologic control and/or organization of body function
- Achieve homeostasis of endocrine, immune, digestive, and other visceral function
- Intervene earlier in degenerative processes to prevent or delay the onset of frank pathologic processes

When properly performed, applied kinesiology can provide valuable insights into physiologic dysfunctions; however, many individuals have developed methods that use muscle testing (and related procedures) in a manner inconsistent with the approach advocated by the International College of Applied Kinesiology-U.S.A. Clearly the utilization of muscle testing and other A.K. procedures does not necessarily equate with the practice of applied kinesiology as defined by the ICAK-U.S.A.

There are both lay persons and professionals who use a form of manual muscle testing without the necessary expertise to perform specific and accurate tests. Some fail to coordinate the muscle testing findings with other standard diagnostic procedures. These may be sources of error that could lead to misinterpretation of the condition present, and thus to improper treatment or failure to treat the appropriate condition. For these reasons the International College of Applied Kinesiology-U.S.A. defines the practice of applied kinesiology as limited to health care professionals licensed to diagnose.

Approved by the Executive Board of the International College of Applied Kinesiology-U.S.A., June 16, 1992.

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Division I

Informative Papers

AK Challenge for the Application of Heat or Cold

Eugene Charles, D.C., DIBAK

Abstract

Clinical observation that an injured area will respond positively or negatively to the placement of heat or cold and provide input as to which modality is appropriate for each individual case.

Key Indexing Terms

Applied Kinesiology, Cryotherapy, Hot Packs, Cold Packs, Acute Injuries, Muscle Spasms

Introduction

Physical medicine has often argued the point: when to use heat and when to use cold for an injury. There are many tenets such as cold for acute and heat for chronic; ice for inflammation and heat for spasms. There are those who say ice for everything or heat for everything. The greatness of AK is that practitioners have the ability to functionally challenge each individual and decide *when* to do *what* on *whom*. Presented is a simple challenge to decide when heat should be applied or when cold should be the modality of choice.

Discussion

A patient with a chronic herniated lumbar disc presented with severe acute muscle spasms. Using standard AK procedures the patient responded well. At the end of the visit came the common question, “Should I use heat or cold Doc?”

Normally cold is the modality of choice for discs in my office. However his severe muscle spasms and the fact he made it clear that heat eased his suffering had my usual confidence regarding cold wavering. I decided to functionally challenge the area with the two modalities.

When cold was applied over the indicated lumbar region for ten seconds, his hamstrings remained facilitated and range of motion improved. Upon placing heat over the area for ten seconds, there was a global inhibition of any muscle tested as well as a dramatic decrease in range of motion. With absolute confidence, I was able to prescribe cold as the modality of choice. Needless to say, after this dramatic demonstration the patient complied and used cold as part of his home therapy.

The hot/cold challenge has been used on hundreds of patients with spinal problems, extremity injuries and muscle spasms with clear results. Muscles will remain or become facilitated when the appropriate therapy is introduced and will become inhibited when the inappropriate modality is applied for ten seconds. Range of motion should also be used to validate findings.

Conclusions

Challenging a specific area for heat or cold is an effective screening tool as to which modality is best suited for the individual. Start with any normally facilitated muscle, place a hot or cold pack over the indicated area for ten seconds, then test the previous muscle. The indicated modality will not affect the normally functioning muscle while the inappropriate therapy will cause a negative response to muscle function, including range of motion.

This diagnostic challenge not only aids in healing but also adheres to the primary basis of all therapy: Primum non nocere—First do no harm.

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Application of Heat and Tonification of Triple Warmers for Patients who “Catch a Cold”

Eugene Charles, D.C., DIBAK

Abstract

Clinical observation that a positive challenge over the thymus with cold will be negated by stimulating the Triple Warmer Tonification point bilaterally while applying heat to the manubrial region.

Key Indexing Terms

Applied Kinesiology, Acupuncture, Meridian Therapy, Colds, Shivers

Introduction

Everyone has heard the phrase, “to catch a cold” along with the adage “to keep your chest covered otherwise you’ll get sick.” There may be some physiological truth to these. Presented is a simple technique that may be of aid in helping patients get over a cold more quickly using the Triple Warmer Tonification Points.

Discussion

Hans Selye described temperature changes as one of the 4 major causes of stress. It would make sense, therefore, that thermal challenging seems as viable a receptor based challenge as structural, chemical or emotional. The procedure is as follows:

Place a cold pack over the manubrial/thymus area and test any muscle for inhibition. If inhibition occurs, therapy localize the Triple Warmer Tonification Points (TW3), usually both will negate the challenge.

Remove the cold stimulus and proceed to apply heat over the manubrial/thymus area while tapping the points forty (40) times. Remove the hot pack and again challenge with cold. It should now be negative.



Triple Warmer 3 (also called gamut point)

Illustration: Callahan Techniques® Ltd.

Conclusion

Naturally the AK tenet of fix what you find wrong is applicable. This procedure of challenging with cold and treating with heat appears to be a means of quickly decreasing the often overlooked thermal aspect of stress in patients who have “caught a cold.”

References

I. Selye,H., The Stress of Life (New York: McGraw-Hill Book Co, 1956)

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Applied Kinesiology Management of Sacroiliac-referred Lower Extremity Pain Secondary to Adrenal Stress Disorder

Cecilia A. Duffy, D.C., DIBAK

Abstract

Objective

To describe the use of Applied Kinesiology in the management of a 41 year old male with sacroiliac-referred lower extremity pain secondary to adrenal stress disorder.

Clinical Features

The patient experienced a six month history of right buttock and right lower extremity pain and paresthesia.

Intervention and Outcome

Applied kinesiology methods were utilized to diagnose and treat this patient with successful outcome.

Conclusion

Applied kinesiology methods were successful in the treatment of sacroiliac-referred lower extremity pain secondary to adrenal stress disorder.

Key Indexing Terms

Applied Kinesiology, Sacroiliac, Lower Extremity, Pain, Adrenal Stress Disorder

Introduction

Applied kinesiology has a thorough description, diagnosis, and treatment of adrenal stress disorder.¹ The sartorius muscle is associated in applied kinesiology with the adrenal glands. When adrenal dysfunction is present, the sartorius (among other muscles) function can be altered and produce structural subluxations leading to pain, particularly a Category II pelvic subluxation with low back and/or lower extremity pain.² Due to sartorius dysfunction, a genu valgum stress is exerted into the knee and over time can contribute to medial meniscus issues.³ Adrenal dysfunction is also associated with allergies.⁴ Another adrenal related muscle is the posterior tibialis, which when compromised, can lead to pronation and its concomitant dysfunctions.⁵ Adrenal stress disorder is caused by one or a combination of stressors (chemical, mental, structural, or thermal).⁶ Fully diagnosing this patient's sources of stress and reducing them was instrumental in alleviating his lower extremity symptom.

Discussion

A 41 year old male carpenter presented with a chief complaint of pain in the right buttock, posterior thigh, calf and dorsum of the foot, and numbness and tingling in the right calf, lateral foot and all toes. The pain started six months prior to presentation. The patient reported no injury at the time of onset. Level of pain reported at 3/10 early in the day with increasing pain as the day progressed to 8/10. Pain was worse with sitting and wearing tool belt at work. He was utilizing over the counter ibuprofen at 400 mg. three times per day.

He did report a history of the same pain 4 years prior after being thrown from a horse; the symptoms resolved on their own. Other reported history: smokes 1 pack/day for 20 years, seasonal allergies, tonsillectomy, right meniscectomy, and an unspecified right thumb surgery.

Dietary habits revealed: Large amounts of soda (sugared), “sport drinks”, coffee, and milk throughout the day; one meal per day (dinner).

Physical examination revealed: weight 193 pounds; height 6 feet; axillary temperature 98.0°; blood pressure seated 130/90, standing 130/90, supine 120/80; pulse seated 96, standing 84; Lingual Ascorbic Acid Test time left 4 seconds, right 4 seconds; hematocrit 50; breath holding time 35 seconds; vital capacity 5000 (109%); left dominance for hand, eye, ear, and foot; and negative urinalysis dipstick.

Orthopedic examination revealed: full range of motion in the lumbar spine with no aggravation of lower extremity or buttock pain; negative straight leg raise and disc provocation tests. Bilateral pronation and a right leg length deficiency were noted.

Neurological examination revealed: normal Grade 2/4 lower extremity deep tendon reflexes; normal Grade 5/5 bilateral psoas, anterior tibialis, great toe extensors, and peroneal muscles. Diminished light touch over the right L5 dermatome on the foot (lateral foot, 5th toe and dorsum of foot).

Diagnosis was sacroiliac referred pain secondary to adrenal stress disorder. Adrenal stress disorder was indicated by: static systole from sitting to standing; a drop in pulse rate from sitting to standing; right sartorius conditionally inhibited; bilateral pronation; a history of right meniscectomy and seasonal allergies; and the diet history of going all day drinking only sugar laden liquids or coffee and eating once a day. The first treatment consisted of chiropractic manipulation and muscle balancing per diagnosis and correction according to Applied Kinesiology technique. Extensive time was taken to explain the effects of adrenal stress on his physiology, diet, side effects of ibuprofen, and smoking. He was instructed to use cold packs to the right buttock for 10 minutes, several times a day; to stop dairy products, soda, sports drinks; decrease coffee gradually to two cups per day; increase water; and eat regularly, at least four times per day.

On his second visit three days later, he reported the right buttock and lower extremity pain at 2-7/10, an improvement from 3-8/10. He was working on the diet changes. Lumbar x-rays were obtained and the chiropractic radiologist reported low femoral head height on the right by 7 millimeters with compensatory pelvic unleveling, low on the right; mild right curve of the lumbar spine with the apex at L2-3; flattening of the lordosis from L1-L4; mild degenerative spurring anterolaterally at L3-4 and L4-5; disc spaces were preserved. Treatment of chiropractic manipulation and muscle balancing was again rendered. He was placed into generic arch supports and instructed to wear them whenever he was on his feet.

His third visit was five days later and he reported the pain at 2-3/10. He was treated and prescribed exercises for the abdominal muscles and lower back. Recommendation for fasting blood work was made.

On the fourth visit eight days later he reported an increase in pain to 2-5/10. He was treated, given more exercises for the abdominals and lower back, and blood was drawn for a complete chemistry, hemoglobin A1c, C-reactive protein, CBC with differential, and 25-hydroxy vitamin D.

His fifth visit was 19 days later and he reported the pain at 1-5/10. Sensation in the right foot over the L5 dermatome was normal. His bloodwork was discussed with the pertinent findings of early diabetes as indicated by elevated blood glucose of 124 mg/dL, hemoglobin A1c 6.3% (4.8-5.9), and vitamin D below the optimum level of 50-70⁷ at 44.9 ng/mL. He was prescribed Biotics Glucobalance at 2 tid and Bio D Mulsion Forte 3 drops daily for 3 months followed by one drop daily as maintenance.⁸

He was seen again three weeks later and reported no pain in the buttock or lower extremity; he was doing well with following the diet as prescribed, cut out all sugar, soda, decreased coffee, and lost 13 pounds. He was treated and advised to go on a maintenance schedule of treatment every two months, continue diet and supplement schedule, continue exercises and use of arch supports, and is currently scheduled for a repeat of the blood work in five months to re-evaluate his glucose and vitamin D status.

Conclusion

Successful management of adrenal stress disorder related sacroiliac and lower extremity pain utilizing applied kinesiology diagnosis and treatment is described as well as additional findings of early diabetes and vitamin D deficiency that is currently being managed and will be followed up at a later date. Structural treatment alone would not have rendered the patient asymptomatic; reducing all adrenal stressors was necessary for complete resolution of the lower extremity pain.

References

1. Walther, DS. Applied Kinesiology Synopsis. 2nd Edition. Shawnee Mission, KS. ICAK-U.S.A.; 2009, p. 503–515.
2. Ibid, Walther, p. 515.
3. Ibid, Walther, p. 464.
4. Ibid, Walther, p. 537.
5. Ibid, Walther, p. 449–58.
6. Ibid, Walther, p. 504–5.
7. www.vitamindcouncil.org
8. Biotics Research Corporation, 6801 Biotics research Dr., Rosenberg, TX 77471, 800-231-5777.

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Universal Cranial Fault and Gelosis

Daniel H. Duffy Sr., D.C., DIBAK

Abstract

Objective

To determine if correction of a universal cranial fault negates positive indication for a myofascial gelosis pattern in the upper portion of the sacrospinalis at the attachment to the occiput and mid-thoracic portion of the sacrospinalis.

Design

During routine examination of patients in a clinical setting, positive indication for myofascial gelosis of the sacrospinalis prompted examination for a related universal cranial fault. When present, correction of the universal cranial fault eliminated evidence of the gelosis.

Setting and Patients

Private practice patients.

Main Outcome Measure

To determine the percentage of effectiveness of universal cranial fault correction on the presence of myofascial gelosis of the sacrospinalis muscle.

Results

In a small percentage of patients tested, correction of the universal cranial fault negated the need for a myofascial correction of the sacrospinalis.

Conclusion

Correction of the universal cranial fault negates the need for a myofascial correction of the sacrospinalis in a small percentage of patients.

Key Indexing Terms

Applied Kinesiology, Cranial Faults, Universal Cranial Fault, Myofascial Gelosis

Introduction

Diagnosis of a universal cranial fault includes: a breathing pattern; a challenge; and therapy localization.¹ A previously intact muscle will inhibit with: single nostril inhalation; a clockwise or counterclockwise challenge to the mastoid processes and occiput; and therapy localization of one side of the occiput with both hands.² Correction is the opposite direction as the challenge along with patient inspiration through the nostrils.

Myofascial gelosis is diagnosed by inhibition of a previously intact muscle following pinching of the muscle, or inhibition of an ipsilateral indicator muscle following pinch of the muscle being examined.³ In the context of this paper, pinching of the muscle bundle attached to the occipital squama will momentarily inhibit an ipsilateral indicator muscle, for instance, the ipsilateral hamstring, giving evidence of gelosis in that portion of the pinched muscle bundle. Squeezing the sacrospinalis adjacent to the thoracic spine will also occasionally exhibit a similar effect.

Discussion

It is the experience of this author that a high percentage of universal cranial faults demonstrate the following signs: Left nostril inspiration producing inhibition of an indicator muscle; positive therapy localization to the left occiput with both hands; and a positive challenge to the mastoids and occiput in a clockwise direction with the correction being performed in a counterclockwise direction during nostril inspiration.

It was noted in a small percentage of patients positive for a gelosis of the sacropinalis and a universal cranial fault that correction of the universal cranial fault eliminates evidence of the gelosis.

Conclusion

Myofascial gelosis of the upper fibers of the sacrospinalis and upper trapezius and the mid fibers adjacent to the thoracic spine responds to universal cranial fault correction in a small percentage of patients.

References

1. Walther, DS. Applied Kinesiology Synopsis. 2nd Edition. Shawnee Mission, KS. ICAK-U.S.A.; 2009, p. 383-4.
2. Ibid, Walther, p. 396.
3. Ibid, Walther, p. 198.

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Encoded Extremity

John Erdmann, D.C., DIBAK

Subject

Chiropractic adjusting and the neurological implications assessed with limbic brain function.

This paper is also an extra application from another technique that Dr. Goodheart called “encoded memory.” Even the most astute doctor was not aware of this extra dimension being applied until Dr. Goodheart pointed it out.

Every time a patient talks or thinks about some topic possibly related to the area of manipulation at the same time as attempting a manipulation, a larger, neurological influence or projection accompanies the adjustment. We already know that the chiropractic manipulation has a strong mechanoreceptor and efferent influence on the brain and body. Dr. Goodheart’s original observation is what makes a good treatment great.

In brain mapping, they have shown very specific areas of the brain to “Light up,” with different memories and stimulation. When we add an emotion or thought to an adjustment, the adjustment now very affectively becomes a different neurological exercise (event) than when the manipulation is performed alone.

According to Maclean (the famous neuroscientist Paul MacLean), we have three biological computers which, although interconnected, retained, each one, “of their peculiar types of intelligence, subjectivity, sense of time and space, memory, mobility and other less specific functions.”

The three main processing centers of the brain are first **the primitive** (reptilian) brain, comprising the structures of the brain stem—medulla, pons, cerebellum, mesencephalon, the oldest basal nuclei—the globus pallidus and the olfactory bulbs.

Secondly, the **intermediate** (old mammalian) brain, comprising the structures of the limbic system. It corresponds to the brain of the inferior mammals. And is basic emotional response to stimuli and environment.

Thirdly, the **rational** (new mammalian) brain, comprises almost the whole of the hemispheres (made up of a more recent type of cortex, called neocortex) and some subcortical neuronal groups. It corresponds to the brain of the superior mammals, thus including the primates and, consequently, the human species and our ability to “reason.”

Of our main interest in this technique is the Limbic system or intermediate brain. The limbic system has long been shown to house the main responsibility of our emotions. We react first reflexively with the brain stem and then engage the limbic brain area followed by the cerebral cortex or more conscious thought patterns.

This technique is best after all core issues are addressed, and then as a finishing technique have the patient therapy localize (TL) to the emotional points. The TL should be negative, Then while maintaining the forehead point TL, Do a second TL (called cross TL) to the most distal extremity joint of either an upper or lower extremities (Ie. The ankles and wrist, inside and out). When there is a cross positive TL (where a strong indicator muscle now weakens), ask the patient to think about any aspect of the related emotion, ie. Inside ankle kidney Fear, Spleen low-self esteem. These emotions can be found to varying degrees in most Chinese meridian charts. Now TL to the positive extremity only (no forehead TL), with the patient holding the thought/ emotion. If it is the correct one, there will now be a weakness of a strong indicator muscle just like when the cross TL to the emotion points on the forehead showed positive. If the patient comments something to the affect “I can’t think of anything” then ask them to think about what the feeling means to them. And wait to find a weak TL, While TL Is held to the extremity point. When the combination of thought/ feeling and TL to one of the four extremities is found, have the patient TL the emotional point while holding such thought/ feeling and then manipulate (if indicated) or use acupressure to the previous TL Point.

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PRYT Extra

John Erdmann, D.C., DIBAK

Subject

Applied Kinesiology assessment of the need for isometric muscle contraction in the cervical spine using a technique called “Pitch, Roll, Yaw, Tilt.”

Introduction

Dr Goodheart borrowed from his air force training the aeronautical terms of Pitch, Roll Yaw Tilt which makes reference to how an object or airplane can move in space. PRYT has been a very valuable asset in Applied Kinesiology since we concern ourselves with proper balance and physiology. It is very useful for correcting imbalances in the pelvis and skull positions, Involving tonic neck reflexes, visual, labyrinthine and other reflexes involving mainly the cervical spine. Whether you currently use, or have forgotten about this ageless tool, I have found a little variant to PRYT that I would like to introduce.

Discussion

Pitch in flexion with rotation (referred to as pitch- turn) describes the additional correction of doctor resisted patient isometric contraction of flexion with rotation.

With Applied Kinesiology we often look for opposites and patterns to display. So it was quite natural to question why we don't do extension with rotation. Strikingly similar to a George's test, Caution should be taken to observe pupillary movement, eye function and any contra indications correlated with George's test and requiring further clinical assessment.

It is found that the correction is done in the exact opposite manner of the flexion with rotation. This has been a great little extra correction for those necks that are very rigid and difficult to manipulate.

Conclusion

PRYTextra is performed after clearing the normal procedures for PRYT. We start with pitch with extension and with knees off the table in extension. The neck is extended gently as far as its range of motion will allow. A strong indicator muscle stays strong. Then add rotation to the right or left and a strong indicator weakens to one direction. Return the patient to neutral position. The doctor resists the patient trying to return to the positive test position 4-5x.

References

- I. You'll Be Better, by Dr. George Goodheart
- II. Waltner, D.S. Applied Kinesiology Synopsis, 2nd Edition. Shawnee Mission, KS. ICAK-U.S.A.; 2009.

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The Emotional Equation: Raising the Level of Consciousness

Matthew G. Keschner, D.C., C.C.S.P.

Abstract

John Diamond, MD, in his work, *Life Energy*, suggested that if mental attitude is changed, stress is prevented, and disease will not occur.¹ Going one step further, advancing through the Levels Of Consciousness, as defined by David Hawkins, MD, PhD, in his work, *Power Vs. Force*,² (or the Emotional Stages of Freedom as defined by Hale Dwoskin in *The Sedona Method*[®],³ the originator of both is actually Lester Levenson) can alter perception and the resulting attitudes, preventing stress and disease. Utilization of The Emotional Equation focuses on raising the patient's Level of Consciousness and affecting future thought processes, as opposed to simply neutralizing a current or past thought stressor.

Key Indexing Terms

Acupuncture head points, meridian, emotional recall, applied kinesiology, Chapman's Reflexes, Beingness, Consciousness, Emotions, IRT, Life Energy

Introduction

Merriam-Webster Online Dictionary defines emotion as a “conscious mental reaction (as anger or fear) subjectively experienced as strong feeling usually directed toward a specific object and typically **accompanied by physiological and behavioral changes in the body.**”⁴ Additionally, John Diamond, MD, in his work, *Life Energy*, fingered established negative emotional patterns resulting from stress as the root of all disease.⁵ Dr. Diamond noted that the ultimate goal is to raise the life energy. This is very significant, as most emotional techniques, including Emotional Recall (including Quick Fix) which I had expanded upon in a past ICAK paper, “Beyond Emotional Recall Quick Fix—Using Representational Systems,”⁶ as well as other Applied Kinesiology methods and methods of techniques affecting emotional and emotionally induced physiological states—psychological reversal, Dr. Scott Walker's *Neuro-Emotional Technique*, and Dr. Victor Frank's emotional erase,⁷ all focus on quelling a stressor via utilization of the body's acupuncture meridians or stress receptors. These techniques seek to raise overall life energy, as Dr. Diamond calls it, by reducing or eliminating an offender, in this case a negative emotion or thought pattern, as opposed to taking a more positive direction—not by elimination, but rather by ascension. David Hawkins, in his work, *Power Vs. Force*, building upon the behavioral kinesiology techniques of Dr. George Goodheart and Dr. John Diamond, notes that the difference between treating and healing is that in the latter, there is not merely a recovery from symptoms, but bringing about an absolute removal of the condition through **a change of context.**⁸ In his next work, *The Eye of the I*, Dr. Hawkins likens social programming to the software of a computer, while the level of consciousness is the hardware.⁹ Eckhart Tolle, in *A New Earth*, remarks, “the primary factor in creation is consciousness.”¹⁰

Tolle elaborates on the importance of consciousness: “No matter how active we are, how much effort we make, our state of consciousness creates our world, and if there is no change on that inner level, no amount of

action will make any difference.”¹¹ Additionally, Gregg Braden, in his work, *Walking Between the Worlds: The Science of Compassion*, writes, “Shifting your body chemistry by shifting your viewpoint is perhaps the single most powerful tool that you have available to you for the remainder of this lifetime.”¹² He elaborates further by remarking, “emotion is the switch that triggers specific DNA codes within your body.”¹³ The Emotional Equation, as set forth in this paper, seeks to bring about such a change in context in the patient by raising the level of consciousness directly, as opposed to simply quelling a stressor.

Discussion

The concept of Levels of Consciousness was recently brought into the limelight by acclaimed works such as *A New Earth* by Eckhart Tolle, who expounded upon the importance of transcending an ego-based consciousness. In earlier published works, David Hawkins, MD, PhD, expanding on the work of Dr. George Goodheart and Dr. John Diamond, separated consciousness into graded levels. These Levels have also been referred to as “The Emotional Stages of Freedom” or the “Roadmap to Freedom”, as utilized in *The Sedona Method*[®], by its originator Lester Levenson, and book author, Hale Dwoskin.¹⁴ The original Levels (or Stages) were coined by Lester Levenson, and then later expanded by Dr. Hawkins, to include further Levels, as well as numerological values for each Level.

In *Power Vs. Force*, Dr. Hawkins remarks, “It is helpful to remember that neither Truth nor Enlightenment is something to be found, sought, acquired, gained, or possessed. That which is the Infinite Presence is always present, and its realizations occurs of itself when the obstacles to that realization are removed.”¹⁵ This being said, The Emotional Equation helps one directly ascend the Levels of Consciousness by uncovering and releasing the blocks within the Equation’s components. By releasing these constraints through physiological means, the true inner Beingness or Presence that is inherent in each of us is revealed. Joseph Rael, in *The Sound Beings*, explained that in from the perspective of the Tewa people, life is viewed as two slices of light, each of a different quality, which always move forward.¹⁶ When we become stuck or blocked in a belief or thought, the light cannot move through us, and the result, similar to what Dr. Diamond described, is illness. It should be noted that the patient should self-utilize processes that release these same constraints. These processes include meditation, as well The Sedona Method[®], A Course in Miracles[™], certain yoga techniques such as Kundalini Yoga, in addition to supplemental products such as herbal teas and flower essences. Additionally, simply reading works by authors who operate at a high Level Of Consciousness, such as Tolle, Hawkins, and Goodheart will subtly raise one’s Level of Consciousness. In this way, The Equation can be used as a kick-start to raising the Level of one’s Consciousness and not merely as a band-aid or a temporary improvement.

According to Braden, thought is like a guidance system directing the energy of attention, and emotion is the power that makes the thoughts real. The union of thought and emotion produce feeling.¹⁷ Hence, raising the level of consciousness, along with erasing the emotional charges and clearing the thought pattern blocks will change one’s paradigm, and in doing so, redirect the thoughts to produce a more positive vibration within the self. This in turn, will positively effect one’s overall health. “Consciousness,” writes Braden, “and our verbal mirrors of consciousness, are taken as literal commands by our bodies.”¹⁸ Braden also notes, “You will only see in others that which the filters of your belief allows you to see.”¹⁹ Thus, releasing an emotional charge as well as a thought block may very well increase the nature of interpersonal relationships.

In a study entitled “The Physiological and Psychological Effects of Compassion and Anger,” published in *The Journal of Advancement in Medicine*, and highlighting the effect of emotions and overall paradigm on

health, Glen Rein, Ph.D., Mike Atkinson, and Rollin McCraty, Ma., noted that “anger produced a significant increase in total mood level disturbance and heart rate, but not S-IgA levels. Positive emotions, on the other hand, produced a significant increase in S-IgA levels...Anger, in contrast to care, produced a significant inhibition of S-IgA from one to five hours after the emotional experience.”²⁰ S-IgA is an antibody found in mucus that defends the respiratory, gastrointestinal, and urinary tracts from infection.

Furthermore, Braden notes that researchers have demonstrated that human emotion determines the actual patterning of DNA within our bodies, and the DNA determines how matter (atoms, bacteria, viruses) is arranged.²¹

Scientifically, the technique achieves its desired goal by utilizing acupuncture headpoints while feeling a feeling and thinking a thought, followed by the utilization of Dr. Victor Frank's *TBM* energetic spinal sequences (also utilized in Dr. Scott Walker's *Neuro-Emotional Technique*) while thinking and feeling an affirmation of Dr. John Diamond's *Life Energy Technique*. The late David S. Walther, in his text, *Applied Kinesiology: Synopsis* (Second Edition), notes that a primary aspect of meridian therapy is the concept that an electromagnetic energy known as Chi goes through twelve bilateral meridians.²² Thus, utilizing these methods will affect the electromagnetics of the body, which has an exponential effect when incorporating both thought and feeling simultaneously.

According to Braden, each cell of our body contains approximately 1.17 volts of electrical potential, and the average body is composed of approximately 1 quadrillion cells, which yields approximately 1.17 quadrillion volts of bio-electrical potential per person.²³ Braden further remarks, “The force of potential within you is activated and regulated through the manner in which you choose to conduct your life.”²⁴

In *Awakening to Zero Point: The Collective Initiation*, Braden specifies that the energy referred to as consciousness is electromagnetic in nature. “Conscious essence may be considered as hierarchical grid upon hierarchical grid of this energy, forming continuous matrices of subtle frequency and geometry. It is within these matrices that magnetic influences provide a tension or stress field binding the essence of human consciousness as a framework of divine intelligence.” Humans are both electrical and magnetic. In addition to the electrical charge generated by each cell of the body, there is also a magnetic field offset by ninety degrees that surrounds each cell. The electric potential is the soul of the cell, and the magnetic field is the buffer that stabilizes the information of the soul within each cell. Lower magnetic fields provide the opportunity for change through the rapid manifestation of thought and feeling. The laws of physics state that energy may not be created or destroyed, but rather responds to experiences by changing its expression of form. Letting go of the old emotional and thought programs within these energetic grids, allows one to plug in to a new body of information that strengthens connection with life.²⁵ Thus, releasing blocks within the body's electromagnetics while in a specific thought and feeling pattern may serve to directly raise the level of consciousness, allowing for new paradigms, and greater overall well-being!

The Emotional Equation

The Emotional Equation was originally formulated based on Mother Theresa's praising of Hawkins' *Power Vs. Force*: “[You (Dr. Hawkins)] spread joy, love, and compassion through what you write. The fruit of these three is peace, as you know....”²⁶ The original goal of this author was simply to enable one to uncover the Love that exists in each of us, yet is so often buried under negative emotions. However the previous quotation served as an epiphany of sorts, as Inner Peace now became the goal. Thus, “Peace = Love + Joy + Compassion” was established.

Eckhart Tolle, in his work, *A New Earth*, named Acceptance, Enjoyment (of Being), and Enthusiasm as the three modalities of “awakened doing.” That is, the three ways in which consciousness can flow into you what you do and thus through you into this world—the three modalities in which you can align your life with the creative power of the universe, each one representing a certain vibrational frequency of consciousness. He highlighted the importance of it’s not what you do, but how you do it which determines whether you are fulfilling your destiny.²⁷ Henceforth, Awakening (changed from “Awakened Doing”) was inserted as one of the main components of Peace, and Joy, along with Enthusiasm, became its subcomponents. Acceptance was included as a subcomponent of Love, but is integral to both Love and Awakening.

There existed a bit of a conundrum, as one of The Sedona Method’s® principles is that Love is inherent in each of us, and as we approach Inner Peace, we begin to uncover that Love which already exists. This would imply that Peace is attained on the path to realizing Inner Love. However, Hawkins included Love as one of his Levels of Consciousness, and as that level which immediately precedes Peace.²⁸ Consciousness, as described by Tolle, is the unmanifested, eternal intelligence, the organizing principle behind the arising of form.²⁹ Additionally, the Level of Enlightenment was 100 points higher than Peace, and covered the top 300 points of his 1000-point Map Of Consciousness (see discussion of Hawkins’s Map of Consciousness later in this paper). Tolle, Dwoskin, and Hawkins all referred to the concept of an Inner Beingness or Universal Presence, and sometimes referred to The Truth. Dwoskin repeatedly refers to an Inner Freedom in many of his works, both in print and audio form. In the Emotional Equation, “Peace” was changed to “Freedom” and then later to “Truth”, and is synonymous with “Freedom.” In addition, Hawkins, in his later work, *Eye of the I*, expounded upon the use of a motionless and fixed Spiritual Will as a tool to explore Awareness.³⁰ Awareness, as defined by Tolle in *A New Earth*, is the space in which thoughts exist that space has become conscious of itself. Awareness is synonymous with Presence.³¹ Tolle further details Awareness as being that inner space into which the unmanifested realm of pure consciousness flows.³² The Equation then evolved to its current state:

TRUTH (or FREEDOM) = LOVE + AWAKENING + COMPASSION + THE WILL

Breaking it down into subcomponents:

I. Love

- a. Forgiveness
 - i. Forgiving Others
 - ii. Forgiving Self
 - iii. Receiving Forgiveness from Others
 - iv. Receiving Forgiveness From Self
- b. Acceptance
 - i. Accepting Others
 - ii. Accepting Self
 - iii. Receiving Acceptance From Others
 - iv. Receiving Acceptance From Self
 - v. Acceptance of What Is
 - vi. Acceptance of The Persona
- c. Pure Giving
- d. Trust

- II. Awakening (Awakened Doing)
 - a. Joy
 - b. Enthusiasm
 - c. Surrender (Letting Go of Attachment)

- III. Compassion
 - a. Understanding
 - b. Sympathy
 - c. Empathy

- IV. Will
 - a. Gratitude
 - b. Humility
 - c. Inspiration
 - d. Devotion

(Note: some of the components are interchangeable as Love may be found as integral parts of both Compassion and The Will; Understanding may be an integral part of both Compassion as well as The Will; Surrender may be an integral part of both Awakening as well as The Will, and also plays an integral role in the acceptance of what is; Acceptance maybe an integral part of all four major components. A complete discussion as to how these components were derived, as well as how they are utilized, follows.)

As will be discussed later in the Step-by-Step Procedure later in this paper, the block that is found in one of these components is then negated at one of the Levels of Consciousness contained in Hawkins's Map of Consciousness. It is at this intersection of Truth (Sub)Component and Level of Consciousness that the constraint to be released is found. As outlined in the procedure, following release by means of both Emotional Recall utilizing both Acupuncture Head Points and Emotional Quick Fix with IRT, as well as an *N.E.T.* type of adjustment utilizing Diamond's *Life Energy* Principles, Acupuncture Alarm Points, and Dr. Victor Frank's TBM sequences³³, the person ascends to a higher Level of Consciousness, at which he or she may act with more clarity and less reactivity. In addition, at the higher Levels, a state of Non-Duality exists in which the person is able to maintain a state of Non-attachment to the Ego and whatever Stories and Stressors it imagines it has. Non-attachment is not to be confused with Detachment, which leads to Apathy, one of the lowest Levels of Consciousness.

Braden describes Fear as the emotion that separates one from loved ones, from feeling good about oneself, and from The Creator. Braden lists three universal fears: Separation (and Abandonment), Self-Worth (feeling of Not Being Enough), and the fear of Surrender and Trust, that is, not feeling that the world or life itself is safe.³⁴ The Equation indirectly handles deeper levels of all three fears. Self-Worth is handled through the subcomponents of Acceptance, Forgiveness, and Gratitude. Surrender and Trust is may be resolved through the subcomponents of Surrender and Trust. "Sin" in Latin simply means separation. When one thinks of sin, one may think of forgiveness, acceptance, and compassion. Thus, Separation may be indirectly managed with the subcomponents of Forgiveness and Acceptance as well as Surrender, Humility, and Devotion, along with the overall components of Love as well as Compassion.

The Components

“Two thousand years ago, one of the greatest masters told us, ‘And you will know the Truth, and the Truth will set you free.’” – Don Miguel Ruiz, *The Mastery of Love*³⁵

I. Love

This author’s initial goal, before this process expanded into a physiological jumpstart into consciousness, was to access or uncover the natural inner Love that is found in each and every one of us. According to Lester Levenson, in his lecture, *Love: What Is It?*, Love is that which is inherent in all of us. “We can’t increase our love because that is our natural state. Behind these concepts of non-love is always the infinite love that we are. We can’t increase it. All we can do is peel away these concepts of hatred so that this tremendous loving being that we are is not hidden.”³⁶

In addition, Don Miguel Ruiz, in *The Mastery of Love*, remarks, “As children, we don’t have any definition of love as an abstract concept. We just live love. It’s the way we are.”³⁷ Over time, love is slowly covered up by bad experiences and negative emotions such as fear, anger, and envy. Then, when we are adults, we look to others to find love. This is a proverbial dead-end. One cannot obtain love from a person who is looking for another to provide it as well. The simple solution is to experience love from within. Ruiz further writes:

“There are millions of ways to express your happiness, but there is only one way to really be happy, and that is to love. There is no other way. You cannot be happy if you don’t love yourself. That is a fact. If you don’t love yourself, you don’t have the opportunity to be happy. You cannot share what you do not have. If you do not love yourself, you cannot love anyone else either. But you can have a need for love, and if there’s someone who need you, that’s what humans call love. That is not love. That is possessiveness, that is selfishness, that is control with no respect...Love coming out of you is the only way to be happy. Unconditional love for yourself. Complete surrender to that love for yourself.”³⁸

Diamond, in *Life Energy*, observes that when we are healthy, we are filled with life energy, with spirit, with love. In spontaneous recovery there is frequently a marked increase in the capacity to love and the awareness of love as a healing factor.³⁹ The highest manifestation of life energy is pure, altruistic love.⁴⁰ Diamond writes, “Love banishes all the negative emotions. Love invokes the spirit and activates the life energy. Love balances our brains and makes us creative. Love for our true self, for the self that we can be, drives us on to want to be better and want to be healthier and want to be more evolved. Love is health and life.”⁴¹

Love is broken down into four subcomponents: Forgiveness, Acceptance, Pure Giving (or Purity of Giving), and Trust.

a. Forgiveness

According to Dr. Diamond, the Heart acupuncture meridian is the meridian of forgiveness. The affirmations of “I Love” and “I Forgive” both apply to the Heart Meridian.⁴² Saying “I forgive” can restore the heart meridian balance, which Diamond refers to as the Love Meridian, to its proper energy balance.⁴³ In addition, the Gall Bladder Meridian, according to Dr. Diamond, is the meridian of adoration, and involves the affirmations of “I reach out with love”, as well as “I reach out with forgiveness.”⁴⁴ In *Life Energy*, he comments, “We can think of Forgiveness as releasing anger and giving love.”⁴⁵ Most importantly, Dr. Diamond notes that Forgiveness transmutes anger into love.⁴⁶

Hawkins remarks that it is through forgiveness that one is forgiven.⁴⁷ Releasing a block in one aspect of forgiveness can affect the other aspects.

Ruiz, in *The Mastery of Love*, notes that the only way to clean and heal one's emotional wounds is through forgiveness. When we were children (which, as previously discussed, is the time period when we simply lived love), forgiveness was our natural instinct. Drawing a parallel to love, Ruiz notes that forgiveness is innate, and not learned. Ruiz describes an exercise in forgiveness that this author recommends if the Forgiveness subcomponent of The Emotional Equation frequently weakens the indicator muscle (as described in the procedure section of this paper). First, have the patient make a list of all the people the patient believes he or she needs to ask forgiveness, and have the patient ask those people for forgiveness. Then have the patient make a list of all the people he or she needs to forgive, and have the patient forgive them, even if only forgiven in the patient's own heart and not in person – as long as it is sincere. Additionally, have the patient forgive him or herself.⁴⁸ This author recommends this entire exercise no matter which subcomponent of forgiveness presents itself. Ultimately, they are all tied together.

Forgiveness is then broken down further into four subcomponents: Forgiving Others, Forgiving Oneself, Receiving Forgiveness from Others, and Receiving Forgiveness from Oneself. The first two subcomponents present in patients at a greater frequency than the latter two, but nevertheless, the latter two do present at times, even if infrequently.

b. Acceptance

Upon various discussions with a clinical psychologist, Joanne Galst, Ph.D., this author kept insisting that Love is simply uncovered by forgiveness. She disagreed, instead placing great importance on self-acceptance. This author inquired how to uncover Self-Love. She answered that the only way to truly love oneself is through self-acceptance.⁴⁹

Tony LeRoy, prominent spiritual advisor and intuitive counselor in New York City, favors the concept of Acceptance as being a necessary step on the path to uncovering one's true inner love. He echoed Dr. Galst's sentiments. According to Mr. LeRoy, although he is a huge advocate of forgiveness, he feels that the key to finding true innate Love is Acceptance.⁵⁰

Ruiz notes that once self-acceptance begins, self-love grows.⁵¹ Ruiz gives additional support by observing that contained within love is "accepting who you are, and accepting everyone else the way he or she is."⁵²

Like Forgiveness, Acceptance can also be further broken down into subcomponents: Acceptance of Oneself, Acceptance of Others, Receiving Acceptance from Oneself, Receiving Acceptance from Others, Acceptance of One's Persona, and Acceptance of What Is.

There is a study called Kokology in which one uses seemingly innocent questions to reveal personality traits. For example, the characteristics used to describe a favorite color may reveal how one believes or wants others perceive him or her. Characteristics used to describe a favorite domestic animal may reveal how this person views him or herself. The discrepancy between the two sets of answers reveals the discrepancy between how that person views his or her true self compared to their persona. When there is indeed a misalignment of the two, emotional stressors in the arena of self-acceptance may occur. While these emotional blocks may reveal themselves when mentioning Acceptance of Self or Receiving Acceptance from Self, there are instances when mentioning acceptance of persona unmasks these blocks.

Readers of Tolle and other authors who focus on the “Now” or Universal Presence are familiar with the concept of Acceptance of What Is. Hawkins praises Acceptance as “the great healer of strife, conflict and upset.”⁵³ It is tied into Humility (under the subcomponent of The Will), as Humility means that we will not understand all events or occurrences, and simply accept them as they are. Hawkins notes the importance of viewing Acceptance as non-positionality instead of passivity, which can lead to apathy. Further exemplifying the importance of Accepting What Is, one of Dwoskin’s techniques employed in *The Sedona Method*[®], is letting go of the **Wanting** to change things as they are, or how they occurred. Letting go of wanting to change events leads to serenity.⁵⁴ Relating this to clinical practice, a patient may be stressed about job loss, relationship loss, financial conditions, and so forth. This patient, in wanting to change things, may be resisting and not accepting What Is.

Acceptance of What Is is linked to Surrender, the subcomponent of Awakening. Acceptance of What Is involves surrendering the Ego’s Control, and releasing the underlying wants, as presented in the discussion of Surrender.

Levenson adds, “Take full responsibility for whatever happens to you, no matter what it is. You will prove to yourself that you are the master, and you can un-cause or cause what you would like to have caused.”⁵⁵ This relying on internal source as opposed to being victimized by external events can aid in the path to Inner Freedom.

c. Trust

Following with the assumption that Love is inherent within each of us from birth, Diamond points out Erik Erikson’s observation that the most primitive stage of an infant’s development is the stage of basic trust vs. mistrust. Diamond terms this first stage of ego development as envy vs. trust.⁵⁶ Thus, Trust becomes a subcomponent of Love.

d. Pure Giving

Levenson, in *Love: What Is It?*, comments, “Love is equal to the feelingness of givingness without the expectation of the receiving for the giving. Love is giving with no strings.”⁵⁷ Using this wonderful definition of Love, this author employs Pure Giving as a subcomponent of Love.

II. Awakening (Awakened Doing)

Tolle equates Awakened Doing, here forth simply referred to as Awakening, to the alignment of one’s outer purpose with his or her inner purpose. It is the next stage of the evolution of consciousness. With awakening, one becomes One with Universal Purpose. Consciousness can flow through the person, through thoughts, guiding and empowering actions.⁵⁸ Without this awakening, actions are dysfunctional and of the Ego.

As previously mentioned, Tolle names three modalities through which consciousness flows through our actions and into this world: Acceptance, Enjoyment, and Enthusiasm. In the Emotional Equation, Acceptance is used as a subcomponent of Love. As the components are linked, the subcomponent of Acceptance, like other subcomponents, underlies more than one component alone. It need only be tested once, and the practitioner may decide on his own that he or she feels more comfortable placing it under the heading of a different component, so long as it is tested. Surrender, as mentioned shortly in this paper, plays an integral role in spiritual advancement, and thus is placed under the component of Awakening.

a. Joy

Tolle comments that enjoyment of what one is doing will turn peace into a sense of aliveness. Joy replaces the Wants (which one releases upon full Acceptance) as the motivator behind actions. Tolle labels Joy as the dynamic aspect of Being.⁵⁹ Furthermore and importantly, one experiences expansion and positive change on the surface level when joy underlies one's actions and activities, as opposed to the cliché' waiting for a change or an event (for example, getting a raise, buying a car, winning the lottery) to happen so that one can begin to enjoy life. Tolle makes a very important point in commenting that "Joy does not come from what you do, it flows into what you do and thus into this world from deep within you."⁶⁰

Many people live in frustration and anguish because they view joy and happiness as an external end product, and not as a factor derived from within. A patient who repeatedly complains of the stress of life and/or feels insignificant has not experienced the joy of Being inherent in every person. If the patient repeatedly presents with a block at the subcomponent of Joy, try an exercise recommended by Tolle. Have the patient make a list of everyday routine activities (but exclude activities that the patient absolutely hates, in which case there may be an additional block at Acceptance) and then instruct the patient to be fully present in those activities and sense their inner aliveness.⁶¹ Following this exercise, even the tedious activities may become enjoyable, and the patient's outlook on life itself will change.

When a patient tests positive for having a block at Joy, have the patient think about something will give them joy, either real or imagined. The patient may also be instructed to think about something that would ordinarily bring him or her joy. In either case, the goal and not the present activity or situation is the external source of joy, and the Ego has overtaken the patient. Correction as outlined in the procedure section remedies this Egoic control and results in the patient responding with a different, more beneficial outlook and attitude.

b. Enthusiasm

Tolle equates Enthusiasm as the combination of Joy with an intended goal or vision. Enthusiasm is separate from Joy in that it carries, as Tolle observes, a different vibrational frequency. Tolle likens Enthusiasm to an arrow moving towards a target (with the enjoyment of the journey).⁶² When the anticipation of the goal exceeds the joy of the journey, the result is stress and a diminishment of Life Energy. This resultant stress, according to Tolle, is a sign of the return of the Ego and the separation from the creative power of the universe.⁶³

Enthusiasm is linked with other components, such as Acceptance. Enthusiasm towards a goal is devoid of Ego. If the goal is to Have something, then there are underlying wants which have to be released (as seen in Acceptance) before true ego-less Enthusiasm can occur.

Tolle likens Enthusiasm as the "power that transfers the mental blueprint into the physical dimension."⁶⁴ This definition empowers many followers of *The Law of the Attraction*, as well as *The Secret*. In fact, the first one-third of *Manifest Your Desires*⁶⁵ by Esther and Jerry Hicks repeats the importance of letting go of the Wanting of the goal, of the attachment to the goal, both which involve the letting go of The Ego, in order to manifest. Thus, the subcomponent of Enthusiasm is linked to Acceptance of What Is, as well as Surrender.

c. Surrender (Letting Go of Attachment/Resistance)

Letting go of resistance, according to Hawkins, is the "keystone of all spiritual progress as well as success in the world."⁶⁶ Hawkins further illuminates, "The awareness of the presence of God is preceded by

surrender...In Zen, it is said that heaven and hell are only a tenth of an inch apart. It is often in the pit of despair that the ego lets go so that all crises can be turned into the opportunity of spiritual discovery.”⁶⁷

Letting Go of Attachment is not to be confused with detachment or indifference, which leads to apathy. Nonattachment, or letting go of attachment, according to Hawkins, allows full participation in life without trying to control outcomes. Nonattachment leads to serenity and peace of mind.⁶⁸

In one of the techniques utilized in *The Sedona Method*[®], letting go of attachment involves not only letting go of the feelings generated by a person, place, or thing (such as an event or object), but also involves letting go of the five basic wants underlying each feeling: the want of control, the want of approval, the want of security, the want of separation, and the want of oneness.⁶⁹ Dvoskin uses a diagram entitled “The Imaginary Tree of Limitation.” In which the basic wants are the soil surrounding the tree as well as the roots of the tree, the branches are the Emotional Stages of Freedom, and leaves are the resultant thoughts and feelings that limit each and every one of us.⁷⁰ The attainment of Freedom is within reach when one is able to fully release or let go of these basic wants.

III. Compassion

Ranked a great virtue in numerous philosophies, compassion is considered in all the major religious traditions as among the greatest of virtues. In the Buddhist tradition, compassion is the appropriate practical response to Dukkha, or the truth of suffering, the first of the Four Noble Truths. The ultimate wish manifest in the Buddha, as reported in *Wikipedia*, is to relieve suffering of all living beings everywhere. *Wikipedia* also quotes the Dalai Lama as saying, “If you want others to be happy, practice compassion. If you want to be happy, practice compassion.”⁷¹ Additionally, *Wikipedia* quotes the remarks of noted American monk Bhikkhu Bodhi, “Compassion supplies the complement to loving-kindness.” In both the Christian and Jewish traditions, God is the Father of Compassion. In the Koran, all but one chapter begins with “In the name of God the Merciful, the Compassionate.”

In *Walking Between the Worlds: The Science of Compassion*, Gregg Braden notes a hallmark of compassion is the ability to witness an event in the absence of judgment, and emphasizes that there can be no single definition for compassion.⁷² He further writes, “Your enormous force of potential is activated and regulated by you through the manner in which you choose to conduct your life.”⁷³ He notes that according to ancient writings, compassion is that which we allow ourselves to become, and not something externally performed, gained, or accomplished.⁷⁴ Braden further emphasizes the extreme importance of compassion: “The vitality of our body, the quality of our blood and breath, our choice of relationships and emotion, even our ability to reproduce appears to be directly linked to our ability to embrace the force of compassion in our life. To the degree that you embrace compassion in your life, change passes gracefully, with ease.”⁷⁵

Braden suggests that one becomes compassion itself through reconciliation within oneself and coming to terms with life. In this paper, this author likens reconciliation with Surrender, a subcomponent of Awakening (or Awakened Doing), and the coming to terms with life with Acceptance of What Is, a subcomponent of Love. As previously stated, many of the subcomponents can fit into more than one category, and all subcomponents are inextricably linked. As long as these subcomponents are tested, rigid particular placement is non-essential, and the practitioner may use creative license, as long as all components and subcomponents are tested. Likewise, many sources list Love either as a prerequisite to or as a component of Compassion. In that Love has many subcomponents itself, and that Mother Theresa named it separately from Compassion in the original quotation from which the Emotional Equation was derived, Love is listed as a component separate from Compassion. Again, as the components are all ultimately linked to each other, the practitioner may use

creative license. The Emotional Equation as presented provides an easy to use organizational tool for testing the patient against the components. The subcomponents of Compassion were provided by a friend, Dayna Kalmus, who remarked during a personal conversation, “Compassion is made up of sympathy, empathy, and understanding.” This comment resonated with the author.

a. Sympathy

Sympathy is a form of caring. It implies a concern for others. A feeling of sympathy for someone else’s pain brings out the heart in each of us. A feeling of sympathy may also inspire one to try to understand (which then leads to empathy). However, it also implies separation between oneself and the maligned, as sympathy is a feeling without a knowing of what to offer to support. In displaying compassion, one must move beyond the separative shield of sympathy and into empathy. If one is incapable of having sympathy, understanding and empathy may consequentially be an impossibility.

b. Understanding

Martha Lasley’s *Authentic Communication* model is based on the work of Marshall Rosenberg, author of *Nonviolent Communication: A Language of Life*. In her model, she notes Rosenberg’s suggestion that understanding each other’s needs can open the door to new visions that can satisfy all.⁷⁶ In order to identify a need, there must be understanding of the need. Empathy for others follows the identification of a need.

c. Empathy

Merriam-Webster Online Dictionary defines empathy as: “1. The imaginative projection of a subjective state into an object so that the the object appears to be infused with it. 2. the action of understanding, being aware of, being sensitive to, and vicariously experiencing the feelings, thoughts, and experience of another of either the past or present without having the feelings, thoughts, and experience fully communicated in an objectively explicit manner; also: the capacity for this.”⁷⁷ Hence, in empathy, there is no point where one ends and another begins. There is interconnectedness and universal presence.

IV. The Will

Hawkins refers to The Will as the seat of power of the self as it extends to mind. The Will determines destiny and/or karma. At the level of The Will, the formless qualities of love, devotion, gratitude, humility, inspiration, and faith meet with the mind’s forms: ideas, thoughts, memories, conflicts, and images.⁷⁸ The only space from which to address the mind is from the Will.

a. Gratitude

On their website, The ToDo Institute’s Resource Library for Japanese Psychology and Purposeful Living cites Gratitude as being the essence of good mental health and spirituality.⁷⁹ Diamond, in *Life Energy*, notes that in *First Principles of Religion and Morality* (1878), author John Page Hopps suggests, “gratitude urges us to repay kindness.” Diamond further adds that the gratitude expressed in a “thank you” is returning love with love.⁸⁰

James Arthur Ray, in *The Science of Success*, a self-help book utilizing spiritual principles to enable one to reach goals, lists continuous gratitude as one of the major principles in achieving success. He refers to gratitude as the mother of all life’s benefits., which include health, love, happiness, affluence, and prosperity. Gratitude, according to Ray, sets up an attractive force unlike any other. When is it lacking, the entire system will be thrown into a negative vibration.⁸¹

b. Humility

Hawkins, in *The Eye of the I*, explains humility is an awareness of the limitations of the mind and appearance.⁸² This awareness is one of our experience of life which is filtered through perception and thoughts. The realization that the Ego and its perceptions merely belongs to the One who is experiencing it and is not the One (him or herself), is a huge step on the way to the Truth, or Freedom. Inherent in humility is seeing one's life as the evolution of spiritual consciousness.

The power of prayer carries a healing energy. Supplication as involved in prayer is an act of humility. In prayer, the ego's control is given up to a higher power.

If the patient tests positive for Humility, do not confuse it with Humiliation. Ask the patient to think of whatever the word Humility, or the concept of Having humility, means to him or her, or simply whatever comes to mind when the word humility is mentioned, and instruct the patient that it is not to be confused with any type of humiliation. If the patient is still confused, ask the patient to think of simply being humble, or an event or situation, real or imagined, in which the patient should act with humility or in a humble manner; or ask the patient if he or she feels anyone in their life should act with more humility (in many cases, the external world is a mirror of the inner self).

c and d. Devotion and Inspiration

Hawkins writes, "The will is activated and empowered by devotion, and it responds with inspiration."⁸³ When the patient presents with a block at either Inspiration or Devotion, ask the patient to think of something that he or she would normally be inspired to do or devoted to, real or imagined. Remember that whatever meanings the patient gives to Devotion and Inspiration is the correct meaning. It is what is to the patient in that moment. Devotion and Inspiration should be tested separately and not together.

The Levels (as presented by Dr. David Hawkins' Map of Consciousness⁸⁴)

Following the discovery of the component blockage which weakens the indicator muscle (as described in the procedure section), the practitioner will now determine which Level of Consciousness negates the weakness. Above the Level of Peace (600), it may be necessary to test in terms of numerical values instead of words/labels, testing in increments of 10 units. Above the Level of 800, it is advisable to test in increments of 5 units, and above the Level of 850, to test in increments of just 1 unit.

700–1000	Enlightenment
600	Peace
540	Joy
500	Love
400	Reason
350	Acceptance
310	Willingness
250	Neutrality
200	Courageousness – POWER/INTEGRITY BEGINS HERE (and includes all higher levels)
175	Pride – THIS IS THE HIGHEST LEVEL OF FORCE
150	Anger
125	Lust
100	Fear
75	Grief
50	Apathy
30	Guilt
20	Shame

Note: Dr. Hawkins uses a much more elaborate “map” with many elements involved. For further insights into his Map of Consciousness, please refer to his work, *Power Vs. Force. The Sedona Method*[®], authored by Hale Dwoskin, utilizes these same Levels, presented as Emotional Stages of Freedom,⁸⁵ as coined by Lester Levenson, originator of The Sedona Method[®], but does not include numerical values nor does it include the separate and distinct levels of Shame, Guilt, Neutrality, Willingness, Love, Joy, and Enlightenment. Dwoskin puts different emotional states, such as manipulative, frantic, horrified, reckless, and so forth, under each separate Emotional State, or Level of Consciousness as referred to by Hawkins.

Hawkins warns that the Levels of Shame, Guilt, and Apathy are seen in people with suicidal thoughts or tendencies⁸⁶. The only three times this author has witnessed patients presenting at these Levels, the patients did indeed confirm that they had recently contemplated suicide. The practitioner may consider extensive treatment of the Emotional/Mental side of the Triad, as well as referral to a mental health specialist, such as a licensed clinical psychologist or psychiatrist. It should also be noted that these patients did not experience the suicidal thoughts again with continued treatment of the overall person using Applied Kinesiology procedures including The Emotional Equation.

The practitioner may choose to explain some of the basics of the Map of Consciousness or of certain Levels to the patient. Any Level below that of the numerical value 200, which is operating from Force as opposed to Power, causes a counter-reaction, as it is a law of Newtonian Physics that Force results in an equal and opposite counterforce. Operating from force also fortifies a Victim mentality, that is, everything is dependent upon external forces. Anything above 200 supports life and is constructive. Anything below 200 is destructive. Any Level below 250 leads to polarity and division. By the 500 Level, the happiness of others emerges as the primary motivating force.⁸⁷

By operating at a higher Level of Consciousness, one will act with greater clarity. For example, this author, when operating at a Level of Love, had his wallet stolen, including a large amount of cash. An immediate check of Level calibration did not reveal any decrease in Level, but an hour later the Level had decreased to Reason (an application of the Emotional Equation raised the Level back to Love.). Instead of going into a state of frenzied panic, this author calmly plotted out a plan of action. There was no despondence at any point. Instead of experiencing victimization, this author took responsibility for being careless and having a certain amount of cash in his wallet. The main take-away is that despite slipping a Level, a positive attitude and clear Reasoning prevailed, as the original Level was high to begin with. In a hypothetical example, someone operating at Neutrality may experience a traumatic event. Instead of slipping into Grief and engulfing oneself with sadness, this individual may slip into Courage, Pride, or Anger, and at least take some sort of positive action.

This author strongly advises a reading of Hawkins’s *Power Vs. Force*, and at least the first part of Dwoskin’s *The Sedona Method*[®] for thorough discussion of The Map of Consciousness or The Stages of Emotional Freedom. Here are some basics of each Level, as taken from Hawkins’s *Power Vs. Force*⁸⁸ and *The Eye of the I*,⁸⁹ as well as Dwoskin’s *The Sedona Method*^{®90}:

20 Shame

- Suicide, Avoidable Accidental Death
- Wishing we were invisible
- Produces Neurosis, Psychosis
- Makes one prone to the development of physical illness
- Shy, withdrawn, introverted

- Accusatory, Paranoid
- Compensation reactions become perfectionism, rigidity, driven, intolerant – moral extremists, vigilante groups, serial killers
- May produce false pride, anger, guilt

30 Guilt

- Used to manipulate and punish
- Victim mentality
- Psychosomatic Disease, Accident-Proneness, Suicidal Behaviors
- Pre-occupation with sin, and an unforgiving emotional attitude; obsessed with punishment (religious organizations who coerce and control)
- Guilty until proven innocent; destroying victims in the press/media
- Guilt provokes rage

50 Apathy

- Poverty, Despair, Hopelessness, Helplessness
- Numbness
- Energy is dependent upon external sources
- No will to live, feeling of: why try?
- Extreme procrastination
- Resigned to chronic disease in last stages
- Homeless people

75 Grief

- Sadness, Loss, Despondency
- Heartache, Hurt, Melancholy, Feeling of Being Unloved
- Living a life of constant regret and depression
- Level of Mourning, Bereavement, and Remorse about the past
- Habitual losers, chronic gamblers who lose everything
- In Grief, we see sadness everywhere, we look for it.
- Notion of the lost being irreplaceable
- Grief is higher than apathy – so when a traumatized apathetic patient cries, we know he or she is getting better.

100 Fear

- Fear of danger is healthy – better than apathy, grief
- Fear limits growth of the personality and leads to inhibition
- Fear keeps you separate from your world, from those that you love, from feeling good about yourself, and from your Creator (Braden)⁹¹
- Feelings of Anxiety, Apprehension, Timidness, Tension, Vulnerability

125 Lust

- Want of Control
- This is the level of addiction
- Desire for approval translates into Neediness
- This level is insatiable – once we get something we want, we immediately want something else – Spouses at this level are unfaithful

- Feeling Compulsive, Craving, Demanding, Possessive, Pushy
- Multimillionaires obsessed with acquiring more and more money
- “Wanting” can start us on the road to achievement

150 Anger

- Wanting transmutes into anger as Wanting breeds Frustration which in turn leads to Anger
- Condemnation, Jealousy, Brooding, Merciless, Disgust, Argumentative
- Anger may lead to Rage, which can erode a person’s life
- Anger may be manifested as Resentment, Revenge, Irritability
- You might not want to let go of the anger for fear of letting the other person off the hook – the only one on the hook is really YOU
- Supremacist Groups

175 Pride

- The first level where people feel positive
- Most military entities, including the US Marines
- Pride feels good ONLY IN CONTRAST TO THE LOWER LEVELS
- Pride enables the mind to resist change; blocks growth; gets in way of our ability to love, which can happen only when we stop condemning, fearing, and hating.
- The arch-enemy of peace is the self-justified or Righteous Personality
- Disdain, Superiority, Uncompromising, Rigid, Hypocritical
- Arrogance and Denial
- Hate stems from Pride, not from Love

200 Courage

- The first level of Power and Integrity
- Empowerment, exploration, accomplishment, fortitude, determination
- Growth and Education
- Adventurous, Alert, Competent, Confident, Internal Strength
- Courage to face the Truth
 - Revealing the Truth dissolves dishonesty and dissipates Ignorance

250 Neutrality

- Flexibility, and ability to be non-judgmental
- Unattached to outcomes (this is separate from Detachment, which leads to Apathy)
- **Inner Confidence begins here**
- Sample attitude: “If I don’t get this job, then I will get another”
- A sense of Well-Being, A sense of safety
- Any meaningful satisfaction first begins at this level

310 Willingness –

- The Gateway to the Higher Levels
- Willingness to allow for possibilities creates an opening that paves the way for new possibilities, new actions, and a higher response to life’s offering (Braden)⁹²
- Growth and Advancement; Promotions in job
- Overcoming Inner Resistance and committed to participation
- Recovery from any disease process is dependent on willingness to explore new ways of looking at one’s self and life – this includes the capacity to endure inner fears when belief systems are shaken.

- Willing to face inner issues and clear of major learning blocks
- Self-esteem high; they can let go of defects and learn from others
- Excellent Students

350 Acceptance

- Sufficient energy to solve problems
- The understanding that one is the source and creator of the experience of one's life
- More important to resolve issues than to determine what is right and wrong
- Feeling Balance, Harmony, Receptive, Having
- Feeling of Everything is OK

400 Reason

- Intelligence and Rationality
- Reason, Logic, and Scientific Information Prevail
- Nobel Prize winners, Statesmen, Supreme Court Judges
- At this level we may become infatuated with concepts and miss the point
- The intellect itself is very self-limiting. A dependence on intellect will at most achieve a calibration of 499; To go beyond 499 requires thinking in a non-linear and non-Newtonian context
- Possibility of getting caught in a dead end of data

500 Love

- Gives rise to compassion
- When frustrated at this level, a masked anger and dependency may show
- Unconditional love, unchanging, permanent
- Capacity to lift others
- Core of an issue, rather than particulars, becomes focus
- Dissolves negativity
- Only 0.4% of the world's population has reached this level of consciousness
- Purity of Motive
- Altruism, Dedication to Principles
- it is worth listening to anyone who calibrates at over 500
- A feeling of: No one to blame and nothing to feel guilty about

540 Joy

- Manifestation and Attraction occurs at this level
- Level of healing and of spirituality-based self-help groups
- Healers
- Patience
- Positive attitude in the face of adversity
- Compassion is hallmark of this level
- Benefit for life and the masses rather than benefit individuals
- Discovery that the more one loves, the more one can love
- Near death experiences have transformed people to experience 540-600
- Inspirational Leaders
- It is at this Level that we begin to get immersed in spiritual pursuit

600 Peace

- Natural state of affairs where that which prevents peace is removed
- One in ten million people
- Transcendence, self-realization, and God Consciousness
- Formal Religion replaced by pure spirituality
- All is alive and radiant
- Everything is connected to everything else by a Presence whose power is Infinite, exquisitely gentle, yet rock-solid
- Compassion
- Feeling Timeless, Centered, Complete, Boundless

700–1000 Enlightenment

- No longer the experience of an individual personal self separate from others – rather there is an identification of Self with Consciousness and Divinity
- Transcendence of the Ego
- A realization that there is no separation between the Creator and Creation.
- The peak of the evolution of consciousness
- Grace and Infinite Peace
- Ability to give great teachings which influence the masses and raise the level of awareness of all humanity
- Complete Oneness

We meet what we mirror. In Guilt, we may blame someone else for their position in life. In Fear, that same person may seem menacing. At Pride, we may see this person as embarrassing or consider ourselves superior to him/her and treat him/her with disdain. In Neutrality, we may simply let that person be. In Reason, we might wonder how this person's situation occurred, if they have an interesting story, and we might be able to help. We can easily see that our experience of life depends not on what we experience but our state. If one's Level rises, then the potential for an enhanced enjoyment of life is boundless. At the higher levels, conflict is resolved by understanding and compassion, while at lower levels it is resolved by persecution and belligerence.⁹³

As described later in the Step-By-Step Procedure, once the practitioner determines the Level of Consciousness, it is time to determine and treat the indicated acupuncture head point and Chapman's Reflex area. Have the patient **feel** the indicated Level. It is important to tell the patient, "it's more about feeling and less about thinking." In the case of the Level of Reasoning, the practitioner may wish to say something like, "Feel Reasoning. Imagine you were a great thinker, like Descartes or Aristotle."

Once the indicator muscle weakens, instruct the patient to think about the subcomponent. It is important to use the phrases, "if you were able to," "in this moment," "just for now," and "allow yourself to." This will allow to patient to grant him/herself permission to think about something, even if it produces discomfort. It also lets the patient know, that the "uncomfortable thinking" will happen just for a moment. When asking a patient to "allow him/herself" to do something, the patient is not made to feel as if he or she is thinking under orders, but will do so anyway because the patient has just given himself or herself permission to do so.

Once the patient is thinking in line with the indicated subcomponent, the weakened indicator muscle now strengthens again. At this point, find the acupuncture head point(s) that again weakens the indicator muscle (the patient still thinks about the component while feeling the Level). The practitioner may wish to use Pulse Points first and then confirm on the head, or simply challenge the acupuncture head points (or have the patient Therapy Localize them). Now have the patient therapy localize the correlated Chapman's Reflex

areas (for organs of BOTH coupled meridians corresponding to the acupuncture headpoint) individually, and test each one looking for the indicator muscle again to weaken. If the headpoints for Triple Heater weaken the indicator muscle, test Thyroid AND Thymus separately (for Triple Heater) as well as Adrenals AND Reproductive Organs separately (for Circulation/Sex).

If the practitioner wishes to supplement the patient with flower essences, testing of floral essences (this author has used Flor-Alive and Bach) is appropriate after finding the acupuncture head point and Chapman's Reflex but before treating them. For a more detailed description of finding the indicated floral essence, see the procedure section. To this date, although specific flower essences correlate to certain thought patterns and processes, no definite correlations to specific Levels of Consciousness have been found. Test the flower essences against the indicated Level of Consciousness and not the indicated component. The indicator muscle will at first weaken when the patient feels the Level of consciousness (and does not think about the component), and then will strengthen upon exposure to the correct flower essence. Recommend that patient use the flower essence for two weeks.

After recommending the appropriate flower essence(s), the practitioner once again instructs the patient to feel the Level and think about the subcomponent. As the patient thinks and feels, the practitioner taps the acupuncture head points (Beginning and End points may also be used; no significant difference has been seen in using the Beginning and Ending points as opposed to the simply the Acupuncture Head Points), and then performs IRT with the patient therapy localizing the Chapman's Reflex area.

The practitioner asks the patient to sit up, and the practitioner now has the patient therapy localize to the alarm points correlating to the Chapman's Reflex Area. If the points are bilateral, only one should present with positive therapy localization. The patient is not thinking or feeling, and the therapy localization will weaken the strong indicator muscle. At this point, the practitioner may choose to test nutritional supplements for strengthening of the indicator muscle while the patient maintains the therapy localization of the alarm point. This author chooses to test various teas instead. Tea, from both personal experience as well as feedback from patients, has both a calming and soothing effect (make sure the tea is caffeine-free), as well as CONTINUING to elevate the Level of Consciousness following treatment. The practitioner may tell the patient to consume the tea as soon as possible, and have several cups throughout the day as well as the following two days. There is a specific correlation between the teas and the alarm points. These are listed in the discussion of the alarm points and their corresponding affirmations, as found by Dr. John Diamond. This author has found that Triple Leaf teas and Celestial Seasonings have the greatest effect. It should be noted that this author has no affiliation nor receives any type of reward, financial or otherwise, for noting the usage of these brands of teas, or recommending them in clinical practice. They are simply and honestly the teas that were found to have the greatest effect, through trial and error, and kinesiological testing.

Once the practitioner finds the indicated alarm point have the patient recite the individual associated affirmations, as determined by John Diamond, MD, Ph.D. in *Life Energy*. One of the affirmations should strengthen the weakened indicator muscle. If none of the positive affirmations negate the weakness, then refer to the negative attitudes associated with that particular meridian, and ask the patient, "In your own words, what is the opposite of (name the negative attitude)." Now have the patient recite their own affirmation. For example, for the Bladder alarm point, if the indicator muscle does not strengthen upon any of the Bladder affirmations, use a sample negative attitude, such as restlessness. Ask the patient "What would be the opposite of restless?" If the patient says, "Still," then have the patient recite, "I am still." The practitioner should proceed in this manner until he or she finds the appropriate affirmation.

Have the patient silently repeat the affirmation, while one hand therapy localizes the alarm point, and the other hand covers the forehead so as to therapy localize both the emotional neurovascular points. This is similar to Dr. Scott Walker's Neuro-Emotional Technique, except that use the alarm points and affirmations provided by Dr. Diamond's Life Energy. With the patient in position and silently reciting the affirmation, tap the transverse processes of the vertebrae indicated by Dr. Victor Frank's *Total Body Modification* Sequence patterns, also employed by Dr. Scott Walker's *Neuro-Emotional Technique*. Tap the transverse processes using either fingers, a double-pronged activator, or an instrument such as the Arthro-Stim. Tap with the patient in neutral respiration, inhalation, and exhalation.

*Life Energy Alarm Points and Affirmations, from Dr John Diamond's Life Energy*⁹⁴ and associated Teas and Victor Frank TBM Sequences⁹⁵

(Note: This author highly recommends a thorough reading of Dr. Diamond's *Life Energy* in order to fully grasp all concepts instead of merely looking at an outline).

BILATERAL MERIDIANS

Lung

Negative	Positive
Disdain	Humility
Scorn	Modesty
Contempt	Tolerance
Haughtiness	
False Pride	
Intolerance	
Prejudice	

Positive Affirmations:

I am humble.
I am tolerant.
I am modest.

Sequence: Left: T1, T8, L2; Right: T2, T9, L3

Teas: White Tea, Cold/Flu Teas, Sugar Balance Tea, Ginseng, Horny Goat Weed

Liver

Negative	Positive
Unhappiness	Happiness
	Cheer

Positive Affirmations:

I am happy.
I have good fortune.
I am cheerful.

Sequence: T2, T5, T8

Teas: Liver Detox Teas, Horny Goat Weed, Cholesterol Reducing Teas, Ginseng

Gall Bladder

Negative	Positive
Rage	(Reaching out with) Love
Fury	(Reaching out with) Forgiveness
Wrath	Adoration

Positive Affirmations:

- I reach out with love.
- I reach out with forgiveness.
- I come forward with love and forgiveness.

Sequence: T4

Teas: Liver Detox, Ginseng, Horny Goat Weed

Spleen

Negative	Positive
Anxiety about future	Faith (about the future)
	Confidence (about the future)
	Security

Positive Affirmations:

- I have faith and confidence in my future.
- I am secure.
- My future is secure.
- I have faith and courage in my future.

Sequence: T1, T5, T9

Teas: Echinacea/Cold/Flu Teas, anything dealing with Immune support, Horny Goat Weed, Sugar Balance, Ginseng, Green Tea

Kidney

Negative	Positive
Sexual Indecision	Sexual Security/Assuredness

Positive Affirmations:

- I am sexually secure.
- My energies are balanced. (Note: This affirmation is modified from the original affirmation as listed by Diamond In *Life Energy*: “My sexual energies are balanced.”⁹⁶)

Sequence: T1, T5, T8

Teas: Liver Detox, White Tea, Blood Pressure Teas, Ginseng, Horny Goat Weed

Large Intestine

Negative	Positive
Guilt	Self-Worth
Obsessional thinking	

(Note: While Diamond does not list Obsessional thinking as a negative emotion, he mentions “People who feel guilty tend to be obsessional.”⁹⁷)

Positive Affirmations:

I am basically clean and good.
I am worthy of being loved.

Sequence: L5

Teas: Colon Cleanse, Detox, Ginseng, Sugar Balance Teas, Ginger

MIDLINE MERIDIANS

Circulation-Sex

Negative	Positive
Regret and Remorse	Renunciation of Past
Sexual Tension	Relaxation
Jealousy	Generosity
Stubbornness	Kindness

Positive Affirmations:

I renounce the past.
I am relaxed. My body is relaxed.
I am generous.
That is done. It is the past. I will let it go and move on in the present.
My mind is wholly disconnected with things of the past.

Sequence: T7, T9, T11

Teas: Blood Pressure/ Teas, Vitality, Horny Goat Weed, Ginseng, Relaxing Teas,

Heart

Negative	Positive
Anger	Love
	Forgiveness

Positive Affirmations:

I love.
I forgive.
There is forgiveness in my heart.

Sequence: T2, T8, T12

Teas: Blood Pressure, Horny Goat Weed, Ginseng

Stomach

Negative	Positive
Disappointment	Contentment
Disgust	Receiving Enough
Greed	Having Enough
Bitterness	Tranquility
Emptiness	
Deprivation	
Nausea	
Hunger	

Positive Affirmations:

I am content.
I am tranquil.
I have enough. What I have is sufficient.
I am thankful for what I have now.
I am thankful for having enough now.
I am enough.*
I am satisfied.*
(* added by this author)

Sequences: T8, T10, T12

Teas: Digestion, Sinus Congestion, Ginger, Sugar Balance

Thyroid/Triple Heater

Negative	Positive
Depression	Elation
Heaviness	Lightness
Despair	Buoyancy
Grief	Floating
Hopelessness	Hope
Despondency	
Loneliness	
Solitude	

Positive Affirmations:

I am light and buoyant.
I am buoyed up with hope.
I am hopeful.*
I am lifted up by hope.*
(*added by this author)

Sequence: C1, C4, C7

Teas: Green Tea, Vitality, Ginseng, Horny Goat Weed

Thymus/Triple Heater

Negative	Positive
Hate	Love
Envy	Faith
Fear	Gratitude
	Trust
	Courage

Positive Affirmations:

I have love, faith, gratitude, trust, and courage.
I love.*
I am filled with love.*
I trust.*
I am filled with faith and trust.*
(*added by this author)

Sequence: T9

Teas: Immune System Enhancing Teas

Small Intestine

Negative	Positive
Sorrow	Joy
Sadness	

Positive Affirmations:

I am full of joy.
I am jumping with joy.
I am lifted up with joy.*
(*Added by this author)

Sequence: L5

Teas: Detox, Sugar Balance Teas, Ginger

Bladder

Negative	Positive
Restlessness	Peace
Impatience	Harmony
Frustration	Patience
	Serenity
	Calm

Positive Affirmations:

I am at peace.
I am in harmony.
Dissonances and conflicts within me have been resolved. I am balanced.

Sequence: L5

Teas: White Tea

Governing Vessel

Negative

Embarrassment

No affirmations listed. Have the patient make up his or her own based on the opposite of the negative attitude.

Sequence: T3, T6 (from Dr. Scott Walker, N.E.T)⁹⁸

Teas: Gingko Teas

Conception Vessel

Negative

Shame

Shyness

No affirmations listed. Have the patient make up his or her own based on the opposite of the negative attitude.

Sequence: T3, T6 (from Dr. Scott Walker, N.E.T)⁹⁹

Teas: Gingko Teas

Following the entire procedure (which despite the length of this paper, should only take about 3–5 minutes, if that), the practitioner may choose to use N.E.T procedures to determine if there were precipitating events in the patient's life that helped to form concepts that cause current perceptions. For greater detail, please contact N.E.T at 760-944-1030.

When to Use:

Dr. Walter Schmitt and Dr. Kerry McCord, in their *Quintessential Applications of Applied Kinesiology Protocol*, put the step of treating the emotional/mental component at the end of their protocol, following all treatment for the organs, but just before dealing with any fascial elements or the actual vertebral or extra-spinal adjustment. However, in this same protocol, the “emotional step” may be performed while correcting cranial-sacral flow disturbances, if it is indeed found that emotional stressors are primary and are playing a role in the dysfunction of the cranial-sacral mechanism and/or the immune system¹⁰⁰. In either case, correcting neurological injury patterns, neutralizing histamine, allergy, and/or sensitivity reactions, and improving neurotransmitter function should be performed prior to any type of emotional treatment. If a histamine reaction is not neutralized prior to treating emotional factors, deleterious effects, including greater stressful feelings, may occur.¹⁰¹ For further elaboration of their recommended protocol, please refer to the *Quintessential Applications of Applied Kinesiology* manual or Recorded (video) lectures, available from Applied Kinesiology Study Program. As Dr. Schmitt notes in his newsletter, The Uplink, the “emotional correction” is “NOT an optional step.”¹⁰²

The practitioner may choose to perform other Emotional Techniques prior to using The Emotional Equation, depending on the desired length of the treatment session, and the desired portion of the treatment visit devoted to the Mental/Emotional Side of the Triad of Health. This author first checks for and performs

Dr. Victor Frank's General Emotional Treatment and Paged Emotions,¹⁰³ followed by either The Emotional Recall-Quick Fix using Representational Systems as outlined by this author's paper of that title in the 2008 *Annual Proceedings of the ICAK*¹⁰⁴ and perhaps exploring the patient's main stressor(s) using Dr. Scott Walker's Neuro-Emotional Technique. This author then utilizes The Emotional Equation as the very last step of treating the emotional/mental side of the Triad of Health. At the very least, if time is a factor, this author will check and perform the General Emotional Treatment by Frank, followed by The Emotional Equation.

Step-by-Step Procedure:

1. Patient is supine. Practitioner finds a strong indicator muscle, preferably the Pec Major Clavicular. The straight-arm test, as used in N.E.T. may also be used. If the straight-arm test is utilized, the practitioner places his hand on The Thymus, or Heart Chakra. If the Pec Major Clavicular muscle is utilized, the patient therapy localizes The Thymus, or Heart Chakra. In either case, the muscle remains strong. (Note: This author, in other cases, does not favor the straight arm test. However, this author favors the straight-arm test when using the Emotional Equation as it enables the non-testing hand to connect to the patient's Thymus, or Heart Chakra.
2. The Practitioner slowly sounds off the Equation: "Truth is equal to Love plus Awakening plus Compassion plus The Will," and performs a muscle test at the mention of each component (Love, Awakening, Compassion, Will). Strong indicator muscle weakens at one of the mentioned components.
3. Continuing with this position and manner of testing, the Practitioner then names the subcomponents and muscle tests each one. For example, if the patient's strong indicator weakened at the mention of Love, then the practitioner will then proceed with: Forgiveness, Acceptance, Pure Giving, and Trust. Order is not important.
4. If this subcomponent can be further broken down, then test for these further components. For example, if the patient weakened at Acceptance, then the practitioner now tests for: "Accepting Others, Accepting (Your) Self, Receiving Acceptance from Others, Receiving Acceptance From Self, Accepting What Is, and Accepting Your Persona." Now repeat the subcomponent again and test the indicator muscle just to affirm weakness.
5. Practitioner now reads off The Levels of Consciousness, starting from the lowest Level – Shame. The indicator muscle will continue to weaken until the correct Level of Consciousness is found (Apathy, Grief, Fear, Lust, and so forth). It is at this indicated Level where the "stuckness" or block occurs.
6. Pause for a couple of seconds. Now repeat the Level of Consciousness and the indicator muscle should test weak. At this point, the practitioner may choose (or not choose) to test for strengthening using flower essences. More than one flower essence may be found. Patient should take suggested flower essence(s) on his or her own for two weeks or until next visit.
7. Pause for a few seconds. Practitioner now asks patient to FEEL (not think about) the Level of Consciousness. For example, if the Level of Consciousness indicated is Anger, the Practitioner asks the patient to feel angry. If the Level is more abstract, such as Reasoning, the Practitioner may ask the patient to feel Reasoning, as if he or she was a great philosopher or thinker, like Descartes, Aristotle, or Einstein. In the case of Neutrality, the Practitioner may ask the patient to feel neutral, as if everything, JUST FOR THIS MOMENT, is uncharged. When the patient feels correctly, the indicator muscle should again test weak.
8. Practitioner then asks the patient to THINK ABOUT the indicated Equation component while he/she FEELS the Level. Make sure to let patient know that at no point will you ask or try to figure out what

the patient is feeling. This allows the patient complete freedom of thought. Also make sure to let the patient know that this thought is just for the moment. If the patient does not want to think about it, he or she is comforted in knowing that he or she can drop the thought in a moment. For example, if the patient tested for the Level Anger as well as the component of Acceptance of Self, the practitioner may say, "Just in this moment, As you continue to FEEL ANGRY, please THINK ABOUT ACCEPTING YOURSELF. Just so you know, as no point will I ask you or attempt to figure out what you are thinking. Let me know when you have the thought in mind." Note: When asking the patient to think about the component, let the patient know that it may be specific to someone or something, or it may be in general. It is whatever it means to that patient. In most cases, the patient will actually think about a current pressing issue. When the patient has the correct thought block pattern, the muscle weakness will be negated and the muscle will once again test strong.

9. At this point, the organ and correlated Acupuncture Head Point as well as Neurolymphatic (Chapman's Reflex) Area is found. While patient is still feeling the Level and thinking the Thought, the patient can Therapy Localize the different acupuncture head points bilaterally to see which one(s) cause the facilitated muscle to weaken again. Once the point is found, determine laterality. Continuing with our example, the patient feels angry and the indicator muscle weakens. The patient, while trying as best as he or she can to feel angry, thinks about accepting him/herself, and the muscle now tests strong. The Doctor now has the patient therapy localize to the different acupuncture points until a point, in this example we will use LI 20, is found to make the muscle go weak again. The doctor has the patient independently therapy localize the right and left LI 20 points, respectively, checking for weakening of the indicator muscle.
10. Patient therapy localizes neurolymphatic (Chapman's Reflex) points correlated to coupled meridian acupuncture head points until one point is found that once again weakens the weak indicator muscle. Test BOTH Organ Neurolymphatic Points. For Triple Warmer meridian, test Thyroid NL point. For Circulation-Sex meridian, independently test adrenal NL points as well as reproductive organs NL points. Using our example, the doctor will have the patient independently Therapy Localize the Large Intestine and Lung Neurolymphatic points, bilaterally. Only one of the two sets of organ points will cause weakening of the indicator muscle. The doctor will now rest the patient's hands on the indicated neurolymphatic point(s). If only one Neurolymphatic area is indicated, such as the Heart, the patient puts both sets of fingertips on that one area.
11. The Practitioner instructs the patient to continue feeling and thinking. The Practitioner has a choice of tapping the acupuncture head points bilaterally, or tapping the Beginning/End Points on one side only. Neither option has appeared to hold a significant advantage over the other in recent tests. The practitioner taps acupuncture head point(s) 120 times while patient continues to feel the Level, as well as think the blocking thought/Component, and therapy localizing the indicated NL areas. In our example, the practitioner taps the LI 20 points bilaterally, or the B/E points of the Large Intestine meridian on the head and hand of the indicated side only, while the patient therapy localizes the Large Intestine Chapman's Reflexes on the bilateral lateral thighs.
12. Practitioner performs IRT to NL Point/Chapman's Reflex area simultaneously while patient continues to feel the Level and think the Thought. Note: If patient has trouble doing both simultaneously, have them feel the Level first, and then think the thought (component).

13. Practitioner moves patient to a seated position and affirms a strong indicator muscle. The patient Therapy Localizes the alarm point(s) that correspond to the Chapman's Reflex area and the practitioner checks for weakening of the indicator muscle. If there are bilateral alarm points, test each point independently. In our example, the patient would therapy localize first to the Right (does not matter which side is tested first) Large Intestine alarm point and check for weakening of the indicator muscle, and then the Left Large Intestine alarm point and check for weakening of the indicator muscle.
14. If the Practitioner wishes to, Teas and Supplements may be checked now. The indicated Tea or Supplement is that which causes the weakened indicator muscle (while patient maintains contact with alarm point) to test strong.
15. Squirt some water in the patient's mouth to negate any effects of the Tea/Supplement testing. As the patient continues to Therapy Localize the alarm point which caused weakening of the indicator muscle, the practitioner has the patient recite the Life Energy Affirmations¹⁰⁵ as the practitioner tests for strengthening of the weak indicator muscle following each affirmation. This is performed in a "repeat after me" format. In our example, with the patient Therapy Localizing the Left Large Intestine Alarm Point (which caused the indicator muscle to go weak), instruct the patient to "repeat after me," and then recite the following affirmations, testing the indicator muscle after each affirmation is spoken:

" I am worthy of being loved."

"I am loveable."

"I am basically clean and good."

"I am basically clean and pure."
16. Upon finding the affirmation that negated the weakening caused by the Therapy Localization of the indicated alarm point, instruct the patient to keep his or her contact on the alarm point, and in a manner similar to that of Dr. Scott Walker's Neuro-Emotional Technique,¹⁰⁶ the patient puts the palm of the free hand on his/her forehead, encompassing the emotional Neurovascular points. The practitioner instructs the patient to SILENTLY REPEAT the affirmation found in the last step. In our example, the patient would have one hand Therapy Localizing the left Large Intestine alarm point, while the other hand Therapy Localizes the entire forehead (with the intention of covering both emotional Neurovascular points). The practitioner instructs the patient to now "Silently repeat, 'I am worthy of being loved. I am worthy of being loved. I am worthy of being loved,' over and over again."
17. While the patient is holding both the points on the head and body and reciting the affirmation silently, the practitioner, again in a manner similar to that of Dr. Scott Walker's Neuro-Emotional Technique¹⁰⁷ as well as Dr. Victor Frank's Total Body Modification,¹⁰⁸ using either his/her hands, a double-tipped activator instrument, or an IMPAC Arthro-Stim, stimulates Dr. Frank's TBM Sequence points on the Transverse Processes which correspond to that organ. Stimulate first while the patient's breath is neutral, then again while instructing the patient to breathe in, and again while instructing patient to exhale. In our example, the doctor would "adjust" the L5 transverse processes upon neutral breath, inhalation, and then exhalation by the patient while the patient silently recites the affirmation of "I am worthy of being loved."
18. If the practitioner wishes to investigate further, he or she may use investigative techniques used in Neuro-Emotional Technique, in order to find out if there were precipitating events in the patient's lifetime that lead to the block at the indication affirmation. In our example, the patient may ask the body if this "Not worthy of being loved" is the original concept, or if there is was a more original concept. Not wanting

to re-present Dr. Walker's original work and claim it as my own, please refer to seminars and manuals by Dr. Scott Walker and *Neuro-Emotional Technique (N.E.T)*.

19. Retest simply for the Level of Consciousness. Using a strong indicator muscle, simply read off the Levels of Consciousness as performed in Step # 5. Only this time, the strong muscle will go weak. Do not try to further raise the Level of Consciousness. Over-performing this technique will overly inhibit the amygdala. Allow the body and person with the body to process and integrate the corrections. It is common for the patient to increase by one or two Levels in the "Force" Levels, and one full Level from Courage to Joy. Starting at Peace (600), numerical values in increments of 10 points may be tested. Following 850, numerical values in increments of single points may be tested. As the values of the Levels are logarithmic and not arithmetic, as described by Hawkins¹⁰⁹, the numerical increases decrease at higher Levels, yet have an equal, if not greater, effect.
20. Let the patient know that sometimes the effects are not immediate. The patient may feel very subtly more grounded, balanced, relaxed, and/or lighter immediately, but should really notice the effect in about 20–30 minutes. Inform the patient that as he or she now experiences a higher level of consciousness, he or she may feel lighter or even more energetic or happier. The result is unique to each Level, as well as to each individual. Instruct the patient to enjoy the recommended tea, supplements, and/or Flower Essences as soon as possible. In the case of Teas and Flower Essences, a continued raise through the Map of Consciousness may be experienced. For Flower Essences, take the recommended amount as supplied by that company. (For example, Flor-Alive recommends 40 drops per day). Using teas, the patient may continue to drink the teas one after another and will innately know when to stop. Please keep the teas caffeine-free. The teas need only be consumed for a few days.
21. The practitioner may instruct the patient to supplement his or her Awakening in various ways. In addition to the teas, the practitioner may recommend meditation, any type of meditative yoga (this author practices Kundalini Yoga and has found it to provide an excellent adjunct), as well as The Sedona Method[®], which helps the patient to actively let go, or release, aberrant thought and belief programs that are slowing down the body's hardware. The patient may even choose to work on releasing whatever thought patterns or affirmations were found in the office visit.
- 22.
23. (Endnotes)
24. 1 This technique may be used more frequently (every other day) in cases of extreme stress or with patients at lower Levels. From Courage – Joy, the technique may be performed once or twice per week. For the Levels of Peace and above, perform once per week or per two weeks. A person's perspective changes at each level, and too great a change in too short of a time period may be too much to handle. For example, once I achieved 700, I temporarily "shut down" in the social realm, as I was now acting out of a state of Non-Duality, and related to people as well the Universe, much differently.

Table 1 (located on TABLE page) shows the results of hip flexor ROM (patient supine) of four random patients, all four female, who were treated consecutively. Measurement of ROM was taken visually with the examiner passively flexing the supine patient's leg at the hip.

In the findings, there is an increase in ROM measurements bilaterally, including an establishment of greater symmetry. In the first case, there is an elimination of pain and tightness. While these examples show the

release of tension and neurological re-organization in linear terms, what is of greater importance is the non-linear benefit that can be communicated but not measured. Here are three such examples (names withheld due to current HIPPA regulations):

“It’s amazing. I am feeling much more relaxed...I was stressing about all of the bills I have and since I don’t have health insurance- all the bills from that...BUT I am excited b/c I might get a much more lucrative job with benefits so I am thinking positive” – from an email

“I am sleeping quite well (joy!) . . .My golf has definitely improved since I saw you (a direct correlation to my joyful state of mine) and that makes me very happy.” – from an email

“Just thought you would like to know that I had one of the most wonderful days ever Sunday, and I am usually dragging around that day. Monday came and I noticed that I was not able to think some of my old favorite thoughts, like worrying about certain situations, and being bothered by others. For many years I have done a lot of emotional healing, so I know what it is to clear something and how it feels to let it go, permanently. Your work has the same ability to get rid of those old feelings and produce a more positive state of being. It is very exciting.” – from an email

Conclusion

Utilization of The Emotional Equation brings a new facet to the emotional side of the Triad of Health in that it results in an elevation in the Level of Consciousness and a change in overall thought process, or paradigm, as opposed to simply negating the negative effects of a current or past stressor. In releasing blocks associated with thought and feeling patterns within the body’s electromagnetics, it allows for the letting go of the less than beneficial emotional and thought programs within the body’s energetic grids, consequentially allowing access to a new body of information that strengthens connection with life.

Further studies involving a greater number of measurements taken, testing for the facilitation of inhibited muscles, as well as subjective measurement of stress level by the patient need to be performed. As electric potentials may affect pH levels, additional testing involving pre- and post- pH measurements are warranted. Additionally, acupuncture head points often involve eye movement patterns, which after comprehensive research and investigation, may be tied into and enhance the overall treatment.

References

1. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985. p.7.
2. Hawkins, David R., *Power Vs Force*. West Sedona, Arizona: Veritas Publishing; 1995. P. 52.
3. Dvoskin, Hale, *The Sedona Method*. Sedona Arizona: The Sedona Press; 2003. pp. 106.
4. Merriam Webster Online. Merriam-Webster 2008.
5. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985. p.3.
6. Keschner, Matthew G. “Beyond Emotional Recall Quick Fix – Using Representational Systems.” *Proceedings of the ICAK 2008*.

7. Frank, Victor, *Total Body Modification*, Fort Pierce, Utah: Total Body Modification; 2006
8. Hawkins, David R., *Power Vs Force*. West Sedona, Arizona: Veritas Publishing; 1995. P. 57.
9. Hawkins, David R., *The Eye of the I*. West Sedona, Arizona: Veritas Publishing; 2001. P. 173.
10. Tolle, Eckhart, *A New Earth*. New York: New York: Plume, a member of Penguin Group; 2005. P. 290.
11. Tolle, Eckhart, *A New Earth*. New York: New York: Plume, a member of Penguin Group; 2005. P. 290.
12. Braden, Gregg, *Walking Between the Worlds, The Science of Compassion*. Bellevue, Washington: Radio Bookstore Press; 1997. P. 154.
13. Braden, Gregg, *Walking Between the Worlds, The Science of Compassion*. Bellevue, Washington: Radio Bookstore Press; 1997. P. 9.
14. Dvoskin, Hale, *The Sedona Method*. Sedona Arizona: The Sedona Press; 2003. pp.
15. Hawkins, David R., *The Eye of the I*. West Sedona, Arizona: Veritas Publishing; 2001. P. 163-164.
16. Joseph Rael, *The Sound Beings*, Exclusive Pictures/heaven Fire Productions, Video, 1995, Van Nuys, California.
17. Braden, Gregg, *Walking Between the Worlds, The Science of Compassion*. Bellevue, Washington: Radio Bookstore Press; 1997. P. 71.
18. Braden, Gregg, *Walking Between the Worlds, The Science of Compassion*. Bellevue, Washington: Radio Bookstore Press; 1997. P. 132.
19. Braden, Gregg, *Walking Between the Worlds, The Science of Compassion*. Bellevue, Washington: Radio Bookstore Press; 1997. P. 129.
20. Glen Rein, PhD, Mike Atkinson, and Rollin McCraty, Ma, "The Physiological and Psychological Effects of Compassion and Anger," *Journal of Advancement in Medicine*, Volume 8, Number 2, Summer 1995, pp 87-103.
21. Braden, Gregg, *Walking Between the Worlds, The Science of Compassion*. Bellevue, Washington: Radio Bookstore Press; 1997. P. 161.
22. Walther, David, *Applied Kinesiology: Synopsis, 2nd Edition*. Pueblo, Colorado: Systems DC; 2000. P. 235.
23. Braden, Gregg, *Walking Between the Worlds, The Science of Compassion*. Bellevue, Washington: Radio Bookstore Press; 1997. P. XIV.
24. Braden, Gregg, *Walking Between the Worlds, The Science of Compassion*. Bellevue, Washington: Radio Bookstore Press; 1994. P. 29.
25. Braden, Gregg, *Awakening to Zero Point: The Collective Initiation*. Bellevue, Washington: Radio Bookstore Press; 1997. P. 71.
26. Hawkins, David R., *Power Vs Force*. West Sedona, Arizona: Veritas Publishing; 1995. Back cover.
27. Tolle, Eckhart, *A New Earth*. New York: New York: Plume, a member of Penguin Group; 2005. P. 295,296.

28. Hawkins, David R., *Power Vs Force*. West Sedona, Arizona: Veritas Publishing; 1995. P. 52
29. Tolle, Eckhart, *A New Earth*. New York: New York: Plume, a member of Penguin Group; 2005. P. 291.
30. Hawkins, David R., *The Eye of the I*. West Sedona, Arizona: Veritas Publishing; 2001. p. 181.
31. Tolle, Eckhart, *A New Earth*. New York: New York: Plume, a member of Penguin Group; 2005. p 261.
32. Tolle, Eckhart, *A New Earth*. New York: New York: Plume, a member of Penguin Group; 2005. P. 291.
33. Frank, Victor, *Total Body Modification*, Fort Pierce, Utah: Total Body Modification; 2006
34. Braden, Gregg, *Walking Between the Worlds, The Science of Compassion*. Bellevue, Washington: Radio Bookstore Press; 1997. P. 92-95.
35. Ruiz, Don Miguel, *The Mastery of Love*. San Rafael, California: Amber-Allen Publishing; 1999. P. 162.
36. Levenson, Lester , *Love: What Is It?* Sedona, Arizona: Sedona Training Associates.; 1996. Part II.
37. Ruiz, Don Miguel, *The Mastery of Love*. San Rafael, California: Amber-Allen Publishing; 1999. P. 25-26.
38. Ruiz, Don Miguel, *The Mastery of Love*. San Rafael, California: Amber-Allen Publishing; 1999. P. 177-178.
39. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985. Pp 3-10.
40. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985. p.29.
41. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985.
42. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985. p.150.
43. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985. p.10.
44. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985. p.117.
45. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985. p.152.
46. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985. p.152.
47. Hawkins, David R., *The Eye of the I*. West Sedona, Arizona: Veritas Publishing; 2001. p. 185.
48. Ruiz, Don Miguel, *The Mastery of Love*. San Rafael, California: Amber-Allen Publishing; 1999. P. 170-176.
49. Galst, Joanne. New York, NY. Appointments and conversations between June-August 2008.
50. LeRoy, Tony. New York, NY. Appointments and conversations between June – September 2008.
51. Ruiz, Don Miguel, *The Mastery of Love*. San Rafael, California: Amber-Allen Publishing; 1999. P. 175.
52. Ruiz, Don Miguel, *The Mastery of Love*. San Rafael, California: Amber-Allen Publishing; 1999. P. 178.
53. Hawkins, David R., *The Eye of the I*. West Sedona, Arizona: Veritas Publishing; 2001. p. 196.
54. Dwoskin, Hale, *The Sedona Method*. Sedona Arizona: The Sedona Press; 2003. pp. 127.

55. Levenson, Lester, *Love: What Is It?* Sedona, Arizona: Sedona Training Associates; 1996.
56. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985. p.34.
57. Levenson, Lester, *Love: What Is It?* Sedona, Arizona: Sedona Training Associates; 1996.
58. Tolle, Eckhart, *A New Earth*. New York: New York: Plume, a member of Penguin Group; 2005. P. 294.
59. Tolle, Eckhart, *A New Earth*. New York: New York: Plume, a member of Penguin Group; 2005. P. 297.
60. Tolle, Eckhart, *A New Earth*. New York: New York: Plume, a member of Penguin Group; 2005. P. 298.
61. Tolle, Eckhart, *A New Earth*. New York: New York: Plume, a member of Penguin Group; 2005. P. 299.
62. Tolle, Eckhart, *A New Earth*. New York: New York: Plume, a member of Penguin Group; 2005. P. 301.
63. Tolle, Eckhart, *A New Earth*. New York: New York: Plume, a member of Penguin Group; 2005. P. 302.
64. Tolle, Eckhart, *A New Earth*. New York: New York: Plume, a member of Penguin Group; 2005. P. 305
65. Hicks, Esther, and Hicks, Jerry, *Manifest Your Desires*. Carlsbad, California: Hayhouse, Inc. 2008.
66. Hawkins, David R., *The Eye of the I*. West Sedona, Arizona: Veritas Publishing; 2001. p. 194.
67. Hawkins, David R., *The Eye of the I*. West Sedona, Arizona: Veritas Publishing; 2001. p. 195.
68. Hawkins, David R., *The Eye of the I*. West Sedona, Arizona: Veritas Publishing; 2001. p. 195, 196.
69. Dwoskin, Hale, *The Sedona Method*. Sedona Arizona: The Sedona Press; 2003. pp. 155-183.
70. Dwoskin, Hale, *The Sedona Method*. Sedona Arizona: The Sedona Press; 2003. pp. 183.
71. en.wikipedia.org/wiki/Compassion
72. Braden, Gregg, *Walking Between the Worlds, The Science of Compassion*. Bellevue, Washington: Radio Bookstore Press; 1997. P. 34.
73. Braden, Gregg, *Walking Between the Worlds, The Science of Compassion*. Bellevue, Washington: Radio Bookstore Press; 1997. P.154
74. Braden, Gregg, *Walking Between the Worlds, The Science of Compassion*. Bellevue, Washington: Radio Bookstore Press; 1997. P.155
75. Braden, Gregg, *Walking Between the Worlds, The Science of Compassion*. Bellevue, Washington: Radio Bookstore Press; 1997. P xvii.
76. Lasley, Martha, "Difficult Conversations: Authentic Communication Leads to Greater Understanding and Teamwork," *Group Facilitation: A Research and Applications Journal*, 7 p. 14.
77. <http://www.merriam-webster.com/dictionary/empathy>
78. Hawkins, David R., *The Eye of the I*. West Sedona, Arizona: Veritas Publishing; 2001. p. 184.
79. <http://www.todoinstitute.org/gratitude.html>
80. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985. p.36.

81. Ray, James Arthur, *The Science of Success*. Carlsbad, California: James Ray International; 2005. P. 72.
82. Hawkins, David R., *The Eye of the I*. West Sedona, Arizona: Veritas Publishing; 2001. p. 189.
83. Hawkins, David R., *The Eye of the I*. West Sedona, Arizona: Veritas Publishing; 2001. p. 182.
84. Hawkins, David R., *Power Vs Force*. West Sedona, Arizona: Veritas Publishing; 1995. P. 52
85. Dvoskin, Hale, *The Sedona Method*. Sedona Arizona: The Sedona Press; 2003. pp. 75-107
86. Hawkins, David R., *Power Vs Force*. West Sedona, Arizona: Veritas Publishing; 1995. P. 60-62.
87. Hawkins, David R., *Power Vs Force*. West Sedona, Arizona: Veritas Publishing; 1995. P. 51-57.
88. Hawkins, David R., *Power Vs Force*. West Sedona, Arizona: Veritas Publishing; 1995. P. 60-75.
89. Hawkins, David R., *The Eye of the I*. West Sedona, Arizona: Veritas Publishing; 2001. p. 117-120, 146-157.
90. Dvoskin, Hale, *The Sedona Method*. Sedona Arizona: The Sedona Press; 2003. pp. 80-101.
91. Braden, Gregg, *Walking Between the Worlds, The Science of Compassion*. Bellevue, Washington: Radio Bookstore Press; 1997. P. 70.
92. Braden, Gregg, *Walking Between the Worlds, The Science of Compassion*. Bellevue, Washington: Radio Bookstore Press; 1997. P. 57.
93. Hawkins, David R., *The Eye of the I*. West Sedona, Arizona: Veritas Publishing; 2001. p. 117-120, 119.
94. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985. p. 99-191.
95. Frank, Victor, *Total Body Modification*, Fort Pierce, Utah: Total Body Modification; 2006
96. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985. P. 128.
97. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985. P. 137.
98. Walker, Scott, *Neuro-Emotional Technique*. Carlsbad, California: N.E.T., Inc; 1996
99. Walker, Scott, *Neuro-Emotional Technique*. Carlsbad, California: N.E.T., Inc; 1996
100. McCord, K.M., and Schmitt, W.H., *Quintessential Applications: A(K) Clinical Protocol*. St. Petersburg, Florida: HealthWorks!, 2005.
101. Schmitt, W.H., Emotions and The QA Protocol. *The Uplink* 2007; 39: 1.
102. Schmitt, W.H., Emotions and The QA Protocol. *The Uplink* 2007; 39: 1.
103. Frank, Victor, *Total Body Modification, Module 3*, Fort Pierce, Utah: Total Body Modification; 2007.
104. Keschner, Matthew G. Beyond Emotional Recall Quick Fix – Using Representational Systems. *Proceedings of the ICAK*. 2008
105. Diamond, John, *Life Energy*. St. Paul, Minnesota: Paragon Health; 1985.
106. Walker, Scott, *Neuro-Emotional Technique*. Carlsbad, California: N.E.T., Inc; 1996.

107. Walker, Scott, *Neuro-Emotional Technique*. Carlsbad, California: N.E.T., Inc; 1996.
108. Frank, Victor, *Total Body Modification*, Fort Pierce, Utah: Total Body Modification; 2006.
109. Hawkins, David R., *Power Vs Force*. West Sedona, Arizona: Veritas Publishing; 1995. P. 59.

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Case Study—An Applied Kinesiology Approach to the Treatment of Muscle Strains

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Abstract

Objective

This manuscript will articulate a case in which the successful diagnosis and treatment of a muscle strain incorporated various forms of neuromuscular therapy (NMT) and techniques further developed in AK.

Clinical Features

The patient is a 24 year old female college student in good health with no significant medical history. Her chief complaint is right hip pain of approximately one year duration. The injury occurred after the patient kicked a soccer ball. Objective findings upon physical exam include, 2.5/5 muscle strength and pain rated 8/10 with manual muscle testing of the right rectus femoris. Range of motion was limited due to pain. Based on her history and PE a chronic Grade two strain of the right rectus femoris was diagnosed.

Intervention/Outcome

Treatment included AK procedures to the rectus femoris muscle and to the synergist and antagonist muscles. NMT to the lumbar and cervical spine, as well as nutritional support were given to address constitutional imbalances. The outcome was satisfactory for the patient and she continues ongoing care for health maintenance.

Conclusion

Applied Kinesiology brings together several different types of manual therapies in a coordinated treatment approach to bring about a quick and effective therapeutic outcome for muscle strains.

Key Indexing Terms

Applied Kinesiology, Rectus Femoris, Muscle Strain

Introduction

Pain from physical musculoskeletal trauma is one of the most common, clinically relevant, problems that a primary care Naturopathic physician will deal with in their career.^{1,2} In fact, pain is often the great motivator that finally elicits action by patients to come into our offices and seek our advice. It is estimated that one out of every seven (14% of total) visits to a primary healthcare provider is for the treatment of musculoskeletal pain or dysfunction.¹ Of those visitations, more than 30% of the injuries seen in the clinician's office are injuries to skeletal muscle.³ Many people live a lifestyle often referred to as 'weekend warrior syndrome' that consists of sedentary work-weeks with highly physically active weekends. Furthermore, as patients' age, their muscles can become less conditioned and less elastic, contributing to higher rates of muscle strain. ¹ Strained or "pulled" muscles are often the result of overstretching, or excess resistance during eccentric contraction. Physiologically

there are micro tears in the affected muscle fibers that result in localized swelling, pain, stiffness, inflammation, and occasional bruising. Because of the frequency of these types of injuries and the magnitude of discomfort most patients potentially face, this is an area of great opportunity for both clinician and patient. Patients who receive effective pain management and treatment place more trust in their doctor opening the door for further education on wellness and holistic lifestyle changes. In this respect, musculoskeletal pain opens one doorway to look at the health of the whole person. This is true in the study of Applied Kinesiology (AK) which highly values the relationship between musculoskeletal pain and potential internal imbalances.

This is a case study of how AK techniques used in a primary care naturopathic medical framework can produce a positive outcome for pain management and muscular healing. Applied Kinesiology, discovered in 1964 by Dr. George Goodheart, is a diagnostic value system based in part on the theories of Chinese medicine, in which every muscle in the body is related to an organ, gland, body function or meridian. The practitioner uses manual muscle testing to locate structural, biochemical and emotional dysfunction in the body and correlates it with history, physical exam, and lab work to evaluate overall body function.⁴ AK will be discussed in more detail later in the paper. This case is an example how AK diagnostic and therapeutic framework provides a logical way to combine many well known manual therapy techniques into a highly effective treatment protocol for muscle strains.

Muscle Strain Case Report

The patient is a 28 year old female presenting to the clinic with a chief complaint of right hip pain of one year duration. She describes the pain as constant, aching, 8/10 pain scale, and began after she kicked a soccer ball while playing with her family. The pain is located at the anterior superior iliac spine (ASIS) and is made worse with stretching in certain yoga poses involving hip extension. It will also get worse with prolonged exercise involving hip flexion. The pain will radiate into her right buttock area as well as down into her anterior right thigh. The patient reports a significant decrease in range of motion (ROM) for the lower right hip since the accident. Directly following the injury (months 1–3 respectively of 1 yr. duration) she visited her primary care allopathic doctor and was told to take non-steroidal anti-inflammatory drugs (NSAID's) to decrease pain and to rest the leg. She did this treatment for almost 3 months with no significant change in the condition. Past medical history is insignificant for any major illnesses, surgeries, hospitalizations, or history of trauma. She has no history of kidney stones, kidney infections or urinary tract infections (UTI's). She reports having trouble with her left hip prior to this injury and wonders if there is a connection. Menstrual cycle was reported to be regular in nature with a 28 day cycle, with 4–5 days of moderate bleeding.

Objective findings reveal normal ranges of vitals in blood pressure (LASit 110/80), pulse (68 bpm), respirations (12 bpm), and oral temperature (98.4 degrees F). She is a well nourished, well developed, athletic looking woman, oriented times three. Her height is approximately 5' 7" and weight is approximately 135 lbs. Visual inspection of the right hip showed no erythema, no swelling, no ecchymosis, no lacerations, no scars, no muscle atrophy, no rash, and no changes in surface temperature compared to the other side. Deep tendon reflexes tested intact and normal bilaterally (2+) for the patellar, achilles, biceps, triceps, and brachioradialis. Sensory nerve testing of the lower extremities reveals no deficits bilaterally to sharp, dull, and soft stimulus. Inguinal lymph nodes were not enlarged and non-tender bilaterally. Capillary refill testing of all toes is normal bilaterally and there is no pre-tibial pitting edema bilaterally. Postural assessment shows a high right hip, high right shoulder, and high right occiput indicative of a weak right gluteus medius muscle.⁵ Manual muscle testing (0–5 scale) shows multiple weak muscles of the right hip. Right gluteus medius (3+), right tensor fascia lata (4+), right adductors (3+), right sartorius (3+), right hamstrings (4+), and right quadriceps (4+) all show less than optimal (5+) full strength.^{1,6} Additionally, the right rectus femoris tested the weakest (2.5+) and elicited a fair amount of pain from the patient. Hip muscles on the left hip all tested intact and at full strength (5+).^{1,6} Passive and active ROM testing of right hip reveals 0–100 degrees of hip flexion, about 20 degrees short of full ROM.

Right hip extension is about 5 degrees, 10 degrees short of full ROM.¹ Orthopedic tests such as Patrick-Fabre hip abduction test are negative for sacro-iliac (SI) joint involvement, but did produce some discomfort near the ASIS area on the right.⁷ Straight leg raise test, heel walking, and toe walking tests were all negative bilaterally.⁷ Observation of gait shows a slight antalgia, as she seems to walk with more weight on the left leg. There is a painful bundle of muscle tissue near the ASIS with deep palpation of the right anterior proximal thigh.

AK muscle testing evaluation using therapy localization showed damage to the origin of the right rectus femoris. It is important to note that AK manual muscle testing differs from standard manual muscle testing in that strength is not being measured. In other words, in AK the muscle being tested is being evaluated for nervous system activation. The muscle will either test “on” and lock, or “off” and weaken, like a light switch. This gives the practitioner another parameter by which to tap into the wisdom of the person’s body to show where the problem exists. In this case, the origin of the rectus femoris muscle is located at the ASIS, and the muscle showed strengthening or turned “on” when the patient therapy localized (TL) or touched the origin of the muscle with her hand. Therapy localization is the touching of the body over an area of suspected involvement. This alerts the practitioner to an energetic imbalance in the area of the ASIS and based on earlier observations of Goodheart and others will indicate injury to the origin of the muscle.^{4,5,8,9} In essence we started with a weak muscle, the rectus femoris, and it demonstrated an increased neuromuscular facilitation or lock when the person touched the area of injury.

Sometimes in AK you can start with a muscle that is already strong and use different tests to see if it will weaken the muscle or turn it off. Further AK evaluation of the synergist muscles to the rectus, the sartorius muscle tested intact “in the clear”, meaning that the sartorius tested “on” or fully neuromuscularly facilitated without any other factor being involved such as therapy localization. However, the sartorius muscle test weakened or turned off after a three second maximum muscle contraction. This indicates based on observations by Goodheart and others that it was an overactive synergist to the injured muscle and is best treated with strain counterstrain technique.^{5,8,9} This is due to the sartorius, another hip flexor muscle, desperately trying to take over kinesiologically for the injured rectus femoris muscle. When a muscle is overworked it becomes very tight and will develop a type of tender point in the belly of the muscle described by Dr. Lawrence Jones.¹⁰ Dr. Jones describes a very useful technique very commonly used in manual therapies to decrease pain, increase ROM called Strain Counter-strain. In this case, deep palpation of the quadriceps muscle belly revealed a type of tender point best treated with strain counter-strain, otherwise sometimes known as “fold and hold.”

Conversely, the antagonist muscle to the rectus femoris, the right hamstring tested strong in the clear. However, the muscle tested weak only after a gentle hamstring stretch. In AK this indicates that this muscle group is over tightening in response to the injured rectus femoris group. Goodheart and others have observed that the antagonist to the injured muscle is the mostly likely place to have active trigger points as described by Dr. Janet Travell.¹¹ With deep palpation, the right hamstring muscle was extremely tender and radiated pain into the right buttock and behind the right knee when pressed with firm pressure. Later in the paper the facial flush technique for treating this type of trigger point will be discussed.

Further AK evaluation on the right rectus femoris showed an involvement of the Golgi tendon organs (GTOs) and the muscle spindle cells (MSCs). These were evaluated with therapy localization to the musculotendinous junctions (GTOs) and the belly of the muscle (MSCs). Lumbar facet imbrication testing was negative, but L3 vertebrae did therapy localize, meaning that a muscle that previously tested strong and intact weakened when the patient touched L3. This tells the physician that there is likely a vertebral subluxation at L3. Therapy localization is only used to identify the location of an energetic disturbance or mechanical dysfunction, but does not indicate how to correct the problem. The dysfunction may be corrected on a structural, chemical, or

emotional basis. All therapy localization evaluations should be confirmed with thorough investigation through observation, palpation, assessment of spinal motion, and challenge.

Static and motion palpation of the lumbar spine for NMT assessment revealed L3 vertebrae stuck in a left rotation motion restriction pattern. Also, the cervical spine was assessed, and a C3 left rotation restriction was motion palpated. It is interesting to note that in AK, there is a pattern of spinal vertebral relationship called the Lovett Brother Relationship.⁵ For example, the occiput relates with the sacrum, C1 relates with L5, etc. The upper cervical spine and the lower lumbar spine are especially important because when properly manipulated they help rebalance the parasympathetic nervous system. Vertebrae C4–L2 will move opposite one another and influence the sympathetic nervous system.^{5, 8}

Differential Diagnosis

Assessment of this injury to the hip pointed to a diagnosis of a chronic grade two muscle strain of the right rectus femoris. Differential diagnosis includes: apophysitis of the hip, stress/avulsion fracture, lumbar disc herniation (L2–L3), hematoma/contusion, septic arthritis, bone tumor, bursitis, lumbar facet syndrome with pain referred to the lateral thigh, and Grade one, two, or three, muscle strain.^{1, 12, 13, 14}

Apophysitis of the hip was initially considered because it fit the description of the pain pattern. Clinically it is described as a dull ache around the hip located near the ASIS, AIIS, the iliac crest, or the ischial tuberosity. However, it is usually associated with younger boys more often than girls, in the age range of 9–13.¹³ This diagnosis is unlikely given the age and absence of developmental growth in this patient.

Avulsion fracture is a possibility, as the contraction of the rectus femoris in hip flexion could theoretically generate enough force to pull a piece of bone off the ASIS. However, it is more associated with trauma of a more severe nature such as a motor vehicle accident (MVA). It seems unlikely based on the mechanism of injury, but can be easily ruled out with an x-ray. Stress fracture of the femoral neck is also considered in the differential, especially in athletic women. Overtraining, low body fat, malnutrition, and/or corticosteroid use are risk factors contributing to stress fracture.¹ Avulsion fracture investigation for this patient would only occur if appropriate soft tissue treatment was ineffective.

Disc herniation is possible as the pressure of the protruding disc material on the intervertebral foramen can impede nerve flow to the periphery. The most likely vertebral segments involving the hip/thigh area would be the L2/L3 vertebrae.¹⁵ The patient does not report any history of low back pain before or after her injury. Orthopedic tests for disc involvement, such as straight leg raise, hip/toe walking, etc. were all negative. Age, mechanism of injury, orthopedic tests indicate that disc herniation is unlikely to be the diagnosis.

Contusion to the hip is another condition to consider when pain is dull and localized in the soft tissue. Upon visual inspection, there was no discoloration of the skin, nor any notable changes in skin temperature as compared to the other side. Contusions would be of greater consideration if the patient reported blunt trauma to the painful area or if the injury was more of an acute nature. In this case there is lack of evidence on physical exam that a contusion to the area is likely diagnosis.

Septic arthritis (febrile with acute arthritis, immuno-compromised or concomitant disease RA, DM—assessment- warm, swollen, tender joint and referral for joint aspiration study—increased WBC's and bacteria in joint fluid) or osteomyelitis (febrile patient with bone pain, recent wt. loss, night sweats, & malaise) should be considered in any case of bone pain with an acute onset in any age individual.¹ This individual had a normal temperature and there was no indication of infection. No fever, no history of any such symptoms related to

infection such as swollen lymph nodes. In osteomyelitis this differential could be easily ruled out by checking if the patient has an elevated white blood cell count (WBC), elevated C-reactive protein (CRP), or an elevated erythrocyte sedimentation rate (ESR).¹ MRI is the most helpful imaging for osteomyelitis.¹³ Threat of infection of this kind is minimal and not considered the likely diagnosis.

Bone tumor, especially an osteosarcoma is a possible differential diagnosis. However, these are considered quite rare especially in a young adult. Orthopedic surgeons see about 5,000 cases of tumors in the soft tissue and bone in the United States yearly. [13] Due to the rareness of this condition, it is only considered if conservative therapy does not work. A full workup for this condition would include complete metabolic profile blood work, in which 50% of the osteosarcomas have an elevated alkaline phosphatase enzyme profile. Other indicators would be increased serum calcium due to bone loss and elevated serum phosphorous. Plain film imaging provides the best information regarding the nature of this type of lesion. ^{1, 13}

Bursitis can be located in the ischial tuberosity, subtrochanteric, or in the iliopsoas/iliopsoas areas of the hip.¹⁵ The patient reports no pain in these areas at this time, especially in relation to this trauma. Bursitis can be caused by direct trauma, like a contusion or from overuse. The bursa is designed to help cushion the tendons as they are pulled on by muscles in areas over bony prominences. The assessment of bursitis is usually done with direct palpation and from the patient's history. Previous, professional experience of this kind shows a pattern of painful bursitis at the start of activity with decreased pain after warm-up. In contrast, pain elicited due to tendonitis elevates as activity increases. Due to the patient's history, location and pattern of pain, bursitis is not a likely diagnosis.

Lumbar facet syndrome with pain radiation to the hip is another possibility in this case. The lumbar facets can get jammed, usually with a rotational movement of the spine while holding a heavy object. Generally there will be pain with active extension of the spine.⁵ With AK techniques facet syndrome is easily assessed with positive therapy localization to individual vertebrae of the lumbar spine that is negated by a gentle traction of the leg on the involved side.⁹ This AK screening test was negative and the mechanism of the injury is not one in which the facets would normally be affected.

Lastly, one of the most common soft tissue injuries is that of the Grade one, two, or three muscle strain. The grade of muscle strain is differentiated by the degree of muscle fibers involved: Grade one is overstretching of a few muscle fibers with less than ten percent of the actual fibers tearing, with no palpable defect in the muscle. Grade two is a partial tear of the muscle fibers usually between 10 and 50 percent of the fibers and a definite palpable defect in the muscle belly. Grade three is an extensive tear or complete rupture of the muscle fibers with approximately 50 to 100 percent destruction. Grade three muscle strains consistently present as a large palpable depression in the muscle and can often be torn away from the bone resulting in little to no normal contraction of the muscle fibers.¹⁶

After considering all of the differential diagnoses, it was concluded that based on her history and PE, she had a chronic grade two right rectus femoris muscle strain. No further labs were needed at this time, although it was recommended that she have basic blood work and annual pelvic exam done as part of an annual check up. This would include a complete blood count (CBC), complete metabolic panel (comp. met.), lipid panel, ferritin levels, thyroid hormone panel (FFT) and a PAP test. As stated earlier, imaging such as X-ray would be recommended if she does not respond to conservative therapy for a muscle strain.

Physiology & Pathology

A strain is an injury sustained to a muscle that has been exposed to excessive tensile stress, commonly known as a pulled muscle.¹⁷ When the muscle tears, the damage is localized primarily near the muscle-tendon junction, but often the origin, the insertion, and belly of the muscle are also involved. While evidence is not concrete as to why the rectus femoris is one of the most commonly injured muscles, Faulkner states that in addition the hamstrings, gastrocnemius, and adductor longus compose a significant majority of muscle strains.¹⁸ It may be theorized that these are muscles involved with quick explosive movements and are the most vulnerable to injury in athletics.

Muscle cells or fibers are surrounded by a sheath called endomysium. A small number of muscle fibers are bound into fascicles by a dense connective tissue known as the perimysium. A muscle is composed of several fascicles surrounded by deep fascia called epimysium.¹⁷ Within each muscle cell are filaments of actin and myosin that are connected by chemical cross bridges that allow for muscle contraction with neurological activation.¹⁹ When a muscle is strained, a number of things happen. First, there are micro-tears of actin and myosin that occur at the very basic level of muscle cell tissue. Second, muscle strains interrupt the vascular system supplying blood to muscle. Because muscle tissue is highly vascularized, acute muscle strains will often exhibit a great deal of ecchymosis on the skin surface.

Injury to a muscle starts a highly involved response from the body. Immediate to the onset of the injury, an inflammatory response of the immune system lasts for 24 to 48 hours enabling some recovery of muscle strength and mobility. However, this recovery is frequently not enough to completely correct the strain. The injured muscle will typically manual muscle test weak, and continue to test weak (0–3) for approximately 7–10 days after the injury.¹⁸ Typically, by the seventh day a fibrous tissue replaces the inflammatory reaction and a scar forms. The scar tissue is less elastic and more avascular than the original muscle tissue and has less proprioceptive nervous connections.²

Goodheart theorizes that muscle strains affect the origin and the insertion when enough force pulls the tendinous attachments off the bone slightly. His research led him to believe that the micro-trauma will cause selective dehydration in the area and effectively neurologically short circuit the muscle.⁵ He developed origin/insertion technique to reestablish the lost functional neurological connection discussed later in the paper.

One of the ways muscles communicate joint position to the rest of the body is through muscle sensors of proprioception. Golgi tendon organs (GTO) and neuromuscular spindle cells (NSC) are instrumental in regulating the muscle they reside in and help signal body position in space.⁵ In the AK protocol for fixing a muscle strain both of these structures are evaluated, along with the origin and insertion of the muscle, and treated with specific soft tissue techniques to reconnect it back into optimal function.

Golgi tendon organs are located on either end of the tendon close to the musculotendinous junction, with many muscle fibers (10–15) attached to it. Its main job is to monitor tension in the muscle through the Ib nerve fibers and to shut the muscle off if tension rises to a place that will tear or injure the muscle.^{5,9}

Neuromuscular spindle cells are located throughout the muscle with a primary concentration in the middle one-third or belly of the muscle. They indicate the changes in length of the muscle and are essentially “turn on” switches for the muscle through activity of the IA and II afferent nerve fibers.^{5,8,9} The appropriate length of a muscle is set by the gamma motor neurons found in the anterior horn of the dorsal root ganglion. Neuromuscular spindle cells are unique in that they not only excite the homogenous muscle, but also facilitate the synergist muscles, while inhibiting the main antagonist muscles.

Holistic Treatment Approach

To address the patient's needs within the AK philosophy, a structural, biochemical, and emotional treatment plan was devised. The cause of pain, after a review of the differential diagnoses was thought to be first and foremost a grade two muscle strain from trauma. The primary focus initially was to decrease pain and improve the function of the injured right rectus femoris muscle. In addition, medical information was gathered to assist her overall health and evaluate obstacles to optimal health that could be related to or a result of the particular injury at hand.

It is the author's experience, as an athletic trainer, sports acupuncturist, and applied kinesiologist, that most (possibly as high as 60%) musculoskeletal injuries are caused by or related to an internal medical imbalance. In other words, in order to achieve optimal health, physicians must be willing to look at internal and external factors as possible causes for muscle dysfunction. Dr. Goodheart supports this idea by applying a Chinese medicine theoretical framework and years of careful clinical observation combined with his unique way of interpreting and performing manual muscle testing.

For example, Dr. Goodheart was treating several firemen in the same firehouse for shoulder injuries. He soon realized that all of the men had trouble with their deltoid muscles. After doing a more thorough history, he discovered that all the men had been on the same fire together and suffered from mild smoke inhalation. Dr. Goodheart concluded that the deltoid muscle must be connected to the lungs and lung meridian. He fixed their shoulder pain by supporting their lungs, structurally, nutritionally, and emotionally.²⁰

In AK, every muscle in the body is associated with an internal organ and an acupuncture meridian.^{5, 8, 9} Therefore if an internal organ is over stressed, the corresponding muscle will test weak or neurologically not intact. If the corresponding weakness is not related to trauma, such as a muscle strain in this case study, Dr. Goodheart suggests checking the five factors of the intervertebral foramen (spinal column). They are the nerve supply, cerebrospinal fluid, Chapman neurolymphatic reflexes, Bennett neurovascular reflexes, and acupuncture meridian connectors.⁵ The AK system seeks to identify the underlying cause of illness and allow the body to heal itself. AK diagnosis can in this way become invaluable to give physician additional knowledge that can not be obtained from physical exam or history.

In this case, the rectus femoris is related to the small intestine organ and the small intestine meridian.^{5, 8, 9} Thus it is important to also consider any details within her history or physical exam that may indicate an inability to absorb nutrients, or highlight trouble with her small intestine organ. For example, food sensitivities such as wheat in Celiac's disease will negatively impact the small intestine and her ability to assimilate nutrients. By bolstering the small intestine's ability to function properly the patient's muscular injury is addressed on a much deeper level. However, structural alignment is equally important to optimal health and certainly is not overlooked during treatment. Thus, the patient's chronic PI ilium on the right side is likely due to the inability of the right rectus femoris muscle to hold the ilium in a neutral position. Pelvic blocks were used to reduce the Category II PI ilium back into neutral. It is important to note that without getting the right rectus femoris to test intact the manipulation of the pelvis will not hold. Finally, in the history it is important to be looking for reports of an inability to make decisions in her life. Within the Chinese medical framework, injuries to the small intestine organ and meridian are associated with an inability to perform activities that nourish oneself.

This multi-faceted approach to healing stems from a strong desire to help everyone gain optimal health at every opportunity they are given. Naturopathic medicine teaches that first and foremost we do no harm, identify and treat the cause, treat the whole person, and support the healing power of nature to assist the healing process. It is with that training and awareness that it is possible to mentor and address her health far beyond the obvious scope of this particular injury.

Therapeutic Interventions

In the treatment of a traumatic injury certain precautions must be considered. Naturopathic medical approaches seek to decrease inflammation, increase ROM, decrease pain, and assist the healing process. In accord with naturopathic principles, AK has a time tested protocol that treats traumatic muscle injuries and the two disciplines compliment one another.

After a strain diagnosis for either a compaction or a pulled muscle strain the range of function within the origin and insertion region of the involved muscle must be examined. In this case, the origin of the rectus muscle was damaged. Upon palpation there was an area near the ASIS that had small, hard, tender nodule. AK was founded in 1964, by Dr. George Goodheart, D. C., by rubbing on similar nodules found in a patient with serratus anterior muscle after that muscle tested weak using Kendall and Kendall manual muscle testing. After deep massage on the origin of the serratus anterior, Dr. Goodheart observed a dramatic 70% strengthening of the muscle and the winging of the scapula disappeared with lasting results. He has hypothesized that the muscle weakness is due to a microavulsion of tendon that develops an area of selective dehydration at the level of the periosteum. This was called Origin/Insertion Technique and was the birth of applied kinesiology.^{4, 5, 9}

On the patient the first procedure done was to rub the origin of the rectus femoris muscle. There is no directional component, but in essence one is trying to push the tendon back on to the bone and rub until the nodules gradually melt and disappear. This takes about 2–3 minutes and on manual muscle testing there was locking of the muscle and significant improvement to 4+/5. The patient reported that her overall pain level has decreased significantly after completion of this first procedure. The insertion point of the muscle is then checked with a right rectus femoris manual muscle test while the patient therapy localizes (touches) the insertion of the muscle located on the tibial tubercle and the upper border of the patella.^{5, 15} In this patient, AK muscle testing with therapy localization to the insertion was negative. Touching the insertion failed to neurologically facilitate or turn on the rectus femoris, therefore no action is taken.

Step two is to evaluate the Golgi tendon organs and see if they need to be reset. As stated earlier, if the GTOs are set too high they will turn off the rectus femoris muscle. They are evaluated by palpation and by rectus femoris muscle testing while therapy localizing (touching) the musculotendinous junctions at either end of the muscle. In this case they were affected by the injury. To reset the GTOs, find the tender areas upon palpation at the musculotendinous junction. GTOs on either end of the muscle or both can be involved. The correction is done with deep digital pressure on the tender areas while moving along the muscle fibers toward the belly of the muscle. This action will reset the tension mechanism of the muscle and improve overall function.^{5, 8, 9}

Step three is to evaluate the muscle spindle cells. This is done once again by palpation and manual muscle testing the rectus femoris muscle while therapy localizing the belly of the muscle where the muscle spindle cell concentration is highest. It is hypothesized that trauma to the spindle cells creates adhesions or edema that cause the NSCs to transfer erroneous information into the nervous system thus affecting the muscle function. To reset the NSCs, place your fingers about two inches apart in the belly of the muscle near the area of tender palpation and therapy localization. Push in deeply and pull apart along the muscle fibers and repeat the technique several times. After this treatment the rectus femoris muscle continued to test stronger 4.5/5.^{5, 8, 9}

One nutritional note, if any of the above techniques does not hold then this may indicate a need for additional biochemical support. If any one, (origin/insertion, GTO, or NSC) or all areas lose function on the next visit then the client may be deficient in phosphatase enzyme found in raw potatoes. The solution from an AK perspective is to prescribe raw potatoes, bone broth, and/or a whole food extract such as Biost[®] from Standard Process.⁵

Step four is to address the synergist muscle that tries to take over and do the work of the injured muscle. Athletes are great at neuromuscular compensation, and it is what allows them to continue playing and performing at a high level when the main muscle for a certain movement is injured. In this case the synergist muscle involved is the right sartorius muscle. This muscle tests intact or “on” with AK muscle testing, however it will weaken or turn “off” after a 3 second maximum contraction.⁵ This helps to identify which muscle is the main synergist and in AK the need to do strain counter-strain technique to this muscle. A tender point in the sartorius was palpated that did not radiate with deep digital pressure. Shorten the sartorius muscle until there is a vector that all but virtually eliminates pain upon palpation. Have the patient hold her breath and relax her leg, for approximately 40 seconds or so. Breath holding was another discovery by Dr. Goodheart adding to the work of Dr. Jones, drastically reducing the time holding the strain counter-strain position. Then slowly return the leg back to its original position on the table, being careful to instruct the patient not to reactivate the sartorius muscle. If the leg is moved too quickly or the patient initiates voluntary contraction of the muscle treated, then it is likely that the technique will need to be repeated. Nutritionally, if the strain counterstrain does not hold, this may indicate the need for folic acid supplementation.^{5,8,9}

Step five is to palpate and muscle test the antagonist muscle group, for this case study it was the muscle that facilitates hip extension. Specifically, the right gluteus maximus had several active trigger points. This was confirmed with the glute max muscle testing weak after a gentle stretch. In AK, this indicates the need for facial flush massage to treat the myofascial trigger points. Facial flush is performed with the hand or forearm, with a sweeping motion along the muscle fibers toward the heart. After this was done several times, the right glute max muscle did not weaken to a gentle stretch, nor did it have the same trigger point pattern. Nutritionally, if this pattern returns shortly after treatment, it may indicate the need for B12 supplementation.^{5,8,9} This finding may correlate with a high MCV on routine serum lab testing.

Step six is evaluation and correction of a subluxation to the levels of the spine that innervate the injured muscle. In this case, since it is the rectus femoris, evaluate the lumbar spine, with special attention to the spinal levels that innervate the rectus femoris muscle, namely the L2, L3, and L4 vertebrae. A left rotation restriction subluxation of L3 was found and corrected. Additionally, another AK technique called Encoded Memory Technique was used to address the mental-emotional aspects of the triad of health.^{5,8,9} The patient thought about a recent emotional liability, while the lumbar manipulation at L3 was performed. This will assist the nerve flow, reset the nervous system circuit to the injured muscle, and have the added benefit of rebalancing her emotional state.

In AK there is the concept of the Lovett Brother relationship. It states that the upper spinal levels (occiput, C1, C2, C3) will rotate in the same direction as the lower four vertebrae (sacrum, L5, L4, L3).⁵ The rest of the vertebrae have a relationship in which they commonly rotate in opposite directions when an individual is walking. Frequently, if you find a subluxation at L3 LRR, then you may find (approximately 60% of the time) C3 LRR as well. In this case, a subluxation was found and corrected at C3 (LRR) for the patient to compliment the L3.

Homeopathically, consider *Ruta graveolis* for musculotendinous injuries either acutely or chronically. Other homeopathics found through applied kinesiology testing to be related to the rectus femoris muscle and the small intestine energy system include: *Iris Versicolor*, *Antimonium Crud.*, *Carbo veg.*, *Colocynthis*, *Chamomilla*, *Veratrum Album*, *Podophyllum*, and *Ipecac.*²¹ Of course, first diagnose the need for homeopathy and then proceed to properly repertorize the case.

Once the muscle tested strong and was locking sufficiently, the patient is safe to begin an exercise program involving the strengthening of the right rectus femoris muscle. The program she followed consisted of body weight squats with proper technique, gradually building in sets and reps. Eventually moving into lunges and graduating to squats and lunges on an unstable surface to improve proprioception. The patient was educated on the importance of these exercises to prevent future issues. It was also suggested that she warm up 8–10 minutes with light cardio-vascular exercise before attempting more maximal muscle contraction. It is well documented that even an increase in internal temperature of one degree Celsius increases muscle length to failure and theoretically will help reduce the chance of muscle strain.^{2,3}

Conclusion

Muscle injuries are common in primary care allopathic, naturopathic, chiropractic, and Chinese medical practices. There are rational, organized, well thought out protocols such as the one outlined in this paper, that work in concert with the healing power of nature to help our patients achieve optimal health. The patient reported two weeks later that her symptoms of hip pain were 70% improved after the first treatment. She states that her pain level decreased from an 8/10 to 1-2/10 and is hardly noticeable unless she is stressing the hip in deep yoga stretching poses. Her ROM increased significantly, but is still somewhat short of comparable ROM with the left hip. Further evaluation and testing, especially looking at optimizing her digestion will be needed to get a complete resolution. On the second visit, she was given a diet diary to maintain for a week and it opened discussion on the importance of her gastrointestinal health. By helping this patient quickly, safely, and profoundly she has gained faith, confidence, and belief that her body can heal itself. She is now willing to invest in optimizing her health and become a life long proponent of natural medicine. Physical medicine done well can be an effective gateway to establishing patient trust and educating the patient about the other services we offer as primary care natural health physicians.

References

1. Vasquez A. *Integrated Orthopedics—Concepts, Algorithms, & Therapeutics*. Houston, TX: Natural Health Consulting Corporation; 2004.
2. Garrett WE Jr. “Muscle strain injuries.” *Am J Sports Med*. 1996; 24(Supp.):S2-8.
3. Kirkendall DT, Garrett WE Jr. “Clinical Perspectives Regarding Eccentric Muscle Injury.” *Clin Orthop Relat Res*. 2002 Oct ;(403 Supp.):S81-9.
4. Goodheart GJ Jr. *Applied Kinesiology*. Detroit: Privately Published; 1964.
5. Walther DS. *Applied Kinesiology Synopsis*, 2nd Edition. Pueblo, CO: Systems DC; 2000.
6. Kendall FP, McCreary EK, Provance PG. *Muscles: Testing and Function* 4th ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 1993.
7. Hoppenfeld S. *Physical Examination of the Spine and Extremities*. East Norwalk, CT: Prentice Hall; 1976.
8. Leaf D. *Applied Kinesiology Flow Chart Manual*. Plymouth, MA: Privately Published, 1995.

9. Francis TD. *Applied Kinesiology – The Basic Course*. Portland, OR: Privately Published; 2007.
10. Jones LH, Kusunose RS, Goering E K. *Jones Strain CounterStrain*. Jones Strain Counterstrain Incorporated; 2nd Ed edition (April 1995).
11. Travell JG, Simons GS. *Myofascial Pain and Dysfunction: The Trigger Point Manual* Baltimore, MD: Williams & Wilkins; 1983.
12. Greenwood MJ, Erhard RE, Jones DL. *Differential diagnosis of the hip vs lumbar spine: five case reports*. J Orthop Sports Phys Ther 1998; 27:308–315.
13. Epocrates, Inc. Epocrates Dx™ Version 1.5 software; 2006.
14. Umphred D. Physical therapy differential diagnosis in the clinical setting. *Journal of Physical Therapy Education* 1995; 9(2):39–45.
15. *Gray's Anatomy*, 38th Edition, New York, NY: Churchill Livingstone; 1995.
16. Leone M. *Muscle Strains Revisited*. Website: www.chiroweb.com/archives/16/05/07.html. 2007.
17. Anderson MK, Hall SJ. *Sports Injury Management*. Media, PA: Williams & Wilkins; 1995.
18. Faulkner JA, Brooks SV, and Opiteck JA. “Injury to skeletal muscle fibers during contractions: conditions of occurrence and prevention.” *Phys Ther* 1993; 73:(12): 911–921.
19. Guyton AC, Hall JE. *Textbook of Medical Physiology*, 9th Ed. Philadelphia: W.B. Saunders Co.; 1996.
20. Diamond J. *Your Body Doesn't Lie*. New York, NY: Warner Books; 1979.
21. Francis TD. *Applied Kinesiology and Homeopathy: A Muscle/Organ/Remedy Correlation*. Las Vegas, NV: Privately Published; 1997.

Case Study—The Popliteus Muscle: A Major Knee Joint Stabilizer

Anthony G. Murczek, N.D., MAcOM

Abstract

Objective

To describe the reduction in chronic knee pain of a 58 year-old male, using a homeopathic remedy to neurologically facilitate the popliteus muscle.

Clinical Features

The patient is morbidly obese and has had a diagnosis of osteoarthritis bilaterally in both knees, verified on X-ray. Manual muscle test of the left popliteus was not intact but strengthened to BL 1 therapy localization with the index/middle fingers, indicating the need for homeopathy.

Intervention/Outcome

After a single dose of *Colchicum autumnale* 1M, the patient remarked that his posterior knee pain was greatly improved. The popliteus muscle tested intact immediately and continued to test intact on subsequent visits.

Conclusion

This case study reaffirms the importance of the popliteus muscle as a knee stabilizer in the prevention and treatment of knee pain. The homeopathic remedy, *Colchicum autumnale* should be further evaluated in the context of the larger symptom picture to be used for knee pain and/or Gall Bladder organ/meridian/remedy relationships.

Key Indexing Terms

Joint Instability, Applied Kinesiology, Chronic Knee Pain, Popliteus Muscle, Homeopathy, *Colchicum Autumnale*

Introduction

The popliteus muscle is long known to be a major stabilizer of the knee joint.¹ Goodheart linked this muscle with the Gall Bladder meridian and Gall Bladder organ.² Manual muscle testing of this muscle is one of many orthopedic tests used to evaluate knee problems. Dr. Walther states “Correcting knee pain is often as simple as correcting the muscles that stabilize the knee. This may require attention directly to the muscle, its reflexes, and/or the organ/gland association.”³ This case study is another illustration of the importance of proper function of the popliteus muscle in chronic knee pain.

Discussion

The patient, a 58 year-old morbidly obese male (BMI 52), had a history of chronic knee pain bilaterally. His instability and pain had been worse in the right knee for approximately 3 years, until the last 2 weeks when the left knee began to hurt more than the right. He averaged 3 Anacin (Aspirin) for chronic arthritis pain before bed each night. The patient also reports 3 bouts of nocturia a night and left shoulder pain one month in duration. He also reports occasional swelling of his ankles bilaterally and a history of low back pain.

Upon physical exam of the left knee it was noted that the patient was wearing a large hinged custom brace designed to help chronic knee stability due to his large body size.³ There was trace effusion bilaterally, negative LCL, MCL, ACL, PCL and McMurray's meniscus testing. Upon manual muscle testing all muscles around the left knee tested intact except for the left popliteus. AK pulse point procedure revealed that his weak link at the time of treatment did involve the Gall Bladder organ/meridian association. An abdominal exam revealed a mildly positive Murphy's sign and negative McBurney's. The popliteus muscle tested intact to the Gall Bladder alarm point (GB24) and further evaluation using the therapy localization of index/middle finger to BL 1 method described by Francis,⁴ revealed the need for a homeopathic remedy. After repertorizing the case, the remedy that seemed appropriate was Colchicum. Colchicum autumnale (Meadow Saffron) has marked effects on the muscles, periosteum, and synovial membranes of joints.⁵ The abdomen was distended with pain over the liver area. A single dose of Colchicum autumnale 1M was given in the office and the popliteus muscle now tested intact. The patient got up and walked around, remarking that his pain level had greatly diminished. He estimated the pain to be 60% improved and felt a greater sense of stability in the knee. The popliteus continued to test intact on subsequent visits.

Conclusion

The popliteus muscle of the knee is often overlooked as a source contributing to chronic knee pain, instability, and arthritis. Applied Kinesiology manual muscle testing is a wonderful diagnostic tool that helps practitioners to diagnose the need, supply the need, and observe the result. In this case the homeopathic remedy Colchicum seemed to have a great overall effect on chronic knee pain

References

1. Walther, DS. Applied Kinesiology Synopsis. 2nd Edition. Shawnee Mission, KS: ICAK-U.S.A.; 2009., p. 468.
2. Ibid p. 327
3. Ibid p. 464
4. Francis, TD. Applied Kinesiology and Homeopathy: A Muscle/Organ/Remedy Correlation. Las Vegas, NV. Privately Published; 1997.
5. Boericke, W. Pocket Manual of Homeopathic Materia Medica. 9th Edition. Santa Rosa, CA. Boericke & Tafel, INC.:1927. p. 180-1.

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A Case History—Headaches

Robert A. Ozello, D.C., DIBAK

Abstract

A case history of headaches caused by use of a hair clip is presented.

Introduction

Chiropractic care and correcting structure has been very effective in alleviating headaches. Goodheart has written extensively of this correlation.¹

Discussion

A fifty three year old woman was in my office for a maintenance visit. She had been a patient for many years with good results for back and neck pain. I asked her for an update and she mentioned to me that she got occipital and frontal headaches whenever she wore a hair clip. I asked her why she did not tell me this in the past and she stated that she considered it “normal”.

She did not have a hair clip on. I asked her if she had a one with her. She said she did. Without the hair clip on I palpated her frontal and occipital bone musculature and felt normal tissue. When she put the hair clip on, the frontal and occipital bone musculature became very tender to the touch.

I had her remove the hair clip and the muscles tenderness returned to normal.

I then firmly pulled her hair near the spot where she had attached the hair clip. This challenged provoked the same response as the hairclip in the musculature over the frontal and occipital bones.

I palpated and challenged the proprioceptors of the frontal and occipital bellies of the occipital frontalis muscle and corrected them. Further examination by pulling the hair over all the areas of the skull of the skull musculature revealed dysfunction of the right temporoparietalis. The proprioceptors of this muscle were also corrected.

Correction was verified by pulling the hair on the skull and finding no tenderness anywhere on the skull.

When the patient put the hair clip back on, there was no muscle tenderness anywhere on the skull.

She resumed wearing hair clips and in the following six years has been able to wear hair clips without any headaches or other symptoms.

Conclusion

By being observant and open to possibilities a patient was helped with an unusual problem.

References

1. Goodheart, George J., *Being A Family Doctor*, pp. 34–35 (Privately Published).

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A Case History—Meniere's Disease

Robert A. Ozello, D.C., DIBAK

Abstract

A case history of Meniere's Disease is presented.

Introduction

Meniere's Disease is an abnormality of the inner ear causing a host of symptoms, including vertigo or severe tinnitus dizziness, or a roaring sound in the ears, fluctuating hearing loss, and the sensation of pressure or pain in the affected ear. The disorder usually affects only one ear and is a common cause of hearing loss.¹

Discussion

A seventy year old woman presented with dizziness, nausea and tinnitus in her right ear. She had been suffering for a year and had seen many medical doctors with no relief. The last MD from Johns Hopkins Hospital wanted to inject her right ear with an anesthetic. He admitted that he didn't know if the injection would help her and she would probably become deaf in that ear. She was not willing to get this therapy.

Applied kinesiology examination revealed multiple spinal fixations, bilateral anterior C5, and an L5 subluxation. Muscle imbalances included right psoas, bilateral sternocleidomastoids, bilateral platysma and right procerus. Muscle imbalances were corrected using standard proprioceptors techniques and strain/counterstrain.

The patient's diet was evaluated and she was instructed to eliminate sugar and processed food.

She responded slowly and steadily over a two month period and all symptoms disappeared. Two years later she is still symptom free.

Conclusion

Using standard applied kinesiology and chiropractic techniques can help the most difficult cases.

References

1. Merck Manual. Thirteenth Edition Page 1623.

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Changes of Jaw Range of Motion after Manual Therapy to TMJ in a 20 Year-old Female

Robert J. Porzio D.C., DIBAK and Andrew J. Hawley D.C.

Abstract

Objective: *To describe and discuss the effects of manual therapy on TMJ range of motion.*

Clinical Features: *20 year-old female presents with right sided TMJ pain along with numbness on right side of face. Patient has recently seen a dentist with no positive findings. Jaw range of motion measurements and patient's subjective responses were the key measurement outcomes.*

Intervention and outcome: *Applied kinesiology TMJ techniques were the primary methods utilized on this patient.*

Conclusion: *Increase in TMJ range of motion noted along with decreased headaches.*

Key Indexing Terms

TMJ, Jaw, Applied Kinesiology, Headaches

Introduction

Many young adults suffer from temporomandibular joint (TMJ) pain or dysfunction every day which can go untreated or at least not treated sufficiently. Instead of putting the time into determining the cause of the dysfunction many physicians simply prescribe a medication to numb or block the pain. A certain percentage of the patient's fair well with these prescriptions, however there is a large majority that does not. For those patients that are not helped with prescriptions where do they go? These patients should be lining up at a chiropractic office to get the treatment that they deserve.

There are many possible causes for TMJ pain or dysfunction which include but not limited to bite deformities, muscular imbalances and subluxations both of the jaw and throughout the spine. Utilizing the tools associated with Applied Kinesiology we are able to focus our treatment and make our treatment as specific as possible so that we are able to locate the origin of the problem. It is with these tools that the above mentioned patient was treated and improved significantly.

Materials and Methods

Patient "X" presented to our office on June 13, 2008 with complaints of right lower jaw pain, headaches and states that at times she has had a feeling of numbness on the right side of her face. The patient also reports a history of having migraines about 2 times a month. The patient states that these symptoms have been occurring for 3 days and have been getting worse. She also reports that she saw a dentist two days before coming to our office and he said there was nothing wrong that he could see. The patient was unhappy with

this answer so she decided to get another opinion which is what brought her into our office. On the first visit an examination was performed with the findings noted below.

Vitals

Ht – 5'1"

Wt – 109lb

Pulse – 70 bpm

Respiration Rate – 14 bpm

Blood Pressure – sitting 120/68, standing 118/66

Chiropractic Examination

Observation – Severe anterior head carriage, excessive kyphosis of thoracic spine, protruded right eye ball, deviated nasal septum to right, extension of cervical spine to compensate for anterior head carriage, excessive bite marks noted on inner aspect of bottom lip, wearing of enamel on front six teeth, bite marks noted on inner right gum, protruding of palate caudally and overbite noted.

Jaw Range of Motion – Opening restricted at 35% being able to fit only two finger widths, upon opening the jaw deviated left approximately ½ in.

Trigger Points (rated on a 0/10 pain scale) – b/l levator scapulae 7/10, b/l upper trapezius 7/10, b/l SCM 6/10, right pterygoid 7/10.

Subluxations – C1 on the right, Anterior T4-9

Fixations/Faults – b/l trapezius, right internal frontal fault, left TMJ and left hyoid.

Treatment

Every treatment for this patient consisted of postural evaluation, muscle testing to locate weakness as well as location of subluxations, fascial flush to the appropriate trigger points as well as stimulation to the appropriate neurovascular and neurolymphatic points. Extensive focus was given to the upper cervical spine and TMJ musculature.

Results

Following the patients first six treatments she was showing only minor improvement. After the sixth treatment to the patient began to make tremendous improvement with decreased migraines as well as decreased facial numbness and increased jaw range of motion. Following the treatments the patient's trigger points have essentially disappeared as well and the patients jaw range of motion increased to three finger widths.

Conclusion

TMJ dysfunction and migraines can be treated quickly and effectively utilizing the tools of Applied Kinesiology. If the appropriate focus is given to the effected anatomical structures the results will be seen.

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Application of Color Therapy (Colored Lens) in Chiropractic

Dean Schaner, D.C.

Abstract

The basic seven colors (red, orange, yellow, green, blue, indigo, and violet) has been demonstrated to cause an effect on the human nervous system through manual muscle testing by Dr. Tim Francis, Dr. Chris-Astill Smith and others.² This paper examines the effect of these basic colors as well as applying two of these colors simultaneously creating a secondary color to the chiropractic patient. Twenty-four test subjects were evaluated for basic A.K. findings and then for a weakening of a previous strong indicator muscle to both a single and paired colored lenses. The weakening effect was negated by tapping on L3 on the three phases of respiration and then reevaluated for subluxation and basic A.K. findings. Eighty percent of the test subjects weakened to a single color lens while 54% had a weakening effect when two of the lens where applied together. Upon re-assessment many of the previous A.K. findings were not found.

Key Indexing Terms

Color Therapy, Applied Kinesiology (A.K.), Holographic Spine

Introduction

The purpose of this article is to further explore the application of color therapy to the chiropractic patient by applying a color lens with a second colored lens simultaneously. The use of color therapy has been around for years and has been applied in many fields to determine as to what the color's effect maybes on the human beings' nervous system, brain function, thoughts, feelings and emotions. For instance, in neurology the color red is used to slow down activity of the mid-brain.³ Dr. Chris-Astill Smith, Dr. Timothy Francis and others have demonstrated the effects of the seven basic colors (red, orange, yellow, green, blue, indigo, and violet) on the human nervous system through manual muscle testing. Dr. Smith demonstrated that often one of these basic seven colors would weaken a previous strong indicator muscle when a colored lens was placed over the eyes of the patient while other colors would strengthen a previous weak indicator muscle.² Dr. Tim Francis has also demonstrated that the basic seven colors relate to different vertebrae of the spine in his paper *The Holographic Spine*.¹ In both studies it was the application of a single color that was evaluated for an effect on the nervous system through manual muscle testing.

When two colors are added together a "secondary" color is created. For example when yellow and blue are added together the color green is created. This experiment was conducted to explore the application of utilizing one of the basic seven colored lens with a second colored lens and measuring the effect on the nervous system through manual muscle testing.

Materials and Methods

The materials used in this study were a set of the basic seven color therapy lens—red, orange, yellow, green, blue, indigo, and violet (Colored therapy Lens—www.toolforwellness.com) Twenty-four test subjects were used, each one was a patient of the author. Each of the test subjects were evaluated for basic A.K. findings such as ocular lock, upper and lower gait, P.L.U.S, P.R.Y.T., pelvis category I, II, III, ileocecal valve, spinal fixations, and emotional neurovascular challenges as described in Walther's Applied Kinesiology Synopsis⁴ and noted. They were then tested with each of the seven colored lens. If any of the single colors produced a weakness it was corrected by tapping L3 on the three phases of respiration with a double headed activator as described by Dr Francis¹ and re-evaluated for basic A.K. findings and subluxation. What was found upon reevaluation was then corrected via the standard A.K. method or routine chiropractic adjustment.

Next the test subjects were evaluated with two colored lens at a time, one being placed over another starting with red then adding orange, followed by red with yellow, red with green etc. Each color was done in this fashion. The glasses where placed one on top of the other, making sure that they were aligned so that the color produced by the two lenses was accurate.

There are a possible 42 combinations of colors. When a strong indicator muscle weakens to the combination of colors it was noted and corrected by tapping L3 on the three phases of respiration. After the L3 correction the patient was again evaluated for basic A.K. findings and subluxation. Any finding or subluxation was then corrected via standard A.K. approach or routine chiropractic adjustment.

Results

It was found that 19 patients weakened to a colored lens alone (80%) while 13 (54%) weakened to at least one of the combinations of two lens simultaneously. When colored lenses where applied one at time or two together and corrected, many of the original A.K. findings were found to be negative or corrected. Some interesting findings were: 1) many times patients would weaken only when exposed to the combination of two color lenses producing a secondary color, where as the secondary color by itself would not weaken the subject. An example of this is when combining yellow with blue, green is produced however with the green lens by itself did not weaken the patient, 2) often the order of which colored was put on the patient first would seem to matter. As in the example above many times a test subject would weaken when the yellow was placed on first and then the blue producing green but did not weaken when the blue was placed on first then yellow.

Discussion

The application of colored therapy lens to the chiropractic patient appears to have a definite effect on the nervous system. As noted previously by Dr. Francis, color relates to various vertebral levels and often creates a weakening effect through manual muscle testing and when corrected many previous A.K. indicators are no longer found leaving what appears to be only the primary subluxations. These findings were congruent in this experiment. However, it has also been found that many times patients would weaken to a combination of the basic seven colors. Further experimentation should be conducted to understand why this response occurs and what this may mean to the whole physiological aspects of the patient or the nervous system. If the application of color for instance, alters or changes the response in the human nervous system as found through manual muscle testing and basic A.K. procedures, what other physiological responses occurs? Can the application

of color therapy significantly alter brain and nervous system function affecting all other physiological and emotional responses over time? Can color therapy reduce chiropractic subluxation? As indicated from observations in this particular study the answer seems to be yes. Exactly how and why this occurs requires further investigation.

It is not understood why some patients would weaken to the combination colors such as yellow and blue making the color green when the patient did not weaken to the green lens alone, or why the order of color applied seemed to matter. For instance, why would a patient weaken with the yellow lens placed on first then blue, but not blue then yellow? Some possible explanations may have to do with the lens themselves, the shape, or the distance between the lenses. It must be noted that even though care was taken to make sure that the lens were placed over each other so that only the secondary color was produced, there still was a space between the lenses. This space may some how change the test. Another explanation may be how the colors effect various “autonomic” centers and developmental levels of the brain and nervous system. For instance the color red which has a lower frequency of light is known to effect the rate of firing of the mid-brain in the brainstem (lower brain). As the frequency of the light wave increases (red to violet) higher brain centers are affected, i.e. cerebral cortex. It may be possible that the pairing of colored lenses effects two levels of the brain simultaneously and it is the specific order that creates this effect. In any event further study is to be explored as many other questions have now been raised.

Conclusion

Color therapy lenses applied to the eyes causes a change to the human nervous system as evaluated through manual muscle testing and the basic A.K. examination. The combination of the two colors applied together can also create a change. When this change in muscle strength is found, tapping L3 on the three phases of respiration as described by Dr. Francis was preformed. Upon reevaluation many of the previous A.K. findings were negated and only the positive A.K. findings were corrected. By applying color lenses to the eyes and correcting any weakening effects produced seems to restore normal nervous system function.

References

1. Francis, Timothy, *The Holographic Spine* Proceedings of Annual Meeting, ICAK, Marina Del Ray, 2002.
2. Astill-Smith, Chris, *Functional Biochemistry*, Los Angeles 2000.
3. Klinghardt, Dietrich, MD, Phd, *Some Facts and Research on Using Color and Light for Healing*, Freiburg, Germany 1995
4. Walther, David S. *Applied Kinesiology Synopsis* 2nd Edition, ICAK-U.S.A., 6405 Metalf Ave., Suite 503, Shawnee Mission, KS 66202.

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Application of Sound Therapy (The Use of Tuning Forks) in Chiropractic

Dean Schaner, D.C.

Abstract

It has been previously demonstrated that when tuning forks are applied singularly they effect the human nervous system, as indicated through manual muscle testing, and when corrected, eliminate many previous A.K. findings (Francis). In this study 23 patients were evaluated utilizing basic A.K. procedures. After the evaluation, the patients were exposed to tuning forks to determine if there was a weakening effect through manual muscle testing as well as to the use of two tuning forks applied simultaneously. It was found that 78% of the test subjects had a weakening effect to the application of one tuning fork, while 43% of the test subjects had a weakening effect when exposed to two tuning forks applied simultaneously. Each test subject was again reevaluated for basic A.K. findings.

Key Indexing Terms

Sound Therapy, Applied Kinesiology (A.K.), Holographic Spine, Tuning Forks

Introduction

The purpose of this article was to further explore the application of sound (tuning forks C 256Hz- C 512Hz) to the chiropractic patient by the applying two tuning forks simultaneously. Dr. Timothy Francis has demonstrated that the basic notes of low C (256Hz) through high C (512Hz) relate to various vertebrae in the spine and that these basic notes can cause a weakening of a previous strong indicator. He also demonstrated that when corrected, this weakening effect also caused further changes in the body structure, biochemistry and emotional responses demonstrated through manual muscle testing.

The simultaneous use of two tuning forks of different notes creates a harmonic frequency. This paper explores the harmonic frequencies that are created when simultaneously applying the basic notes C – C to test subjects and their effect(s)

Materials and Methods

The materials used were a Solar Harmonic Spectrum tuning fork set from Biosonic (www.toolsforwellnes.com). This set contains a full octave of tuning forks (C-256Hz, D-288Hz, E-320Hz, F-341.3Hz, G-384Hz, A-426.7Hz, B-480Hz, C-512Hz). Twenty-three patients were used as test subjects. Test subjects were each evaluated for basic A.K. findings such as ocular lock, upper and lower gait, P.L.U.S, P.R.Y.T., pelvis category I, II, III, ileocecal valve, spinal fixations, and emotional neurovascular challenges as described in Walther's Applied Kinesiology Synopsis (3) and noted. The test subjects where then evaluated for a weakening of a strong indicator muscle to one of the basic eight tuning forks. If the patient weakened to one or more of the tuning forks the weakening effect was corrected by tapping L3 with a double headed activator on the three

phases of respiration as described by Dr. Francis in his original paper *The Holographic Spine* (1). When the test subject was clear of the single note, two notes were then tested, and then simultaneously applied starting with low C with the patient holding one tuning fork in one hand and the other tuning fork in the other hand. Starting with the first tuning fork that was found using manual muscle testing, in the left hand the doctor then added the second tuning in the right and then switching out the right handed note with next note in the sequence until all the combinations were covered.

Each note in the octave has seven possible combinations making a total of 56 combinations. If a weakening to two notes was found it was corrected in the same manner as found with just one, with the tapping of L3 on the three phases of respiration. The patient was then re-evaluated for basic A.K. dysfunction and subluxation as before.

Results

It was noted that many patients did indeed weaken to the application of either one or two notes applied simultaneously. Of the twenty-three test subjects 18 (78%) weakened to the application of one tuning fork while ten (43%) weakened to the application of two tuning forks applied simultaneously. Upon re-evaluation of the basic A.K. findings after the correction was made, many of previous findings were no longer found such as ocular lock, gait, fixations, etc.

Discussion

The application of sound (tuning forks) to the chiropractic patient appears to have a definite effect on the human body and nervous system as demonstrated by applied kinesiology manual muscle testing. Tuning forks applied either singularly or simultaneously appear to create a harmonic frequency that effects the nervous system and when corrected restores normal nervous system function as evaluated through basic A.K. manual muscle testing procedures. The basic A.K. patterns that are not corrected via this method appear to be primary subluxation. Of further interest would be to evaluate the effectiveness of the application of tuning forks either singularly or utilizing two simultaneously, in order to reduce subluxation and basic A.K. findings over time. In other words, how effective is this approach to the overall improvement of the patients condition, i.e. reduction of subluxation, emotional responses, and other physiological imbalances.

Conclusion

Sound when applied using the basic musical notes (C, D, E, F, G, A, B, C,) singularly or two simultaneously to the chiropractic patient has an effect on the nervous system and when corrected restores many basic A.K. findings and therefore restores neurological function.

References

1. Francis, Timothy, *The Holographic Spine* Proceedings of Annual Meeting, ICAK, Marina Del Ray 2002.
2. Walther, David S. *Applied Kinesiology Synopsis* 2nd Edition, ICAK-U.S.A., 6405 Metalf Ave., Suite 503, Shawnee Mission, KS 66202.

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A Review of the Article on Manual Muscle Testing Titled: Disentangling Manual Muscle Testing and Applied Kinesiology: Critique and Reinterpretation of a Literature Review

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Abstract

While reading the above referenced “Critique and Reinterpretation of a Literature Review” that purported to “Disentangle Manual Muscle Testing (MMT) and Applied Kinesiology” (AK), I observed that much of the good-intentioned information presented was in error. I wish to point out the authors’ mistakes and review the review.

Introduction

On March 6, 2007, a paper presented by Scott C. Cuthbert, D.C. and George J. Goodheart, D.C. was published in the Journal of Chiropractic and Osteopathy and later in the Collected Papers of ICAK. It was titled, “Research Supporting the Reliability and Validity of Manual Muscle Testing.”¹ The goal of this paper was to provide a “historical overview, literature review, description, synthesis, and critique of the reliability and validity of MMT in the evaluation of the musculoskeletal and nervous systems.” It was a monumental review of the literature to illuminate the usefulness of manual muscle testing for the practicing chiropractor.

On August 23, 2007 an article entitled “Disentangling Manual Muscle Testing and Applied Kinesiology: Critique and Reinterpretation of a Literature Review,” submitted by Mitchell Haas, D.C., Robert Cooperstein, D.C., and David Peterson, D.C., was published in the Journal of Chiropractic and Osteopathy.² The authors observed that Cuthbert and Goodheart “included Applied Kinesiology (AK) applications under the rubric of MMT.” Although the stated purpose of this article was to *disentangle* AK and MMT, the authors failed to provide clarity.

In 1968 I began a lifelong study of AK and MMT with Dr. George Goodheart, the founder of AK. This professional relationship continued until his death in 2008. I have used AK and MMT in my practice for nearly 40 years—every patient, every visit. And, since becoming a diplomate in 1983, I have been teaching it to professionals and have published 56 papers on the subject.

To suggest that MMT and AK can be disentangled is off the mark. MMT and AK work together as an integral unit. The fundamental distinction is the use to which the acquired information is put. Haas started to address this when he mentioned that AK has distinguishing diagnostic procedures such as “the use of provocative tests (i.e., AK challenge and therapy localization).”

Discussion

MMT is a fundamental principle of evaluation within AK. As taught in the basic 100-hour course, MMT is presented in two distinct parts. The first part is the standardized manual muscle testing as first presented by Dr. George J. Goodheart in his 1964 *Research Manual*³, and subsequently adopted by Dr. David S. Walther in his textbook *Applied Kinesiology, Synopsis*.^{4,5,6,7} In terms of AK, the second distinct part, which is performed in a similar manner, employs the provocative tests of challenge and therapy localization. AK is an integral part of MMT; they function together as a single unit. It is what you do with the information that is key. Robert W. Lovett, MD, was the original developer of these protocols. He and a co-worker laid the foundation for much of the muscle testing shown in Kendall & Kendall's book, *Muscle Testing and Function*.⁸ It was in Kendall's book that Dr. Goodheart originally found these methods.

Every AK practitioner uses MMT to evaluate a patient complaint. As an example, a patient comes to the office with knee pain. While taking the patient's history, the doctor rules out direct trauma to the joint. Then a careful visual inspection of the knee is performed, followed by the appropriate orthopedic test for any meniscus or cruciate ligament involvement.

At this point, the standardized form of MMT (i.e., the first part) is done to detect any weakness in the muscles that support and move the knee joint. Each of the following muscle groups are tested separately. The quadriceps are tested, first as a group and then the individual heads. The lateral support muscle of the tensor fascia lata, the medial support musculature of sartorius and gracilis, the posterior support of hamstrings as a group and then its subdivisions, the biceps femoris, the semimembranosus, and semitendinosus, and finally the popliteus and gastrocnemius are all individually tested. Any findings are compared to the asymptomatic side. This procedure was recommended by Jepsen⁹ in association with the upper limb and can be logically applied to the joints of the lower limbs.

Assuming that no weaknesses were found, the provocative phase of testing would begin. Therapy-localization positions the patient's hand at the symptomatic knee joint. A suitable, strong, upper-body test muscle would be used such as the sternal or clavicular division of pectoralis major.

The muscles used in provocative testing are standardized and are referred to as indicator muscles. The indicator muscles used most consistently while the patient is supine are the gluteus medius, the tensor fascia lata, and the sternal or clavicular divisions of the pectoralis. With the patient prone, the hamstrings are most often used. However, any strong muscle could be used to do provocative testing with the exception of the deltoid. (The reason the deltoid is not used is because its set or start position must be precisely a 90 or 91 degree angle. If the start point is equal to or less than 89 degrees, the deltoid will always test weak. And if the start point is 92 degrees or more it will always feel strong. The use of this muscle, except in testing for a shoulder problem, has been generally discouraged because it can easily provide erroneous information. Using the deltoid for provocative testing, which Dr. Goodheart called "the arm-pull-down test," is the hallmark of poor training in MMT.)

Background

While Dr. Haas acknowledges the effort required to synthesize the vast body of published research on MMT, he suggests that the literature "review contains critical errors in the search methods." One factor he categorizes as a critical error is that Cuthbert and Goodheart used only PubMed and CINAHL. He suggests

that they should have included MANTIS. While this may be true, it neither obviates nor negates the findings presented in Cuthbert and Goodheart's paper.

Haas cites the study by Teuber, S. and Porch-Curren, C., "Unproved diagnostic and therapeutic approaches to food allergy and intolerance,"¹⁰ to illustrate that Cuthbert and Goodheart did not include previous reviews and critiques of AK that refute AK in the diagnosis of food allergies. However, he fails to mention a paper titled "Evaluation of Applied Kinesiology in nutritional intolerance of childhood,"¹¹ by Pothmann, et al., where the authors conclude: "In general, AK cannot be recommended for diagnosing nutritional intolerance. However, due to its high sensitivity, it could be a valuable tool to give some preliminary results."

Haas neglects altogether to mention studies that show a positive correlation between AK and other diagnostic tools and tests. A striking example is the study by Schmitt W, and Leisman, G.¹² They found a .905 correlation between the results obtained through AK muscle testing for food allergies and the results obtained using the RAST test for serum immunoglobulin levels. These results are highly statistically significant. Because research results are so dependent upon the skill and experience of the practitioner, it is imperative to point out Schmidt's qualifications. He has over 23 years of AK and MMT experience, is a teaching diplomate of over 20 years experience, and was Dr. Goodheart's second associate. He has also published over 60 papers in professional journals.

Haas refers to an early review of scientific papers that were published from 1981 to 1987. That review, authored by Klinkoski and LeBoeuf appeared in International College of Applied Kinesiology in 1990.¹³ It stated that "no conclusions could be drawn because of inadequate methodology (y)...." It is reasonable to assume that Klinkoski and LeBoeuf did not read the hundreds of papers, thousands of pages, appearing from 1981–1987. These papers were early efforts by members of ICAK to share their observations. They are not, strictly speaking, research papers. Research in AK has developed and evolved over the ensuing 25 years with much of that early shared information serving as a base. While there may be an ideal method of investigation, and the double blind study may be the gold standard of research, the value of clinical research that comes from direct clinical application in doctors' offices should not be denied.

Dr. Haas cited "Applied Kinesiology in medicine and dentistry—A critical review," authored by Tschernitschek H, and Fink M,¹⁴ published in 2005. The review "concluded that there is a lack of evidence for AK effectiveness, reliability, and validity." However, Tschernitschek went on to say that AK subgroups must "prove the effectiveness of their methods, and explain their findings in agreement with current medical knowledge." I couldn't agree more. The paper by Cuthbert and Goodheart, Research Supporting the Reliability and Validity of Manual Muscle Testing,¹⁵ has done just that. *Res ipse loquitur*, "the things speaks for itself".

There is a second glaring omission in Haas' review. Of the 135 citations in the Cuthbert and Goodheart paper, only one was referenced by Dr. Haas, that is D.S. Walther's textbooks.¹⁶ This suggests that there may have been another motive than to disentangle AK and MMT. It is my impression that the Haas "reinterpretation" was done just to counter the positive findings that were presented in Cuthbert's paper.

In the last section of his reinterpretation, "Diagnosis of preclinical and subclinical disease," Haas states that "AK proponents claim to be able to diagnose preclinical and subclinical conditions." We most emphatically do not claim that! I personally don't believe for a moment that AK techniques give us any diagnostic or prognostic abilities. When AK detects symptoms suggesting a medical diagnosis, the diagnosis should always be established and documented using standard laboratory tests.

Because of the established relationship between muscle and organ systems, I am able to ask a patient specific, detailed questions when muscle weaknesses are found. In AK this relationship is referred to as the five factors or intervertebral foramina (IVF). The five factors are: similar nerve supply, similar blood supply, similar lymphatic channels, cerebral spinal fluid, and the particular meridian that associates a specific organ system with a muscle or group of muscles. These associations originate from medicine, osteopathy, chiropractic, physical therapy, and acupuncture research. The authorities are Lovett, Sutherland, Upledger, Chapman, Bennett, De Jarnette, Mann, Walther, Travell, Kendall's, and Goodheart.^{17,18,19,20,21,22,23,24,25,26,27.}

Dr. Haas states that in order for AK to demonstrate the validity of MMT for the diagnosis of preclinical and subclinical conditions, it would require a comparison to a standard with strong predictive validity of disease. And the comparison should be able to demonstrate that prophylactic care, based on AK MMT results, prevents or diminishes the development of disease relative to an untreated control group. I fully agree with this statement. But I believe this holds true for the entire chiropractic profession regardless of the specific technique or philosophy of practice. A chiropractic health care study based on the design of the Framingham Heart Study, following a large sample of patients over a long period of time, would help to substantiate the efficacy of chiropractic care in the maintenance of general patient health and perhaps the prevention of chronic diseases.

We, as a profession, have painted ourselves into a corner as being specialists in the treatment of back- and spinal-origin problems. We have not touted ourselves as alternative care providers for the treatment of health problems while they are still in the functional disorder stages. Perhaps we should. By functional disorder stages, I mean those stages of pathology subtly manifest before the changes become extreme pathologies where tissue and organ changes have occurred. An example of this was published as a study that appeared in the New England Journal of Medicine titled "A Comparison of Active and Stimulated Chiropractic Manipulation as Adjunctive Treatment for Childhood Asthma." Although this article fell short of its goals because of the misunderstanding of what constitutes a chiropractic adjustment,^{28,29} it is attempting to break new ground. This paper should serve as a springboard for further studies.

Conclusion

Drs. Haas, Cooperstein, and Peterson's literature review did not disentangle manual muscle testing and Applied Kinesiology. They stated that Cuthbert and Goodheart conducted a review with important methodological deficiencies. They also stated that "When AK is disentangled from standard orthopedic muscle testing..." AK cannot be "disentangled" from manual muscle testing because they are integral and work together as a single unit. The MMT of AK and standard orthopedic/neurological muscle testing are exactly the same. That is why the Haas paper failed in its attempt. MMT, when learned properly, takes the form presented by Kendall & Kendall and Wadsworth, in their book *Muscle Testing and Function*. This method of MMT is the same as in Walther's book *Applied Kinesiology, Synopsis* and Goodheart's first workshop manual published in 1964.

MMT, done properly for physical evaluation of a patient, is done in the manner described in the aforementioned textbooks. This is true regardless of the profession of the practitioner whether it be orthopedics or neurology, physiatrist or physical therapy, chiropractic or any other. How the muscle testing is done when provocative testing is performed, which includes therapy localization and challenge, cannot be differentiated from the standard MMT other than in its interpretation of weak or strong, positive or negative findings.

None of the research papers presented and reviewed by Cuthbert and Goodheart were evaluated by Haas, et al. After reading their review for its general information, interpretations, and findings, I am of the opinion that their “critique and reinterpretation of a literature review” presented in *Journal of Chiropractic and Osteopathy* was mainly to refute the findings of the studies in the Cuthbert & Goodheart paper. The authors, Drs. Haas, Cooperstein, and Peterson are prey to the same criticism that they levied on the paper of Drs. Cuthbert & Goodheart namely, not reviewing any of the referenced 135 citations. In Dr. Haas’ own words, this “could lead to several problems pertaining to the scope of the search that may have led to the omission of relevant articles.” Using Dr. Haas’ analysis, the articles he omitted could be the one’s that support the use of MMT as a functional diagnostic tool for chiropractors. This tool would be in addition to the standard use of instrumentation and palpatory procedures.

In a paper published in 1991,³⁰ Haas reviewed 45 original articles addressing the subject of examiner reliability. Basing his judgment on the quality of experimental design and statistical analyses, he reported that only 10 supported the conclusions presented therein. An additional 3 of the articles supported their conclusions by “coincidence.” He states “To date, the research presented in the chiropractic literature cannot substantiate claims concerning the reliability of any diagnostic instrumentation or palpatory procedures commonly employed by chiropractic physicians.”

As I stated earlier, the Haas, Cooperstein, and Peterson article did not disentangle manual muscle testing and AK, but rather has made it more difficult for the chiropractic profession to understand. It raises the questions of whether this system would be worth while to learn and use in practice, and whether it is reliable. In a paper coauthored with three other doctors,³¹ Haas tried to use muscle testing to see if provocative challenge to a vertebra could be used to substantiate a vertebral subluxation. They looked for changes in muscle resistance. I must question the experience of the doctors doing the MMT and the choice of the muscle used. With a patient prone the usual test muscle for this challenge would have been the hamstring group whereas the parties doing the testing used the piriformis. Not that this muscle could not be used as an indicator or test muscle, but certainly it is not the best-suited for this type of research project. This brings into question the conclusion drawn from this study which I quote, “For the population under investigation, muscle response appeared to be a random phenomenon unrelated to manipulable subluxation. In and of itself, muscle testing appears to be of questionable use for spinal screening and post-adjustive evaluation.”

To have a properly designed study, the doctors who perform the muscle testing must have the proper training—which requires at least 100 hours in a basic muscle testing course. The doctors chosen to participate in this type of study would use muscle testing every day in their practice on every patient they treat, and not as a hit or miss system. Without these two critical design criteria in place, the study is poorly structured and incorrect conclusions are drawn, as occurred in the study on asthmatic children. This underscores Dr. Goodheart’s testimony about the use of muscle testing in many different systems, and I quote “There are many bastard children but they are not our children.”

References

1. Cuthbert, Scott, C., DC, Goodheart, George, Jr. DC, Research Supporting the Reliability and Validity of Manual Muscle Testing, Collected Paper of ICAK, Private Publication, 2007, p.p. 233-262.
2. Haas, M, DC, Cooperstein, R, DC, Peterson, D, DC, Disentangling Manual Muscle Testing and Applied Kinesiology: critique and reinterpretation of a literature review, *Journal of Chiropractic & Osteopathy*, Aug. 2007.

3. Goodheart, George, Jr. D.C., Applied Kinesiology Workshop Manual, 1964, Private Publication, 1964.
4. Walther, David, D.C., Applied Kinesiology The Advanced Approach in Chiropractic, System DC, 1976.
5. Walther, David, D.C., Applied Kinesiology Basic Procedures and Muscle Testing, Vol. 1, ICAK-U.S.A., 2009.
6. Walther, David, D.C., Applied Kinesiology, ICAK-U.S.A., 2009.
7. Walther, David, D.C., Applied Kinesiology, Synopsis 2nd Edition, ICAK-U.S.A., 2009.
8. Kendall, H, PT, Kendall, F, PT, Wadsworth, G, PT, Muscle Testing and Function 2nd .
9. Edition, The Williams & Wilkins Co., 1971.
10. Jaspen JR, Laursen LH, Hagert CG, Kreiner S, Larsen AI, Diagnostic accuracy of the Neurological Upper Limb Examination : inter-rater reproducibility of selected findings and patterns, BMC Neurology 2006, Feb 16:6:8.
11. Teuber SS, Porch-Curren C: Unproven Diagnostic and Therapeutic Approaches to Food Allergy and Intolerance., Current Opinions Allergy Clinical Immunology 2003, 3: 217-221.
12. Pothmann R, Von FS, Hoicke C, Weingarten H, Ludtke R: Evaluation of Applied Kinesiology in Nutritional Intolerance of Childhood, Forsch Komplementarmed Klass Naturheilkd, 2001, 8:336-344.
13. Schmitt W, Leisman G: Correlation of Applied Kinesiology Muscle Testing Findings With Serum Immunoglobulin Levels for Food Allergies, International Journal of Neuroscience, 1998; 96:237-244.
14. Klinkoski B, Leboeuf C : A review of the Research Paper Published by the International College of Applied Kinesiology from 1981 to 1987, Journal of Manipulative Physiology Therapies, 1990, 13: 190-194.
15. Tschernitschek H, Fink M: Applied Kinesiology in Medicine and Dentistry—A critical review. Wien Med Wochenschr 2005, 155:59-64.
16. Cuthbert S, Goodheart G: Research Supporting the Reliability and Validity of Manual Muscle Testing, Collected Papers of International College of Applied Kinesiology, 2007 p.p. 233–262.
17. Walther D.S, D.C., Applied Kinesiology, Synopsis, 2nd Edition, ICAK-U.S.A., 2009.
18. Lovett Robert W., M.D., Buckminster, John B., M.D.: Lateral Curvature of the Spine and Round Shoulder, P. Blakiston's & Sons Co., Phil. 1916.
19. Sutherland, W.J., The Cranial Bowl, Privately Published Mankato, MN 1939.
20. Upledger, J.E., Vredevoogd, J.: Craniosacral Therapy, Eastland Press, 1983.
21. De Jarnette, M.B. Cranial Techniques, Privately Published 1979.
22. Owens, C., D.O., An Endocrine Interpretation of Chapman Reflexes, 1937.
23. Martin, R.J.,: The Practice of Correction of Abnormal Function-“Neurovascular
24. Dynamics” Sierra Madre, CA, Privately Published 1983. From Terrence J. Bennett Lectures.
25. Mann, Felix: The Meridians of Acupuncture, Wm. Heinemann Medical Books, 1964.
26. Walther, David, D.C.: Applied Kinesiology, Synopsis, 2nd Edition, ICAK-U.S.A., 2009.

27. Travell, Janet G, Simons David G: Myofascial Pain and Dysfunction-The Trigger Point Manual, Williams & Wilkins, 1983.
28. Kendall H, Kendall F, Wadsworth G: Muscles Testing and Function 2nd Edition, Williams & Wilkins, 1971.
27. Goodheart, George Jr.: Applied Kinesiology, Workshop Manual, Private Publication 1964.
28. Balon J, Aker P, Crowther R, Danielson C, Cox G, O'Shaughnessy D, Walker, C, Goldsmith C, Duku E, Sears M, : A comparison of Active and Simulated Chiropractic Manipulation as Adjunctive Treatment for Childhood Asthma, New England Journal of Medicine, Oct. 8 , 1998, Vol. 339: 1013-1020.
29. Sprieser Paul T, D.C.: If Your Only Tool is a Hammer-A Evaluation of the New England Journal of Medicine, A Comparison of Active and Stimulated Chiropractic Manipulation as Adjunctive Treatment for childhood Asthma, Dynamic Chiropractic, Vol. 19, Issue #4, page 34.
30. Haas M., D.C. : The Reliability of Reliability, Journal Manipulative Physiology Therapies, Mar-Apr; 1991 (3): 199-208.
31. Hass M, Preterson D, Hoyer D, Ross G.: Muscle Testing Response to Provocative Vertebral Challenge and Spinal Manipulation: a Randomized Controlled Trial of Construct Validity, Journal of Manipulative Physiology Therapies, 1994, Nov-Dec:17 (3):141-148.

Additional Factor on Accuracy of Manual Muscle Testing

Paul T. Sprieser, D.C., DIBAK

Abstract

This is one additional factor not mentioned by Drs. Schmitt and Cuthbert in their rebuttal paper Common Errors and Clinical Guidelines for Manual Muscle Testing: “The Arm Test” and Other Inaccurate Procedures.

Background

The controversy over the use of manual muscle testing as a diagnostic tool has been going on ever since Dr. Goodheart introduced it to the chiropractic profession in his workshop manual in 1964.¹ I believed that the Drs. Cuthbert and Goodheart paper showed research that supported its use. The paper is titled Research Supporting the Reliability and Validity of Manual Muscle Testing, published in the Journal of Chiropractic and Osteopathy in March 2007 and again in the Collected Papers of ICAK in June 2007. This was a monumental task and deserves kudos for the efforts of Drs. Cuthbert and Goodheart.^{2,3} A paper followed this titled Disentangling Manual Muscle Testing and Applied Kinesiology: critique and reinterpretation of a literature review, and was published in the Journal of Chiropractic and Osteopathy in August 2007.⁴ This paper was authored by three chiropractors Drs. Haas, Cooperstein, and Peterson who teach at Western State Chiropractic and Palmer West.

Its purpose was to disentangle manual muscle testing and Applied Kinesiology muscle testing, which the authors did not accomplish. The true reason was quite evident if you know anything about Applied Kinesiology and muscle testing, this was to discredit AK and muscle testing as a diagnostic tool.

Discussion

After I read the paper Disentangling Manual Muscle Testing and Applied Kinesiology I was irate, to say the least, and tried to find a way to write a paper to counter this attempt to discredit Drs. Cuthbert and Goodheart's paper. I was able to write two separate papers one for a peer review journal, and the other for a general chiropractic magazine such as Dynamic Chiropractic.

As I researched my rebuttal to the Drs. Haas, Cooperstein, and Peterson paper I came to realize that the citations of this paper showed a lack of experience in muscle testing. At this point, I wondered if the number of muscle tests a doctor performed on the average patient should be considered a critical factor in how accurate the outcome of some of the negative findings cited by this paper.

So I decided to count the number of muscle tests I did on the average patient using a simple hand held counting device. My original thought was that I probably did between fifty to seventy muscle tests during a typical office visit that consisted of 15 to 20 minutes to evaluate and treat a patient.

Method

Using the hand held counting device I used a sampling of 100 different patients and recorded the number of muscle tests preformed during a typical office visit. I thought this number would give me a good sampling because it would contain all different types of complaints that patients come to health care practitioners who use Applied Kinesiology in their practice.

The sampling was divided into 53 male and 47 females with ages from 12 to 90 with most of the group falling into the 40 through 70. The smallest number of muscle tests done on a patient was 69 and the largest was 217. After analysis of this sampling showed the average to be 114 muscle tests preformed on the average patient.

Conclusion

If you use muscle testing and Applied Kinesiology in practice you can extrapolate this information from your practice depending on the number of patients treated per week. As an example if you average 50 patients a week multiplied by 114-muscle tests, you would have preformed 5700 test a week and 50 weeks a year amount to 285,000 a year. If you are treating 100 patients per week as an average you will have preformed some 570,000 muscle-tests a year.

If the nine factors that Drs. Cuthbert and Schmitt elaborate on in their published paper in the Journal of Chiropractic & Osteopathy, titled Common Errors and Clinical Guidelines for Manual Muscle Testing: “the arm test” and other inaccurate procedures⁵ are followed while doing muscle testing the out come of most these study would be positive. The tenth factor that should be included is the number of muscle tests and frequency of their use make a major factor on the accuracy and outcome of studies that evaluate the validity and dependability of muscle testing as a diagnostic protocol.

Two examples of the lack of experience or the infrequent use of muscle testing on the part of the researchers can easily be seen in Dr. Triano study, Muscle strength testing as a diagnostic screen for supplemental nutrition therapy: a blind study.⁶ The second occurred in Drs. Haas, Peterson, Hoyer, Ross study, Muscle testing response to provocative vertebral challenge and spinal manipulation: a randomized controlled trial of construct validity.⁷ We must question the conclusions of these studies because of the experiences of the parties doing the testing and also the muscle used during the testing. A third study that showed lack of reliability in its out come was titled Evaluation of Applied Kinesiology in nutritional intolerance of childhood,⁸ would also fit into the above mention criteria for the conclusions drawn in this study.

When the experience and the frequency of use of manual muscle testing used in applied kinesiology is done with properly qualified practitioners such as Drs. Schmitt, and Leisman study of use of muscle testing for food allergens and comparing them to RAST testing we get a high correlation of reliability.⁹

As I stated earlier reliability and outcome of in these studies come from all the factors that were pointed out by Drs. Cuthbert and Schmitt and also with the frequency and the number of test a doctor does, because practice makes perfect. The sensitivity and accuracy come from the practice and use of manual muscle testing on a daily basis. Many if not most of the doctors who participate in these studies with negative outcome are not in practice but work or teach at educational institutions. There use of muscle testing as a diagnostic tool is on a hit or miss basis.

References

1. Goodheart, George, Jr. DC, Applied Kinesiology Workshop Manual, Private Publication, 1964.
2. Cuthbert, Scott, C., DC, Goodheart, George, Jr., DC, Research Supporting the Reliability and Validity of Manual Muscle Testing: a Literature Review, Journal of Chiropractic and Osteopathy, 2007, 15:4.
3. Cuthbert, Scott, C., DC, Goodheart, George, Jr. DC, Research Supporting the Reliability and Validity of Manual Muscle Testing: a Literature Review, Collected Paper of ICAK, 2007, p.p., 233–262.
4. Haas, Mitchell, DC, Cooperstein, Robert, DC, Peterson, David, DC, Disentangling Manual Muscle Testing and Applied Kinesiology: Critique and Reinterpretation of a Literature Review, Journal of Chiropractic and Osteopathy, 2007, 15:11.
5. Schmitt, Walther, H., DC, Cuthbert, Scott, C., DC, Common Errors and Clinical Guidelines for Manual Muscle Testing: “The Arm Test” and Other Inaccurate Procedures, Journal of Chiropractic and Osteopathy, 2008, 16:16.
6. Triano, John, J., DC, Muscle Strength Testing as a Diagnostic Screen for Supplemental Nutrition Therapy: a blind study, Journal of Manipulative Physiological Therapies, 1982, 5:179–182.
7. Haas, M., DC, Peterson, D., DC, Hoyer, D., DC, Ross, G., DC, The Reliability of Muscle Testing Response to a Provocative Vertebral Challenge, Journal of Chiropractic Techniques, 1993, 5:95–100.
8. Pothmann R, von FS, Hoicke, C., Weingarten, H, Ludtke, R., Evaluation of Applied Kinesiology in Nutritional Intolerance of Childhood, Forsch Komplementarmed Klass Naturheilkd, 2001, 8:336-344.
9. Schmitt, W. DC, Leisman, G., MD, Correlation of Applied Kinesiology Muscle Testing Findings with Serum Immunoglobulin Level for Food Allergies, International Journal of Neuroscience, 1998, 96:237-244.

To Muscle Test or Not to Test That is the Question?

Paul T. Sprieser, D.C., DIBAK

Abstract

For the past forty-four years this question has swirled around the chiropractic profession and has created a rift in the solidarity of the profession. Yet a nationwide survey in 1998 done by the National Board of Chiropractic Examiners show 43% of chiropractors answering, said they used muscle testing in some diagnostic form in the practice on a regular basis.¹ Many chiropractic techniques depend on muscle testing in order to determine their path of treatment. So why so much controversy with the use of muscle testing in the practice of chiropractic?

The purpose of this paper is to point out where the studies that show a lack of validity, reliability, and reproducibility have fallen short. This is because of the experience and quality of the parties doing the manual muscle testing and the muscles selected to do the testing were wrong from the start. So why should we be surprised with the outcome of these studies?

Introduction

The critics of manual muscle testing and Applied Kinesiology keep pointing out that we need to scientifically prove that this tool has legitimate value. That its uses shows that it has validity, reliability and reproducibility to be used in differential diagnosis, prognosis and treatment of neuromuscular and musculoskeletal disorders.

This was well demonstrated by Scott C. Cuthbert, DC and George J. Goodheart, DC in the literature review published in March 2007 in the Journal of Chiropractic and Osteopathy.² This was followed by a paper in the same journal in August 2007, by Marshall Haas, DC, Bruce Cooperstein, DC, and David Peterson, DC,³ which stated its purpose was to disentangle manual muscle testing and Applied Kinesiology, and that it would critique and reinterpret the literature review of Cuthbert and Goodheart. I had carefully read the Cuthbert and Goodheart paper on the reliability and validity of manual muscle testing and I also got at least as many abstracts and conclusions of 135 citations that this paper presented. I then read the Haas, Cooperstein and Peterson paper following the same process of finding and reading as many of the 49 citations abstracts and conclusions that I could, understand the conclusion of this paper.

What I came away with was more confusion and less understanding and I have been using manual muscle testing and Applied Kinesiology almost as long as I have been in practice, which this January 2009 will be 40 years.

Discussion

What I found to be the most glaring was the lack of any review of the actual research studies that were cited in the Cuthbert and Goodheart paper. I reviewed the Haas, Cooperstein, and Peterson paper and checked the references cited. Which totaled 49 in all. Almost one third of the references, 2 through 15 were all pertaining on how to do statistical analysis or review analysis of research papers. Yet none of this analysis was being applied to the reference citations of the Cuthbert and Goodheart paper, but rather to David Walther's books on Applied Kinesiology of basic procedures and muscle testing and Synopsis. A third book was mentioned by Frost, R: Applied Kinesiology a training manual and reference book of basic principles and practices.

The problem with the critics of manual muscle testing is their lack of experience in the use of muscle testing to derive information beyond that of the overall strength of a muscle. Doctors who use muscle testing to not only gauge the strength of a muscle that lends support to the patient's skeletal system. But also to help them determine the course of treatment and improve the likelihood that their chiropractic treatments will last longer.

When a patient's complaints are musculoskeletal in nature whether it is lumbar, thoracic, cervical or for that matter in the extremities, there will always be found a muscular weakness that is present in this condition. It may be the cause of the patient's symptoms, a mediator or the effect of trauma, but it must be checked by MMT and treated by the various chiropractic techniques and then reevaluated to insure proper recovery and healing. If these muscular weakness are not evaluated the structural correction will most likely return in short order requiring more frequent treatment for a longer period of time.

Taking my self as an example I use Applied Kinesiology and muscle testing on every patient I treat. I tend to treat the whole patient and not just an area of complaint. I have taken the time to count the number of muscle tests performed on the average patient during a typical 15-minute office call. The number of muscle tests per visit was counted on 100 patient visits. What I found was, on average of 114 individual tests were performed on each patient during an office call.

If I extrapolate this information over the course of a typical week's practice which is three and a half days with an average of 75 patient visit that would mean that I performed 8,550 muscle test a week. On a 50 week a year basis it would mean that I performed as many as 427,500 muscle tests over the course of a year. You can imagine that my skill and the skill of any chiropractor doing this type of testing on every patient would make us much more sensitive to any change in muscle strength.

These factors come into play in most of the studies that were cited in the Haas, Cooperstein and Peterson study. Another critical factor is the muscles that are used in the studies that are present in this paper. The indicator muscle, as it is known in AK, which the doctor use to derive information, is referred to as a provocative manual muscle test? Its usually standardized into four muscles and they are in the supine position the Gluteus Medius, Tensor Fascia Lata, Pectoralis Clavicular and Sternal divisions. With the patient prone the Hamstring group would be the most often used muscle to use for testing.

Two cases in point in this study first is titled Muscle Testing Response to Provocative Vertebral Challenge and Spinal Manipulation: a randomized controlled trial of construct validity the authors of the study are Haas M, Peterson D, Hoyer D, Ross G. By construct validity is the totality of evidence demonstrates that one element is valid by relating it to another element that is supposedly valid. In the case of this study provocative vertebral challenge using a force applied by hand with a pressure algometer to the lateral aspects

of the T3 through T12 spinous processes should show a change in strength of the indicator or test muscle being used in this case the piriformis. The setting as described is at the Western States Chiropractic College, Center for Technique Research. The participants were sixty-eight naïve volunteers made up of student body, staff and faculty of college.

Herein lies the problem of this study in using MMT with the patient prone the most suitable muscle for testing which can be easily isolated and observed for recruitment is the hamstring and not the piriformis which is much smaller and more likely to give false readings. It is not that the piriformis could not be tested but it would be considered a poor choice in this type of study. I test this muscle very frequently by not as an indicator muscle, but rather as a posterior rotator muscle of the femoral head, or as a support of the sacrum or as a muscle that is frequently involved in the SOT category one pattern.

The second factor that was being tested was the challenge which was the pressured applied to the lateral surface of the spinous processes of the vertebrae from T3 through T12 as it is written in the study (T3-T12). I am making the assumption that the challenge was applied both right and left side of spinous process to 9 thoracic vertebra not just T3 and T12.

This study seems to be testing the basic AK tenet of challenge as a diagnostic tool to locate vertebral subluxation and to find the best vector to apply an adjustive force. This AK principle work accurately if a subluxation is present on the vertebra challenged but would absolutely no effect if there is no subluxation present at the time of the challenge. It would also be hidden to challenge if the section being challenged were part of a fixation complex, which would require two vertebrae to be challenged simultaneously on opposite sides.

The conclusions that are drawn from this by its authors and I quote “For the population under investigation, muscle response appeared to be a random phenomenon unrelated to manipulable subluxation. In and of itself, muscle testing appears to be of questionable use for spinal screening and post-adjustive evaluation. Further research is indicated in more symptomatic population, different regions of the spine, and using different indicator muscles.”

The last sentence in the conclusions would make you think the authors are trying to keep an open mine, but are they? Have these authors done any further studies? Who did the muscle testing in the particular study? What was the training and experience of the person or persons doing the muscle testing? From what I read I would be forced to question the reliability of their finding base upon the two components used in this study, the challenge and the indicator muscle being used. How many of the participants had subluxation in the thoracic region that was being challenged?

In a research paper that I published in the Collected Paper of the International College of Applied Kinesiology (ICAK) in 2001–2002, titled Spinous Process Sensitivity as an Indicator of Subluxation.⁴ I question how accurate are our palpatory skills for detecting subluxation and could soreness at the spinous process be used as an additional factor to confirm that a subluxation is present. I then used standard AK provocative muscle testing with therapy localization (TL) and challenge to confirm my findings. This was carried out on 200 patients checking full spine including cervical, thoracic and lumbar regions. My findings showed abundance of subluxation being present in the same region of the spine T3-T12, in-patients that did not necessarily have symptomatology in the thoracic region. I found subluxations present depending on the vertebral level examined with an average of 23% out of the 200 patient in the study.

The importance of being able to diagnose the presence of a subluxation is vital to us as chiropractors. In a study titled *The Reliability of Reliability*, Mitchell Haas, DC published in *JMPT*, 1991,⁵ examined forty-five original articles addressing the subject of examiner reliability. The conclusions showed only 10 studies properly supported conclusions. He states, “as a whole that the research presented in the chiropractic literature cannot substantiate claims concerning the reliability of any diagnostic instrumentation or palpatory procedures commonly employed by chiropractic physicians”.

The very criticisms that Drs. Haas, Cooperstein and Peterson have for Cuthbert and Goodheart paper, that the literature search citations presented were only positive one seem to hold true in their paper to be only a negative one.

Finally using the very same statement that these authors have included all types of muscle testing done by various different techniques systems such as Sacro Occipital Technique, and Touch for Health should fall under the rubric of MMT being the same as AK muscle testing. There are five studies in the citations the first being: *Test-Retest-Reliability and Validity of the Kinesiology Muscle Test*,⁶ this study was assess Health Kinesiology which is Touch for Health not AK. The test muscle used is not a valid muscle to be used, which in this case was the anterior deltoid, and Dr. Goodheart referred this test, as the arm pull down test. The second study also using the same anterior deltoid muscle test is titled, *Can the Ileocecal Valve Point Predict Low Back Pain using Manual Muscle Testing?*⁷

The third study was titled *Applied Kinesiology in medicine and dentistry—a critical review*⁸ here again the Touch for Health (TFH) is being classified with AK and thought this was the off shoot of a patient education and practice building system. Started by John Thie, DC, who was a member of ICAK. Even though some of the information will be derived from AK its uses and those who use it are usually not health care professions. The by-laws set up by ICAK for those who study and attend the basic 100-Hours AK course, states, that only those profession that are licensed to diagnose or students of health care institutions may study AK. This would include chiropractors, medical doctors, osteopaths, dentist, acupuncturist, and psychologist.

The fourth study that fits under this rubric of MMT are titled *Sacro-Occipital Technique: the so-called arm-fossa test, Intra-examiner agreement and post-treatment changes*.⁹ This is not a standard provocative muscle test used in applied kinesiology and the muscle usually used is not the ones that are used in AK.

To make the assumption that MMT as used in AK would not be the same muscle testing used by chiropractor, medical doctors such as orthopedist, neurologist, and physical therapists is a mistake. The only difference is in the provocative use of MMT with therapy localization, and challenge. This following statement taken from Kendall & Kendall, and Wadsworth-Muscle Testing and Function most accurately states my case.

“Muscle testing demands rigorous attention to every detail that might affect its accuracy. Failure to take into account apparently insignificant factors may alter test results. Findings are only as useful as they are accurate, and inaccurate test results will only confuse while they appear to enlighten. Muscle testing is a procedure, which depends on the knowledge, skill and experience of the examiner and he should not betray, through carelessness or lack of skill, the confidence that others rightfully place in this procedure”.¹⁰

In a fifth study sited on allergy testing titled, *Evaluation of Applied Kinesiology in Nutritional Intolerance of Childhood*,¹¹ certainly had sufficient cases in the study (315) and as conducted by doctors using AK for two years. What the study showed moderate test-retest reliability but no inter-tester reliability. The study looked at specific IgG test such as RAST and compared the outcome to MMT for diagnostic purposes. The problem

of this study is again the experience of the doctors doing the testing and also the number of examiners in this study. The conclusions stated that in general, AK couldn't be recommended for diagnosing nutritional intolerance. However, due to its high sensitivity, it could be a valuable tool to give some preliminary results.

These findings are contrasted to the study titled, Correlation of Applied Kinesiology Muscle Testing Finding With Serum Immunoglobulin Levels for Food Allergies,¹² This study was smaller with 17 patients first being tested with MMT with oral provocative challenge and findings recorded then blood was drawn and was sent out to a recognized blood lab for RAST testing of IgE and IgG, 21 tested foods were done. The lab had no idea what the MMT testing showed. The testing came back showing positive with 1 or 2 allergens detected which compared with AK muscle testing to be positive in 19 of the 21 substances tested. This is a 90.5% correlation and is statistically significant. This study was carried out using muscle testing to identify possible food allergens by someone who experienced and training and it shows in the findings presented.

The outcome of many of these negative studies would probably be different if the doctor selected to do the muscle testing and the muscles selected as the test muscle were chosen with a more careful criteria. This can easily be seen in the 1989 study that was published in International Journal of Neuroscience, titled Somatosensory Evoked Potential Changes During Muscle Testing,¹¹ conducted at New York Chiropractic College, Gerald Leisman, MD, Ph.D., Philip Shambaugh, D.C., and Avery Ferentz, D.C.

It showed that there was a voltage change that could be identified on EEG studies that could detect muscle weakness that occurred during MMT the control showed 18ms base time response. Muscle weakness could be detected with changes in the waveform and timing of as much as 40ms when compared to the control.

Conclusion

Manual muscle testing should be viewed as a functional neurological tool that can be applied by chiropractors as well as other health care practitioners to derive information on a patient's health status. For us in chiropractic it can give us the functional capacity as well as evaluate the causal relationship to postural distortion or gait imbalances and alterations in range of motion as well as many other physiological functions.

A basic course in manual muscle testing should be a part of all chiropractic college programs as well as every other healing art school's training. This should be a standardized system of MMT, such as present in Kendall/Kendall & Wadsworth's book so that any health care provider will have a basic system of training and be able to communicate this information to other health care providers. This training does not have to have any of the provocative form of testing as used in AK.

The studies that have been pointed out as refuting the validity of the use of AK muscle testing methods did not follow established AK protocols, and show a lack of understanding of what provocative testing means. With provocative MMT the sensitivity to changes in the patient's response to "lock" the test muscle and the joint it supports requires very little test force to feel a change, which is registered as weak or strong.¹³ The more experienced the tester, the less force is needed when there is a positive response. When I have been hooked up to a strain gauge while using provocative MMT the measured test pressure being applied is usually under one pound.

The most critical factor is to establish who is qualified to participate as the muscle-testing doctor in any of these research studies. Just because someone read a book on muscle testing or see someone performing does mean the have the ability to do an accurate muscle test. As I pointed out earlier in this paper the number of times a doctor use muscle testing in practice will increase the ability to feel subtle changes while doing provocative MMT. These subtle changes cannot be felt early on when we first learn to muscle test, this come only with time and experience. Like learning to play musical instrument you must practice, and the more you practice the more proficient you will become.

To be qualified to take part in an investigative study on the value of Applied Kinesiology the doctor should have completed the basic 100-hour course, which will require eight to ten sessions approximately a year. Then this system of using MMT must be taken back to this individual's practice and used on every patient seen day in and day out. Only after this is done for a minimum of three or more year do I believe you can be qualified to participate in a research study that use MMT.

Reference

1. National Board of Chiropractic Examiners 1998 Survey of Use of Muscle Testing Practice.
2. Cuthbert, Scott, C., D.C., Goodheart, George, J. D.C.: Research Supporting the Reliability and Validity of Manual Muscle Testing, *Journal of Chiropractic & Osteopathy*, March 2007. 6: 15 (1):4.
3. Haas, Mitchell, D.C., Cooperstein, Robert, D.C., Peterson, David, D.C., Disentangling Manual Muscle Testing and Applied Kinesiology: Critique and Reinterpretation of a Literature Review, *Journal of Chiropractic & Osteopathy*, August 2007, 15: 11.
4. Sprieser, Paul, T. D.C.: Spinous Process Sensitivity as an Indicator of Subluxation, *Collected Papers of The International College of Applied Kinesiology*, 2001–2002. p.p. 37–39.
5. Haas, Mitchell, D.C.: The Reliability of Reliability, *J Manipulative Physiology Therapies*, 1991, 14: 199–208.
6. Ludtke R, Kunz B, Seeber N, Ring J: Test-Retest-Reliability and Validity of the Kinesiology Muscle Test, *Complement Therapy Medicine*, 2001, 9: 141–145.
7. Pollard HP, Bablis P, Bonello R: Can the Ileocecal Valve Point Predict Low Back Pain Using Manual Muscle Testing?, *Chiropractic Australia*, 2006, 36: 58-62.
8. Tschernitschek H, Fink M: "Applied Kinesiology in Medicine and Dentistry: A Critical Review, *Wien Med Wochenschr*, 2005, 155: 59-64.
9. Leboeuf C, Jenkins DJ, Smyth RA: Sacro-Occipital Technique: The So-Called Arm Fossa Test. Intra-Examiner Agreement and Post-Treatment Changes, *Journal Australian Chiropractic Association*, 1988, 18: 67-68.
10. Kendall H, PT, Kendall F, PT, & Wadsworth G, PT: *Muscle Testing and Function* 2nd Edition, The Williams & Wilkins Co., 1971.
11. Pothmann R, Von FS, Hoicke C, Weingarten H, Ludtke R: Evaluation of Applied Kinesiology in Nutritional Intolerance of Childhood, *Forsch Komplementarmed Klass Naturheilkd*, 2001, 8: 336-344.

12. Schmitt W, D.C., Leisman G, MD: Correlation of Applied Kinesiology Muscle Testing Findings with Serum Immunoglobulin Levels for Food Allergies, International Journal of Neuroscience, 1998, 96: 237-244.
13. Cuthbert, Scott, D.C.: The Functional Manual Muscle Test for Diagnosis and Treatment: Applied Kinesiology, (Defending AK Against Our Detractors), Letter to the Editor: Dynamic Chiropractic, Jan. 1, 2008, Vol. 26, Issue 1.

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The Sartorius Muscle as a Functional Neurological Assessment Tool for Evaluating the Intermediolateral Cell Column (Part 1)

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Abstract

This paper consists of two parts due to the complexity of the material. There are two muscles commonly used in the AK system intimate with IML function. They are the sartorius/gracilis (adrenal) and subscapularis (heart).

Part one will elaborate on the IML adrenal relationship and therefore the sartorius/gracilis connection. The IML is an on demand system and is structurally and functionally related to the heart and the adrenal.

Part two will focus on the heart's relationship and therefore the subscapularis muscle. Although these two systems are not completely separate and distinct they can give excellent windows to IML function, both together and individually. This method of evaluation also takes into consideration the fatiguability of these critical systems. It allows you to quantify your treatment protocols based on the fatiguability of these systems. It is truly a functional tool blending AK and neurology.

Methods

In the embryo, the neural crest cells give rise to all the autonomic ganglia, the dorsal root ganglia, the adrenal medulla, the post ganglionic neurons of the autonomic nervous system, and the cranial nerve ganglia of V, VII, VIII, IX, and X. Their derivatives also give rise to olfactory epithelium, the lens of the eye and the hair cells of the inner ear, Schwann and satellite cells, melanocytes and carotid bodies. Therefore the function remains connected throughout life. The key words here are the embryological connection of the adrenal medulla to the dorsal root and autonomic ganglia.

Structure and function of the IML

The intermediolateral cell column (IML) is a column of sympathetic neuron cell bodies from T1 to about L2. It is in a homologous column from the rostral mesencephalon to the sacral cord. The central integrated state of IML is dependent upon the presynaptic input from its rostral, caudal and segmental influences. The presynaptic input to the IML from rostral areas is generated in the reticular neurons of the pontomedullary area and its output is entirely inhibitory and ipsilateral to the IML. There is also some caudal ascending input, via the sacral parasympathetic neurons, and this input is also entirely inhibitory and ipsilateral. The segmental influence is excitatory and is involved in all motor activity giving rise to fuel and oxygen delivery. There is a net contralateral supersegmental input from the mesencephalon which is entirely excitatory. The IML is an interneuron in all reflex and motor loops, and therefore can have an effect on all motor and reflex activity. Hence the results of our muscle testing are, to an extent, dependent on the central integrated state of the IML. That is to say the integration of the segmental cord excitatory reflexes, the supersegmental mesencephalic excitatory, and pontomedullary inhibitory input will dictate the resting state of the IML. Therefore the output to the cardiac and adrenal tissue is especially IML dependent. Or to put it another way, the central integrated state of the IML is literally the command center for heart and adrenal function. It has segmental and super

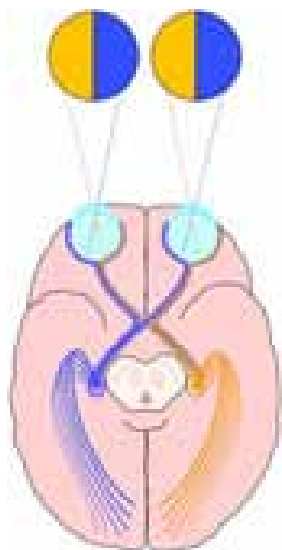
segmental influences, giving rise to a complex and ever-changing function based on the needs of the individual at that moment, maintaining hemostasis. Evaluation of this critical portion of the neuraxis will give windows into the autonomic function of that individual and will advance your clinical skills giving you new ways to enhance your patients' health. There are a number of valid and standardized autonomic tests to evaluate this function as it concerns the function of the IML. These include Vein to artery ratios, bilateral blood pressures, sweating responses, changes in heart rates and rhythm, perfusion indexes and a host of others that are beyond the scope of this paper. I refer you here to Dr. Kathleen Powers excellent review of the IML and it's function, published in the collected papers of AK neurology.

Applied Kinesiology has a way of assessing the central integrated state of the IML using manual muscle testing as a functional neurological tool. It is important here to think of the IML and the utilization of these muscles, the sartorius/gracilis and the subscapularis, as indicators or windows into the functional integrity of the IML. There is an intimate functional and structural relationship between the heart the adrenal and the IML. One should not be tempted to make a direct association between the aforementioned muscle strength or weakness and extrapolate that directly to IML function. This is a functional test for the evaluation of environmental stimulus and its effects on the IML. Keeping that in mind, it is important to analyze a patients' response to environmental stimulus. The benefit to the patient is that you can predict how the homeostasis of that patient will respond to external stimuli. Will it respond too much? Will it respond too little? Will it fatigue? When will it fatigue? What happens to the patient's homeostasis under these conditions? How can I better serve my patient knowing these variables.

The sympathetic and the parasympathetic nervous system are homologous to one another. Technically, when one part is activated it will cause activation in another part. This activation, however, will cause inhibition in the other. In other words, it is impossible to activate only the parasympathetic nervous system or the sympathetic nervous system exclusively. The final output of this homologous system will depend on where and how much activation is applied and the preexisting state of the central pools of these neurons. This central integrated state of the autonomic system is based on the segmental and supersegmental influences. The majority of the net output from structures that effect the sympathetic and the parasympathetic outflow are ipsilateral in nature. That is, the effects of the output are seen mainly on one side of the body. This allows us to measure asymmetry in autonomic function, and gives us important clinical windows. In other words, autonomic function is largely segregated to a side of the body based on the symmetry or asymmetry of cortical, mesencephalic, and pontomedullary or suprasegmental influences. The output of the autonomic system is

based on the segmental and supersegmental influences, as is the motor system. The autonomic system, much like the motor system, is constantly changing based on the needs of the individual. The target of the IML being largely the heart and adrenal to supply the needs of that demand. That is if it all works according to design. Unfortunately, our patients' don't work according to design.

We are fortunate that Dr. Goodheart blessed us with AK as a clinical tool. We are very familiar with differences from side to side in our assessment of muscle function. The IML and it's relationship to autonomic function is also a blessing, in that the differences from side to side are many times extreme and can be measured using standard tests listed above or using AK as functional neurology. In functional neurology Dr. Carrick taught me to always look for the longitudinal level of the lesion (LLL). Dr Goodheart taught me to look for the car doing 35 in a 55 mile per hour zone. They were talking about the same thing. Using this assessment method one can get a better understanding of our patients' needs, based on the highest priority. In other words, "invest a nickel and get a fifty dollar return."



There is a global effect on the homeostasis of the individual by the effects of either sympathetic or parasympathetic outflow. This is due to the effects of the respective neurotransmitters on the target structures. The concomitant underlying asymmetry in neurological function is the essence of this paper. This can explain “why” we often see “weakness” on one side only. For example, only one subscapularis will be “weak” with obvious cardiac pathology. Only one sartorius will be “weak” in states where the patient has obvious effects from massive catecholamine, and or cortisol, excess or deficiency.

Mesencephalon Tectum

The nasal fields of the light pathways are more specific for contralateral activation of the mesencephalon. Since the nasal receptor fields are crossed, when you shine a light on the nasal receptors, the contralateral mesencephalon receives more activation. You therefore observe the pupil constriction on the contralateral side. This occurs from activation of the pre-tectal and Edinger-Westphal nucleus. Even though the Edinger-Westphal nucleus is parasympathetic in its output the mesencephalon has a net effect of increased sympathetic output. This normally results in a net increased sympathetic output to the contralateral IML. Note here that even though the activation of the IML by the mesencephalon is a bilateral event the net effect on the IML is a greater contralateral activation. That is with all else being normal. When the IML comes to threshold the whole column of neurons fire from T1 to L2. Due to its monosynaptic innervation to the adrenal medulla, there is a high probability the adrenal medulla also fires. If there is good integrity in the whole system, the stimulation to the adrenal should not be a stressor to the system. That is to say, that if the descending inhibitory influences from the ipsilateral PMRF balances the excitatory influences from the contralateral mesencephalon, the system remains in homeostasis i.e., not too much excitation and not too much inhibition. The system can turn on and turn off as needed to meet the demand. Therefore, there should be no change in muscle function as seen in testing the sartorius muscle. Nor should there be any change in the function of the subscapularis. If the whole system functions normally and according to the demands of the individual, and assuming that a “weak” or inhibited muscle is not optimal under these circumstances then there should be no change in muscle function. In my experience, there is more specificity to the heart from tectal stimulation. The subscapularis will be covered in more detail in part two.

Tegmentum

The tegmentum is in the ventral portion of the mesencephalon. Therefore it is termed the Ventral Mesencephalic Tegmentum or (VMT). The near/far reflex lives here. When the eyes converge the VMT comes to threshold and fires using dopamine as the neurotransmitter. The VMT is a major Dopamine pump for the brain. It supplies this catecholamine to the brain. The tegmental pathways are not as crossed and specific as in the case of the tectal pathways, therefore there is no way to stimulate only one side of the VMT. When the eyes converge the whole system fires. However, there is massive stimulation at the mesencephalic level with the near reflex, hence, the whole IML is activated bilaterally. We know this because the accommodation reflex or near reflex includes pupil-constriction and thereafter pupil-dilation. For re-dilation to occur, the IML has to fire. If there is no pathology in the system, this happens without any change in muscle function. The system can turn on or off according to the demand.

Testing Procedure

To challenge this portion of the IML, have the patient converge on a target close to the nose. You can even instruct the patient to look at their own nose, or you can have them follow your finger to their nose, as you would do if you were testing convergence. This method of challenging the IML tends to inhibit the sartorius

bilaterally when there is a problem with homeostasis. It is dramatic and many patients do not like the feeling from this stimulation. This is the time to do repeated stimulation to evaluate for fatigue in this system. Ask the patient to follow your finger as you would do if you were testing convergence. Do it once and retest the muscles. Do it a few times and retest the muscle. Note how many time the patient tolerates the stimulation. The patient will tolerate more and more stimulation as they improve.

There is an important otolithic connection in this test. The otolith is also “turned on” by convergence. In my experience, many difficult patients complain of vague symptoms such as the feeling of anxiety, feeling faint, being spacey, floating, or out of body perceptions. Mostly these patients say they are dizzy, but upon further questioning they are not really dizzy at all. Many times these symptoms are related to foods, postural position changes and a host of varied stimuli, but hardly ever specific. Many times we find with AK testing, these patients also have adrenal involvement. It appears that in many cases they have both adrenal and otolithic involvement. These are many times your most challenging patients, most of whom have seen a list of doctors.

Pontomedullary Reticular Formation (PMRF)

For clinical purposes, I will reduce the PMRF to the greatly oversimplified version. I will focus only on the output. There are four basic output systems from the PMRF. They are;

1. Inhibit nociception at the dorsal horn of the spinal cord ipsilaterally.
2. Activate all ventral horn cells ipsilaterally, by inhibiting inhibition
3. Inhibit the IML ipsilaterally.
4. Inhibit Anterior Compartment muscles above T6 and inhibit Posterior Compartment muscles below T6 ipsilaterally.

The output travels in reticulospinal pathways and are ipsilateral in nature. The meaning of this is simple, yet profound, in your understanding of human function. For as you can see, it is involved in; the modulation of pain, the tone of postural muscles, the balance of the sympathetic and parasympathetic nervous system, and walking. Think of the output of the PMRF as parasympathetic, and inhibitory to the ipsilateral IML.

For example: The typical patient with a decreased output of the right PMRF will present with: Increased sympathetic output on the right, for instance, more sweating, increased blood pressures, and increased vein to artery ratios in the ipsilateral eye. They may have right sided migraines, claudication events or any concomitant of increased sympathetic output on the right side. Their pain syndrome may be confined to one side, but seem unrelated. They will be hypotonic on the right side with a decreased arm swing with walking. They may have a postural distortion which appears as a leaning to the left. Upon muscle testing they will have a muscle weakness in a pyramidal distribution on the right. (Refer to Dr. Michael Allens excellent article in the AK neurology papers for specific patterns of pyramidal weakness).

Testing Procedure

Evaluate sartorius for strength.

If normal i.e. not inhibited. Shine light on the nasal fields of the ipsilateral eye to the sartorius muscle that is to be tested. The nasal fields are crossed carrying light information to the opposite side, consequently this stimulation will have a greater activation potential in the contralateral mesencephalon. The output of the mesencephalon crosses back over to the original side from which the light stimulation came to increase

activation of the IML on that side. In other words. If you shine a light onto the nasal fields of the right eye, you are activating the left mesencephalon, which in turn activates the right IML. This is considered normal, although in many scenarios it is not the way you find it, because we are dealing with patients who do not have normal responses, hence they are sick. This is an important way to make sure the systems we use for evaluation and diagnosis are intact. Keeping in mind that the evaluation of muscle facilitation or inhibition uses the IML as an interneuron. Therefore a viable and accurate way of evaluating IML function or the central integrated state of that IML would be an asset to any AK examination. The many excellent papers in the “collected papers of AK NEUROLOGY” elaborate on gating and flexor withdrawal response all lead to proper assessment and understanding of IML function. Part 1 and part 2 are valuable tools in assessing the supersegmental influences. After you have stimulated the Tectum with light re-evaluate the sartorius bilaterally and observe any change in strength. If the muscle becomes inhibited evaluate for additional 5 IVF factors or descending supersegmental controls.

Ventral tegmental stimulation has rostral projections that ascend to the hippocampus, The limbic (hypothalamic) areas, the nucleus accumbens (ventral striatum), and the frontal lobes especially the Prefrontal areas. These are referred to the mesolimbic and mesocortical projections. These areas of the brain are concerned with emotions and behavior, and are involved in my most challenging patients. It is involved in what motivates humankind, both in a positive and a negative way. It is the regulator of our internal environment, and pre-motor commands that drives our thoughts and movement. The near/far or convergence activation is one window into these critical rostral brain structures. The adrenal medulla is the caudal most projection, and our clinical window.

Test with near/far stimulation. Evaluate the sartorius after convergence stimulation. Evaluate the five factors of the IVF, after the supersegmental influences of near stimulation. The VMT is a primary dopamine generator for the entire brain. Evaluate and test dopamine pathways using standard AK methods. Since GABA inhibits dopamine at this level, evaluate and test GABA pathways. If there is poor adaption in the IML, related to either the cardiac or adrenal system, there will be profound inhibition in the respective AK related muscles. This is due to the autonomic supersegmental influences and the IML integration. These responses can be seen ipsilaterally or contralaterally, and are beyond the scope of this paper. Proceed by stimulating the right tectum and observing the responses in all the muscles related to the heart and adrenal. Do the left tectal stimulation and retest all the muscles related to the heart and the adrenal. Provide the near/far stimulation and retest all the muscles related to the heart and adrenal. If either the tectal or tegmental stimulation causes inhibition of any of the typical AK muscles continue as follows. Steps 1–6 in part 2.

Example

Patient presents with facilitated adrenal and cardiac associated muscles, after you have seemingly exhausted all typical AK findings. The patient is still symptomatic.

You stimulate the nasal fields of the right eye, which stimulates the left mesencephalon. The net result of this stimulation crosses back to stimulate the right IML. If that right IML is receiving adequate inhibition from the right PMRF there is balance and no change in muscle strength in either cardiac or adrenal related muscles should occur. Keep in mind here, that the output of the PMRF is to inhibit the flexor musculature above T6 and inhibit the extensor musculature below T6 ipsilaterally. Therefore, if the output of the PMRF is decreased, the flexor muscles above T6 will be facilitated and the extensors below T6 will be facilitated. The net result of all this by reciprocal inhibition is that the extensors above T6 will be inhibited and the flexors below T6 will be inhibited. We all, in AK, are masters of muscle testing so this is a very good window to use. Look for this pattern.

One of the enhanced benefits of this way of evaluating for function is that you can stimulate the system until failure. You can then base your therapy not only on facilitating that muscle once, but lessening the fatiguability in the whole system. This is truly a functional assessment of the patient. See part two for the treatment protocol of the above, because it utilizes the same system.

If this stimulation inhibits the sartorius, for example, you have a supersegmental autonomic influence causing dys-regulation and an uncompensated adrenal medullary system. We will say that left tectal stimulation inhibited the right sartorius. This could mean that there is too much sympathetic output from the mesencephalon firing the adrenal medulla at too high a rate. You can support that adrenal with copious amounts of nutrients, but until you help the patient regulate the supersegmental input to the adrenal, it will continue to fire until it exhausts itself. Therefore, in these cases, it is not appropriate to treat the adrenal as the primary lesion. As Dr. Goodheard would say it is not the car doing 35 in a 55 mile per hour zone.

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The Subscapularis as a Functional Neurological Assessment Tool for Evaluating the Intermediolateral Cell Column (Part 2)

Kurt A. Vreeland, D.C., DIBAK, D.A.B.C.N.

Abstract

The integration to the heart from the IML is truly a diagnostic gift. The brain is the only other place in the human body that has so much of its function so delineated from side to side. It is clearly divided into a right and left side. It has now become clear that the regulation of immune and hormonal function is also lateralized in the brain. The heart and cardiovascular system is also clearly divided into a right and left side. The influence from descending or supersegmental controls is mainly ipsilateral regarding the sympathetic output. The parasympathetic output from the Nucleus of the tractus solitarius (NTS) or vagal influences also follow a similar course. The main difference is that (NTS) or cardiovagal influences mostly the atria and the SA node to decrease heart rate when stimulated.

The right neocortex (prefrontal) fires to the right pontomedullary reticular formation (PMRF). The right PMRF fires to the right IML and the SA node. The left neocortex (prefrontal) fires to the left PMRF. The left PMRF fires to the left IML and the AV node. There is also a powerful monosynaptic input from the ipsilateral cerebellum to the PMRF and the NTS. The point to remember is that the activation from the neocortex to the PMRF is excitatory and that the activation of the IML from the PMRF is inhibitory. The global output from mesencephalic/hypothalamic/limbic activation is mainly contralateral and is excitatory to the IML. The asymmetry of the output from the brain to the heart and cardiovascular system gives us excellent clinical windows of autonomic function. Using Applied Kinesiology we can monitor these windows.

Introduction

Let's recall a very brief review of cardiac circulation. Unoxygenated blood enters the heart through the superior vena cava to the right atrium. From the right atrium it enters the right ventricle through the tricuspid valve. It leaves the right ventricle through the pulmonic valve headed to the lungs. Oxygenated blood returns from the lungs to the left atrium. From the left atrium it enters the left ventricle through the mitral valve. From the left ventricle it enters the aorta through the aortic valve.

The NTS/vagal influences on cardiac function do not provide the best clinical windows because they are not arranged in so clearly an ipsilateral fashion. They have a much more global effect and should be considered in your evaluation of the patients status. Our purpose here is to delineate sympathetic IML output and hemisphere lateralization.

The right IML integrates the SA node. The left IML integrates the AV node. Therefore the regulation of rate and rhythm of the heart is under cortical, PMRF and IML integration. This is important to remember when auscultating the heart. The S1 sound represents the closure of the mitral and tricuspid valve. Since the closure of the mitral is normally louder, then, under normal circumstances, the S1 sound you hear is the closure of the mitral valve.

The closure of the atrial and pulmonic valves is represented by the S2 sound. Since the aortic valve is louder than the pulmonic valve the S2 sound you hear normally represents aortic valve closure. The PR interval on electrocardiograph tracings represents the time between atrial and ventricular contraction, and is directly related to the firing of the (right) SA node and the (left) AV node. The P wave being Atrial depolarization and the R wave being Ventricular depolarization. As the left Ventricle passively fills from the left atrium, the mitral valve begins to close passively. At ventricular systole the left ventricle contracts and the mitral valve closes (slams) shut producing the(S1) sound. The amount of passive filling of the left ventricle, prior to ventricular systole, determines where the mitral valve will be positioned. If, for instance, the mitral valve is open to it's widest position when ventricular systole takes place, the sound of it closing will be louder due to the increased velocity generated by it closing from it's maximum open position i.e., a loud S1. If, on the other hand, there has been maximum passive closure of the mitral valve due to passive filling of the ventricle the velocity generated at the mitral valve at systole would be relatively small and hence a softer S1. The timing between the left atrial [P wave] and left ventricular [R wave] determines the amount of passive filling of the ventricle, hence the relative position of the mitral valve. The longer the PR interval, the quieter the S1 sound. The shorter the PR interval, the louder the S1. Therefore, the strength of the S1 sound is a direct reflection of the PR interval. The PR interval is a window to IML function and the central integration from the brain. Therefore, the S1 sound is a good window for determining the integration of the IML and it's relationship to the supersegmental influences of the brain and the PMRF.

In AK we have established a relationship between the subscapularis and the heart. It is also established that a weak or inhibited subscapularis is not the ideal scenario for the patient. When one is evaluating IML and autonomic function, i.e. blood pressure, cardiac sounds, VA ratios, pupil diameter etc, and the relationship of these signs to fatigue, plasticity and supersegmental influences, one has to consider the supersegmental inhibitory influences from the PMRF and the local segmental and supersegmental excitatory influences from the mesencephalon. It may sound complicated, but it is quite simple once you get the hang of it. The next logical step in the process is to see if the subscapularis is influenced, and if so, would it change as did the sartorius when placed under autonomic stressors. In fact, this is the case. Dr. Goodheart gave us a tool that not only assesses for static function, but can be used as a functional neurological assessment. It has been my experience that in general most patients “in the clear” don't test “weak” with the subscapularis, in spite of the fact that cardiovascular disease is rampant in western society. I have often thought of this as odd, and that I was missing, or at least under-diagnosing, cardiovascular problems. Now there can be a rational explanation for it. Now when I test the subscapularis, I always provide some kind of autonomic stress, and frequently find it involved. The IML and cardiac output is an “on demand” system. As the patient lies on your table there is obviously very little demand. This might explain why, in the absence of frank cardiac pathology, the subscapularis was, for me at least, a relatively poor indicator of cardiac function. When you evaluate for brain asymmetry, i.e. hemisphericity and PMFR output and IML function, there is a difference almost universally in your patient population. Consider that the influence of the brain is directed at the IML and therefore, the heart and the adrenal, to meet the demands of any situation either real or perceived.

Methods

The neurophysiology and the neurological circuitry of the aforementioned is contained in my paper entitled “The Sartorius Muscle as a Functional Neurological Assessment Toll for Evaluating the Function of the Intermediolateral Cell Column (Part 1).”

Evaluate the subscapularis for function “in the clear.” If found to be normal provide the following autonomic stressors and reevaluate the subscapularis.

1. Provide tectal stimulation by activating the nasal receptors of one eye. Next retest the sartorius/gracilis and the subscapularis bilaterally. Test each eye separately.
2. If tectal stimulation causes a change in muscle function, there is a supersegmental influence on the IML causing poor adaptation to the heart, and or the adrenal.
3. Place the red/blue glasses on the patient and reevaluate the subscapularis muscle. Make sure you evaluate both sides of the brain by turning the glasses upside down, so the red/blue lenses are opposite. If the red/blue glasses changes subscapularis function, this confirms that there is a supersegmental influence.
4. Remove the red/blue glasses, Place a tuning fork over a bony prominence on the upper-extremity on the side of the blue lens. For example, If the blue lens was on the right side when the subscapularis became facilitated place the tuning fork on a bony prominence on the right upper-extremity and evaluate the subscapularis.
5. Using the above as an example, the subscapularis is inhibited by tectal stimulation. The red/blue lenses facilitate the subscapularis with the blue portion on the patients’ right. Vibratory input on the right also facilitates the subscapularis. This is good confirmation of the patient needing input from the right to effect the PMRF output on the left.
6. Another confirmatory step is to test flexor/extensor muscle relationships in a pyramidal distribution of weakness on the side opposite the blue lenses. This is good evidence and confirmation of of asymmetrical hemisphere output or in this case a left hemisphericity

Next continue to provide tegmental stimulation by causing the near reflex. Then continue through the above steps to evaluate for any change in subscapularis function. The advantage of this technique is that you can evaluate the system for fatigue. The is true for both tectal and tegmental stimulation. For instance one or five stimulations may not cause the muscle to be inhibited but 10 stimulations will cause inhibition. Overactivity and or fatigue in the IML and its relationship to the heart and the adrenal is unique to this technique. Another important component of adding functional neurology to the AK practice is the ability to assess your therapy based on fatiguability of the system tested, and your ability to change the point at which the system fatigues.

A very important component of this technique is for the clinician to understand that the light pathways to and from the mesencephalic tectum and to the IML are very specific as they integrate on the Ciliospinal center of Budge. They do this not directly from the pretectal nucleus, but from activation of the mesencephalon and the hypothalamus. The primary neuron for pupil dilation is in the hypothalamus. It synapses on the second order neuron on the upper 3 or 4 thoracic segments at the Ciliospinal center of Budge, or the upper thoracic IML / IMM. Axons arise from the IML and enter the cervical sympathetic chain, passing through the inferior and middle cervical ganglia and synapsing on the third order neuron in the superior cervical ganglion. From there axons arise and enter the cranium with the internal carotid to the ciliary ganglion to control pupil dilation and blood vessel tone in the cranium. This is very important pathway to become familiar with, as it is the pathway to consider when evaluating the retinal vein to artery ratios. The vein to artery ratios also reflect the cranial vessel diameters. Therefore, they contribute to the probabilities of hypoxic brain events. These ratios are commonly used in neurology to evaluate the relative sympathetic verses parasympathetic tone ipsilaterally. Using the aforementioned procedures with AK muscle testing, has added another dimension to both AK and chiropractic neurology.

This is not a stand alone technique. It is a new method to improve your patients' hemostasis combining AK and functional neurology. When you find a change in subscapularis and/or sartorius function you should also revisit the 5 factors of the IVF. Any one or combination of these can make the difference.

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Division II

Critical Review

A Case Study—Applied Kinesiology, Chiropractic, and Nutritional Management of a Multi-Symptom, Premenopausal Woman

Carl T. Amodio, B.A., D.C.

Abstract

Objective

Chiropractic care and management of a 43 year old woman complaining of shortness of breath, “lightheadedness,” and mood swings, following the *Quintessential Applications* protocol, a physiologically based, basic science driven, neurological hierarchy for the ordered application of clinical procedures and techniques.

Clinical Features

A 43 year old woman is followed through a three month course of care utilizing applied kinesiology techniques placed within the context of the *Quintessential Applications* Protocol. The patient in this study had reported feeling light-headed, having shortness of breath, and mood swings on a daily basis. Physical, neurological, and orthopedic exams were performed to rule out life threatening pathology. Previous complaints of arthritic pain, back pain, chest pain, fatigue, headaches, menstrual cramps, neck pain, numbness, and dizziness were also present. Hair analysis for heavy metals, and saliva hormone tests were performed. Care consisted of: the ordered application of clinical procedures to include various applied kinesiology techniques, nutritional supplementation, and the removal of spinal and extra-spinal subluxations.

Intervention and Outcomes

The patient received two or three chiropractic adjustments per month, over a three month period, totaling eleven, to reduce subluxations. Postural analysis, muscle testing, palpation, saliva hormone testing, and hair analysis were performed. In addition, physical, neurological, and orthopedic exams were utilized to determine subluxations, nutritional deficiencies, and endocrine disturbances. Functional assessments including multiple sensory receptor based challenges were performed, resulting in muscle testing outcomes that were used to direct appropriate therapy. The patient became asymptomatic after three months of treatment.

Conclusion

The patient responded favorably to initial therapeutic interventions with increased range of motion, functional improvement in muscle strength of inhibited muscles, and increased balance. The patient’s original complaints of shortness of breath, mood swings, and “lightheadedness” were resolved within a few visits. The remaining symptoms resolved over the course of the next 3 months of care.

Key Indexing Terms

Mood, Headache, Lightheadedness, Hormone, Chiropractic, Applied Kinesiology, Subluxation, Endocrine, Joint Pain, Menstrual Pain

Introduction

The following case report describes the symptoms of a 43 year old Caucasian woman that presented to my office complaining of having shortness of breath, light-headedness, and mood swings. Other symptoms included: arthritic pain, back pain, chest pain, fatigue, headaches, menstrual cramps, neck pain, numbness, and dizziness. It was apparent from our initial consultation and examination that she was suffering from significantly disturbed functional biomechanics and also disturbed functional biochemistry. Objective findings correlated well with subjective complaints and suggested the need for conservative therapeutic intervention.

Initial therapeutic intervention included efforts to address systemic nutritional factors vital for proper healing; and having a direct impact on nerve, brain, and immune function, inflammation, energy production, tissue oxygen supply, cartilage, and connective tissue repair. Numerous allergies were present, so initial efforts included allergy desensitization techniques as well as histamine lowering nutrients and essential fat supplementation to help decrease inflammatory processes. Systemic structural factors resulting in aberrant postural patterns (often secondary to immune system dysfunction and having a direct impact on the mesencephalic reticular formation, affecting pattern generation, TMJ muscle function, and autonomic expression) were also addressed.⁷ Hair analysis was taken to rule out heavy metal toxicity and added stress on the immune system. The endocrine system was out of balance and the patient showed adrenal hypofunction as well as thyroid and ovary involvement.

A saliva test was also taken to check hormonal balance and rule out Cortisol/DHEA divergence and immune suppression. Recommendations were made regarding: diet changes, exercise, and nutritional supplementation to help reduce inflammation, for endocrine and immune support, and to encourage tissue healing. Patient responded favorably to initial therapeutic intervention with increased range of motion, improved cerebellar tests, functional improvement in muscle strength from inhibited muscles, as well as elimination of presenting symptomatology. A progressive and continual alleviation of all symptoms occurred with subsequent visits.

Materials and Methods

A 43 year old, Caucasian woman presented at my office feeling “light-headed,” having shortness of breath, and mood swings. Additional questioning on history revealed the presence of arthritic pain, back pain, chest pain, fatigue, headaches, menstrual cramps, neck pain, numbness, and dizziness. Patient was initially examined using a combination of orthopedic tests, postural analysis, cerebellar testing, palpation, and muscle testing. Additionally, a hormone evaluation and hair analysis were performed.

Postural analysis revealed an elevated left ilium and an elevated left scapula. The patient performed the one-leg Romberg’s test with eyes open and eyes closed.¹ One leg stance was stable for 20 seconds bilaterally with eyes open, 15 seconds on the left leg with eyes closed and 5 seconds on the right leg with eyes closed. Palpation tenderness was noted at the following levels: C1, C4-C7, T8, 10, 12, L1, 3, 5 and the left ilium.

Subluxations were identified at C1, C5, T4, T6, T12, and L3, with a Category two pelvic subluxation. Manual muscle testing demonstrated that the left Gluteus Medius, left Psoas, bilateral Sartorius, and bilateral Gracilis were conditionally inhibited² during the initial visit. Further examination of the patient’s hormonal status was obtained with a saliva hormone test that demonstrated decreased estradiol and decreased testosterone for a premenopausal woman. Saliva estradiol measured 1.0 pg/ml, (normal range indicated for the test was 1.3-3.3

pg/ml). Testosterone measured 13 pg/ml, (normal range indicated as being within 16–55 pg/ml). Hair analysis displayed results for mercury and aluminum at toxic levels (.068pg/mg, and 1.71pg/mg. respectively).

Over the course of eleven visits spanning three months, the patient was examined utilizing the *Quintessential Applications clinical protocol*, a 32-step protocol that is a physiologically based, basic science driven, neurological hierarchy, for the ordered application of clinical procedures and techniques. Neurolymphatic (Chapman's) reflexes (CR), associated with the conditionally inhibited muscles were stimulated with gentle but firm rotary massage for approximately 60–90 seconds each. Adrenal, ovary, and thyroid CR's were treated along with nutritional support for the adrenals and ovaries. The anterior CR's associated with the Gracilis and Sartorius (adrenal muscles) are located approximately one inch lateral and two inches superior to the umbilicus bilaterally. The anterior CR for the Gluteus Medius (reproductive muscle) is located at the superior aspect of the pubic bone. The anterior CR for the Teres Minor (thyroid muscle) is located at the second intercostal space bilaterally.

An aspirin mix (Aspirin/Acetaminophen/ Ibuprofen), was orally tested and showed a temporary facilitation of an inhibited muscle, indicating excessive systemic inflammatory responses. Fish oil was then orally tested and indicated at this point. In addition, an antihistamine mix (Yakitron, Cimetidine, and Diphenhydramine) was orally tested with an inhibited muscle and showed a strengthening response. This indicated excessive histamine and a systemic allergic reaction. The allergies were then treated by Injury Recall Technique (IRT) to the involved CR with the offender on the tongue, and patient was instructed to modify her diet accordingly. All subluxations were corrected with specific chiropractic adjustments utilizing the FRA (Flexor-Reflex Afferent) technique to determine the subluxation hierarchy.³

The initial examination and treatments, including CR stimulation, nutritional supplementation, neurological muscle facilitation, and chiropractic adjustments, alleviated the patient's presenting symptomatology. Subsequent appointments were scheduled for once a week and continued to reduce symptomatology, appropriate neurologic facilitation of muscles, and eliminate active Chapman's reflexes. Gustatory stimulation of various nutritional products were tested and revealed muscle facilitation responses corresponding to the organ in need of support, to maintain biochemical and neurological integrity.⁴ Follow up visits focused on proper TMJ function to regulate proper facilitation and inhibition of the muscles of mastication, due to the prevalence of TMJ dysfunction and headaches;⁵ and the cranial-sacral respiratory system as corrected with the S.O.T. blocks.⁶

The TMJ dysfunction was addressed with the use of IRT to restore proper muscle spindle cell activity and “unlock” the encoded trauma in the area. The immune system was driving the TMJ dysfunction due to overall stress precipitated by adrenal dysfunction. Adrenal Challenge test was performed and addressed on the second visit and checked each visit subsequently. The immune circuits were also addressed on most of the visits and needed to be reset and strengthened frequently with nutritional supplementation and CR work.³ After eleven visits, the patient reported that she was asymptomatic. Subsequent lab tests of hair analysis and salivary hormones were not performed as of yet, so objective changes, if any, were unable to be recorded.

Discussion

A patient presenting with light-headedness, shortness of breath, and mood swings, coupled with previous complaints of chest pain, dizziness, numbness, fatigue, neck pain, and back pain, should immediately receive further examination and differential diagnosis in order to rule out potential pathologies or life threatening conditions. After the doctor has determined that the patient's complaints are not life threatening, further examination and treatment options can be pursued.

Quintessential Applications (QA), an AK clinical protocol developed by Dr. Walter H. Schmitt, D.C., DIBAK, DABCN, is a 32-step physiologically based, basic science driven, neurological hierarchy for the ordered application of clinical procedures and techniques.⁷ QA focuses first on resolving systemic dysfunction, in order to reveal what might otherwise be mistakenly misconstrued as primarily a local problem. Manual muscle testing is used in order to evaluate the status of anterior horn motor neuron pools associated with the tested muscle. Sensory receptor based challenges may result in a change of anterior horn motor neuron pool activity, resulting in a change in muscle testing outcome, causing an inhibited muscle to become facilitated or vice versa, thereby directing the practitioner to provide appropriate therapy.⁴ It is this author's opinion that the QA protocol allowed for a quick and effective resolution of the patient's presenting symptomatology as well as her more chronic complaints.

Conclusion

A 43 year old woman with various systemic complaints experienced benefits from chiropractic care, applied kinesiology, and an ordered application of clinical procedures approached in a neurological hierarchy. Patient presented with shortness of breath, dizziness, light-headedness, fatigue, chest pain, neck pain, back pain, headaches, mood swings, numbness, and menstrual cramps. This case suggests correlations between the systemic symptomatology and subluxations, aggravated and affected by structural, chemical, and emotional factors. The QA protocol allowed the doctor to clear the underlying systemic factors first, to allow for more permanent and lasting corrections of the more local complaints and issues.

Finally, this case suggests that specific chiropractic adjustments to reduce subluxations, nutritional supplementation, and applied kinesiology applied in an ordered neurological hierarchy, can be greatly beneficial to patients that are experiencing the aforementioned symptomatology, when further immediate medical attention is not necessary. Further study is needed to confirm and validate these findings.

Acknowledgments

Special thanks to Dr. Walter H. Schmitt, D.C., DIBAK, D.A.B.C.N., for his development of the *Quintessential Applications* clinical protocol and for providing me the information on which this paper is based.

References

1. Brinkman DM, Kuipers-Upmeijer J, Oosterhuis HJ. Quantification and Evaluation of Five Neurological Equilibrium Tests in Test Subjects and Patients. *Ned Tijdschr Geneeskd.* 1996 Nov 2; 140 (44): 2176-80.
2. Leisman, G., et al. Electromyographic Effects of Fatigue and Task Repetition on the Validity of Estimates of Strong and Weak Muscles in Applied Kinesiology Muscle Testing Procedures. *Perceptual and Motor Skills.* 1995; 80:963-977.
3. McCord KM, Schmitt WH. Quintessential Applications A(k) Clinical Protocol. 1st Ed. St. Petersburg, FL: Health Works!; 2005. Sections 5, 6, 9–11, 14–16, and 26–29.
4. Schmitt W., Yanuck S. Expanding the Neurological Examination Using Functional Neurologic Assessment Part II: Neurologic Basis of Applied Kinesiology. *International Journal of Neuroscience.* 1999; 97:77-108.
5. Feteih RM. Signs and Symptoms of Temporomandibular Disorders and Oral Parafunctions in Urban Saudi Arabian Adolescents: a Research Report. *Head & Face Medicine.* 2006 Aug 16; 2:25.
6. Getzoff H, Sacro Occipital Technique Categories: a System Method of Chiropractic. *Chiropractic Technique.* May 1999; 11(2): 62-5.
7. Schmitt WH. The Neurological Rationale for a Comprehensive Clinical Protocol Using Applied Kinesiology Techniques. *Proceedings of the Annual Meeting of the ICAK,* June 2005.

A Case Study—Amelioration of the Cocksackie Virus in a Female Patient Using an Applied Kinesiology Clinical Protocol

Carl T. Amodio, B.A., D.C.

Abstract

Objective

Chiropractic care and management of a 47 year old woman complaining of generalized anxiety since she was 23 years old, with more recent panic attacks, feelings of being overwhelmed, sleep difficulties, chest pain, and decreased visual acuity. These were apparently symptoms related to viral myocarditis and in particular, a Cocksackie viral infection of the heart.

Clinical Features

A 47 year old female patient presented with various symptoms to include overall emotional stress (including anxiety and panic attacks), decreased visual acuity, sleep difficulties, weight management issues, rosacea, and feelings of being overwhelmed. The patient also had complaints of diffuse chest pain, pressure, and overall discomfort, as well as right elbow pain. An interesting clinical side note is that she had been previously diagnosed with a very rare condition known as Gardner-Diamond Syndrome (autoerythrocyte sensitization syndrome). In 1955, Gardner and Diamond described four patients, all women, who responded unusually to bruising. It was also noted that a high frequency of emotional disturbances have been reported in patients with autoerythrocyte sensitization syndrome.

Interventions and Outcomes

The patient received functional neurological muscle testing and treatments to include nutritional therapies, homeopathic remedies, cold laser therapy, lymphatic drainage, and chiropractic adjustments.

Outcomes included elimination of symptoms and apparent elimination of a Cocksackie viral infection afflicting the heart. The patient has not been released from care but is no longer being treated for the aforementioned condition or related symptoms.

Conclusions

The patient responded favorably to initial therapeutic interventions with increased range of motion, functional improvements in muscle strength of inhibited muscles, and overall increased balance. The patient's original complaints of emotional stress and overwhelm subsided to some extent, but continued to persist along with the other symptoms until the virus was eliminated.

Key Indexing Terms

Cocksackie Virus, Chiropractic, Applied Kinesiology, Myocarditis, Heart Failure, Cocksackie B Virus, Dilated Cardiomyopathy, Anxiety, Chest Pain, Angina Pectoris

Introduction

The Coxsackie virus is the most common cause of acute myocarditis which could lead to more serious illnesses including chronic myocarditis, dilated cardiomyopathy, substantial cardiac damage, and severe acute heart failure.^{1,3,4} Although, age is a determinant for the increased susceptibility to any infection including the Coxsackie virus,² this is not only an illness affecting an aged population, but also young adults. While the complete cascade of events related to this virus is unknown, there is substantial evidence that suggests there is a dysregulation of the body's immune system causing detrimental degenerative changes to the myocardial tissue.¹ Being an opportunistic virus, we know that it is imperative to have optimal immune function to initially prevent the infection. We also know with the study of neuroimmunology, that there is an important connection between the nervous system and the immune system. If functional integrity of the nervous system is lost, the body may lose its ability to maintain proper immune homeostasis and function. In applied kinesiology (AK), manual muscle testing is used to evaluate the neurological integrity of a patient via sensory receptor based challenges.⁵ Through the use of an AK clinical protocol called *Quintessential Applications*, a neurological hierarchy is implemented to evaluate and treat patients with an ordered application of clinical procedures. The imbalances in the nervous system are then addressed and cleared in a precise systematic fashion in order to achieve maximum results and return the patient to neurological homeostasis.

Materials and Methods

A 47 year old female patient presented to my office with a musculoskeletal complaint of right elbow pain, but her major complaints consisted of anxiety, panic attacks, and feelings of being overwhelmed. She also complained of diffuse, general chest pain, pressure, and discomfort; decreased visual acuity; sleep difficulties, rosacea, and weight management concerns. The patient was in overall good health with proportional height and weight (5'6", 128 lbs). She was a former competitive athlete, and stays active with her current occupation of outside sales. She was concerned about a family history of heart attack, because her father died at an early age due to a myocardial infarction brought on by a viral infection. The patient's past interventions included acupuncture two times per week and biofeedback with minimal results.

The patient's care was coordinated through a medical doctor to rule out any serious pathology or heart condition. The medical doctor ran all relevant heart related tests and could not come up with any heart problems. They also ran a thyroid profile and are subsequently managing her with thyroid medication. Their final diagnosis was acute anxiety and recommended anti-anxiety medication to help reduce her stress. A thoracic and chest x-ray series were also ordered to rule out pathology, with negative impressions.

At this point, it was decided that the patient should be assessed with The *Quintessential Applications* applied kinesiology clinical protocol, a 32 step protocol that is a "physiologically based, basic science driven, neurological hierarchy, for the ordered application of clinical procedures and techniques."⁶

Initial therapeutic intervention included efforts to reduce cortical and/or cerebellar asymmetry and restore normal muscle spindle cell control mechanisms necessary for muscular and postural control. Systemic nutritional factors vital for proper healing, and having a direct impact on nerve, brain, and immune function were also assessed; as well as inflammation, energy production, tissue oxygen supply, and connective tissue repair. Systemic inflammation levels were determined by the strengthening of an inhibited muscle with an aspirin mix (Aspirin, Acetaminophen and Ibuprofen) placed on the tongue, allowing the gustatory receptors to respond to the mix. Oral nutrient testing further revealed the need for essential fats, in particular,

Omega 3, to be added as a natural systemic anti-inflammatory.^{5,6} Systemic structural factors resulting in aberrant postural patterns, often secondary to immune system dysfunction, and having a direct impact on the mesencephalic reticular formation, affecting pattern generation, TMJ muscle function, and autonomic expression, were also addressed.

The adrenal glands were also evaluated by the Adrenal Challenge Technique within the first few visits, and the patient was given the necessary supplementation as well as Chapman Reflex (CR) stimulation, to help normalize function as quickly as possible.⁷

Subluxations were assessed and corrected on every visit using the FRA (Flexor Reflex Afferent) technique for hierarchal subluxation correction along with coupled adjusting.⁷ Initial exam revealed subluxations at C2, C4, C5, T5, T9, T12, right posterior ilium, and a left first rib. Segments varied with each visit, and included upper extremity adjustments of the right elbow and wrist over the course of treatment.

The patient was seen 1–2 times per week for approximately one month with positive effects, including better sleep. During that time a hair analysis was also acquired. The labs indicated elevated levels of Tin (.655 with normals being $\leq .149$), Bismuth (1.703 with normals being $\leq .178$) and Antimony (.030 with normals being $\leq .016$). Treatment was then augmented to help eliminate the metals with a homeopathic product. However, after one month, her anxiety, panic attacks, emotional distress, and chest pain were still an issue.

During one visit, approximately one month after her initial visit, clinical assessment included bilaterally inhibited Subscapularis muscles. Upon Therapy Localization (TL) to the CR, the muscles facilitated. She was then tested utilizing homeopathic frequency vials, revealing a positive test for the Cocksackie virus. During history and consultation, it was noted that her father had died of a myocardial infarction exasperated by viral myocarditis. The doctors at the time of her father's death did not specify the type of virus, but there appears a strong possibility at least, that it may have been the Cocksackie virus. The virus is known to go years being undetected, asymptomatic, and is also very contagious.

At this point, the patient was directed to begin homeopathic remedies for the Cocksackie virus immediately, as well as cold laser therapy treatments over the area of the heart. The laser was set at varying frequency settings to affect the Cocksackie virus frequencies directly. It is well documented and known that each virus strain has a different frequency and as such can be specifically targeted with a homeopathic remedy as well as laser frequency treatment. The Cocksackie virus has six known strains classified as B1, B2, B3, B4, B5, and B6; each with differing frequencies. The patient tested as having multiple strains from B2-B5. The cold laser treatments also assisted the patient with reduction of inflammation and lymphatic congestion in the thoracic area, which sometimes occurs with Cocksackie or any other viral infection.

In addition to the cold laser therapy, a light beam generating lymphatic drainage machine was used to facilitate lymphatic flow throughout the body. This device was placed over the axillary lymph vessels and directly over the heart. Utilizing cold gas ionization, the procedure allowed the lymphatic vessels to drain, facilitating the release of toxins as the virus was eliminated. The laser and lymph drainage treatments were utilized twelve and ten times, respectively, over the course of two months treatment. These treatments were given as an adjunct to her regular visits.

After two months of treatment, the patient tested negative for the Cocksackie virus utilizing the homeopathic frequencies. Bilateral Subscapularis tests were normal and facilitated, and most of all, the presenting symptoms had greatly diminished.

The anxiety and panic attacks had subsided, the chest pain subsided, and the patient began sleeping without difficulty. As a side effect, the feelings of “being overwhelmed,” and persistent elbow pain were alleviated. The patient has not been discharged from care, but is no longer being treated for the Coxsackie virus, and has been moved to maintenance care. Lab tests have not yet been re-administered to evaluate for reduced metal toxicity, and further testing is warranted to confirm all findings. Echocardiogram was also performed with all normal conclusions.

Discussion

Cardiovascular disease is now the leading cause of death in the United States and is estimated to be the leading cause of death in the world by the year 2020. A significant proportion of heart disease in Western populations is associated with inflammation. Myocarditis, or inflammation of the heart muscle, is the major cause of sudden death in young adults. Although most individuals recover from acute myocarditis, genetically susceptible individuals may go on to develop chronic myocarditis and dilated cardiomyopathy (DCM) resulting in congestive heart failure.³ Viral infection of the heart is relatively common and usually of little consequence. It can, however, lead to substantial cardiac damage and severe acute heart failure. It can also evolve into the progressive syndrome of chronic heart failure.

Recent studies have gone some way towards unraveling the complex mechanisms underlying the heart muscle damage that occurs after viral infection.⁴ When it comes to a Coxsackie viral infection, there are many events that take place that can cause harm to the patient. The most damaging aspect of this viral infection is the cardiac remodeling that takes place, and if too extensive, may contribute to disease. Remodeling is achieved by extracellular proteolysis. As this virus replicates in the cardiac myocyte, the immune system is alerted by several signaling events. This complex series of reactions has been shown to be the cause of the cardiac remodeling, which is caused by the extracellular proteolysis activity.¹

A practitioner is confronted with many different alternatives to assess a patient with presenting symptomatology. Without an ordered approach to our clinical assessment, it becomes increasingly difficult to do an effective differential diagnosis. With the proper tools however, one can effectively understand the functional imbalances and disease process in the body. It is this author’s opinion that the *Quintessential Applications* clinical protocol allows the practitioner to approach and assess anyone with any presenting symptomatology, utilizing a functional neurological hierarchal approach. After serious pathology is ruled out early in the assessment, conservative, adjunct therapies and care can then be delivered.

If a patient presents with any of these aforementioned symptoms, it would be wise for the healthcare practitioner to rule out viral myocarditis and in particular the Coxsackie virus early on in the protocol. You may just save their life with your quick and decisive intervention.

Conclusion

While traditional allopathic medicine techniques advocate the use of Angiotensin Converting Enzyme (A.C.E.) inhibitors, Beta (Adrenoceptor) blockers, and spironolactone to improve the prognosis of a patient with Coxsackie viral infection,⁴ this author suggests that these treatments do not address the underlying issue of this devastating virus and do not eliminate it from the body. Homeopathics and laser frequencies, along

with functional muscle testing, can help to address the virus directly. The integrity of the nervous system is vital, and as such, should be evaluated concurrently for any and all functional imbalances. The application of the *Quintessential Applications* protocol allows for the ordered application of clinical procedures. This allows for a complete and thorough patient assessment and treatment in a neurological hierarchy. Of course, a strong immune system is necessary to both aid in the prevention of the initial infection of the virus, as well as aid in the control and eventual elimination. A healthy immune system to prevent opportunistic infections should be the goal of any health practitioner.

Though positive outcomes are seen in this particular case, further studies are recommended and warranted.

Acknowledgements

Special thanks to my patient and her passionate desire for me to write this paper as a beginning to understanding this devastating virus and a hope for many who have been diagnosed or are experiencing the symptoms with no diagnosis.

References

1. Crocker SJ, Frausto RF, Whitmire JK, Benning N, Milner R, Whitton JL. Amelioration of Coxsackievirus B3-Mediated Myocarditis by Inhibition of Tissue Inhibitors of Matrix Metalloproteinase-1. *Am J Pathol.* 2007 Dec; 171(6):1762-73. Epub 2007 Nov 30.
2. Gay RT, Belisle S, Beck MA, Meydani SN. An Aged Host Promotes the Evolution of Avirulent Coxsackievirus into a Virulent Strain. *Proc Natl Acad Sci U S A.* 2006 Sep 12; 103(37):13825-30. Epub 2006 Sep 1.
3. Fairweather D, Rose NR. Coxsackievirus-Induced Myocarditis in Mice: a Model of Autoimmune Disease for Studying Immunotoxicity. *Methods.* 2007 Jan; 41(1):118-22.
4. Kearney MT, Cotton JM, Richardson PJ, Shah AM. Viral Myocarditis and Dilated Cardiomyopathy: Mechanisms, Manifestations and Management. *Postgrad Med J* 2001 January; 77:4-10.
5. Schmitt W., Yanuck S. Expanding the Neurological Examination Using Functional Neurologic Assessment Part II: Neurological Basis of Applied Kinesiology. *Int J Neurosci.*1999; 97:77-108.
6. Schmitt W. The Neurological Rationale for a Comprehensive Clinical Protocol Using Applied Kinesiology Techniques. *Annual ICAK-USA proceedings.* 2005-6; 1:157-161.
7. McCord KM, Schmitt WH. *Quintessential Applications A (k) Clinical Protocol.* 1st Ed. St. Petersburg, FL: Health Works!; 2005. Sections 5, 6, 9–11, 14–16, and 26–29.

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Styles of Manual Muscle Testing in Applied Kinesiology and Physical Therapy

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Abstract

Objective

To review the literature regarding styles, durations and forces used in manual muscle testing in applied kinesiology and physical therapy.

Method

References were found by searching Pub Med and the Collected Papers of Applied Kinesiology on the subjects of manual muscle testing and maximum isometric voluntary contraction testing. Isokinetic testing through out the full range of motion of a muscle's action was not included.

Results

A variety of styles of muscle testing are described in the literature. While results are often similar, they are not always directly comparable.

Conclusions

In order to be replicated, any study using manual muscle testing should specify parameters of the tests used, including exact procedures and instrumentation, duration of test, peak force, and timing of application of force.

Key Indexing Terms

Manual Muscle Testing, Maximum Voluntary Isometric Contraction, Applied Kinesiology

Introduction and Background

Applied kinesiology uses manual muscle testing to identify immediate functional neurological responses to a variety of challenges and treatments. Muscles are tested from a starting contracted position as described by Kendall and Kendall¹ with pressure applied toward lengthening. If the subject can maintain the starting position against gradually increasing pressure for the duration of the test, it is graded as "facilitated," or "strong" corresponding roughly to grade 5 of 5. If the muscle fails to hold the starting position and breaks away, the muscle is rated as "functionally inhibited," or "weak" corresponding to roughly to grades 4 of 5 and below. Applied kinesiologists routinely test muscles before and after applying various challenges and treatments and make clinical judgments based on changes in muscle tests after challenges.²

This binary rating of muscles as functionally normal / abnormal is not extensively described outside the AK literature. It is necessary to determine the degree of allowable variation in test parameters which will produce consistent results in this type of muscle test before the reliability of various challenge procedures used in applied kinesiology can be determined.

This literature review is intended to put AK muscle testing in context and point out aspects of muscle testing which must be defined and controlled in AK research. This review was done as part of a Masters thesis for Royal Melbourne Institute of Technology university (RMIT) in Bundoora, Australia.

The references cited were found by searching Pub Med and the Collected Papers of Applied Kinesiology on the subjects of manual muscle testing and maximum isometric voluntary contraction testing. Isokinetic testing through out the full range of motion of a muscle's action was not included.

In a previous study,³ we found the mean duration of AK muscle testing of the middle deltoid was 1.3 seconds. The range of duration for 41 experienced examiners was from .325 sec to 3.5 sec. There was a suggestion of a bimodal distribution of durations above and below about 1.5 seconds as examiners attempted to execute different styles of muscle tests. Peak force achieved during the test was moderately correlated with duration of the test.

The same data set⁴ showed a broad range of force employed in these tests (0.55 - 23.6 pounds). The force used correlated poorly with size, age and experience of examiners or subjects, style of testing and result of test. It was moderately correlated with the duration of the test ($r=.55$)

Intuitively, longer durations and higher forces would be expected to yield more muscles rated as “weak,” or “functionally inhibited” if AK muscle testing is only measuring resistance to force or local muscle injury. However, AK authors have suggested that what is actually being measured is a complex proprioceptive response to changing pressure, rather than strength of the muscle itself.^{5,6} The range of parameters which yield similar results on this binary evaluation is not currently known. This information is important in training accurate muscle testers and in evaluating the reliability and validity of other applied kinesiology procedures based on muscle responses.

Styles of Manual Muscle Testing – “Make” vs. “Break” Testing

The physiotherapy literature distinguishes between “make” or “active strength” and “break” or “passive strength” testing both in manual muscle testing and in hand-held dynamometry. In both styles, the muscle is tested relatively isometrically, either near its most shortened position or in the middle of its range of motion. In break testing there is also eccentric lengthening as the muscle breaks away. Both differ from isokinetic testing, such as the Cybex⁷, which tests the muscle through an entire range of motion at a constant speed.

Active or “make” tests are similar to maximum isometric voluntary contraction tests—the subject presses against a fixed dynamometer, strap with a force transducer, or the examiner acting as a fixed point.⁸ The subject's own initiative is the only factor involved. In break tests, the subject resists the examiner's increasing pressure until the muscle breaks away. Breaking strength testing is frequently cited as yielding higher peak force measurements than make tests (see below).^{7,9} It appears that for a “make” test where the examiner provides the resistance to be truly different from a “break” test the examiner must be trained to offer unchanging, stable resistance, which is not necessarily a given.

Accurate manual dynamometry requires that the examiner be stronger than the subject, if the breaking force of a muscle is to be measured on each test.⁹

Van der Ploeg and Oosterhuis¹⁰ studied 2 forms of muscle testing for maximum voluntary contraction with a hand held dynamometer, make and break testing, with and without encouragement. Their description of “make” testing is: “In a make test the examiner gives resistance to the force of the patient under static circumstances.” The test is described as isometric. “Break” testing in this study is described as follows: “In a

break test the examiner gradually overcomes the muscle force and stops at the moment the extremity gives away.” This test is described as eccentric. Tests lasted 1–4 seconds. Tests were done both with and without verbal encouragement. They compared subjects who were normal, had known organic neuromuscular disorders, had known “functional” or “conversion symptom” causes of muscle weakness, and a mixed group of both. “Conversion symptom” here means “a relatively persistent loss or alteration in sensory or motor function that cannot be explained by known physical disorders or pathophysiological mechanisms.” The unstated implication is that “functional” weakness is based on a psychological disorder.

Indexes were calculated from the forces recorded as follows:

Break Index: $F_{\text{Break}} - F_{\text{Make}} / F_{\text{Make}} \times 100\%$ (F = force)

Encouragement Index: $F_{\text{with E}} - F_{\text{without E}} / F_{\text{without E}} \times 100\%$
(E = encouragement)

Fatigue Index = $F_{1,2} - F_{9,10} / F_{1,2} \times 100\%$

(F 1,2 - forces of the first 2 contractions in a series, and
F9,10 are the forces of the last 2 contractions of a series)

In healthy subjects, forces recorded in break tests were about 3% greater than make tests. For organic weakness, the break index was a mean of 6% higher than make. Functional weakness had much higher break index (23–200%, mean 68%) and higher encouragement index than either normals or organic neuromuscular disorder subjects. In other words, the force recorded during a breaking contraction or with encouragement was greater than the force in the isometric contraction, particularly for “functionally” weak subjects. For normals and organic disorders, encouragement only increased the force by a few percent. Functionally weak patients also exhibited less fatigability than organically weak patients. The authors interpreted this as being due to aberrant muscle spindle signaling from chronic shortening of the antagonist which is overcome during an eccentric contraction, allowing a more “real” maximum contraction of the agonist. This is similar to Janda’s “muscle imbalance” theory combining “tightness-weakness” of the antagonist with “stretch-weakness” of the agonist.¹¹

One could interpret this study to imply that psychological factors are at play in A.K. testing and that the variations we see are only how hard the patient tries. Since AK tests are submaximal break tests, and the “functionally” or psychologically weak patients did best on “break” tests, this is an unlikely explanation. It is quite possible that the “functional” weaknesses studied by Van der Ploeg and Oosterhuis are simply reversible non-optimum neurological states of the types we see and treat in chiropractic and A.K. routinely rather than the result of aberrant psychology.

Measurement of Maximum Voluntary Isometric Contraction:

Maximum Voluntary Isometric Contraction (MVIC) is tested, by definition, as a “make” or “active” contraction test. The subject pushes against a relatively stationary force-recording device which does not offer any changing resistance. Methods for measuring maximum voluntary isometric contraction are described in many studies. Some use strain gauges and others have the subject press directly against some form force transducer.^{12, 13, 14, 15} For instance, in a study of reliability for experienced and inexperienced raters, Meldrum et al.¹⁶ describe having the subject push against a strap attached to a frame. A strain gauge was strapped to the subject and the frame. For shoulder abduction the subject was positioned supine with the shoulder in 90° abduction. The strap was placed proximal to elbow. The subject was stabilized by straps in the axilla and lateral trunk. The direction given was “Bring your arm away from your body without lifting your arm off the bed”. Verbal encouragement was given to push as hard as the subject could throughout the test. Both intra- and inter-rater reliability were acceptable. Similar data was obtained when the maximum or average of 2 values in a single session was used.

In study of normative values for MVIC in healthy subjects,¹⁷ Meldrum et al. describe the same method for measuring MVIC. In addition, they summarize references comparing MVIC and manual muscle testing (MMT), concluding that generally MVIC shows better sensitivity than does MMT for small changes in quantitative muscle strength in the context of monitoring patients with neuromuscular disease. MMT grading on a numerical scale does not allow for fine objective gradations that can be done when measuring units of force. A muscle may fall within one grade at a range of forces and so small interval changes may be missed. These concerns are important for evaluation of progress or deterioration in a patient in rehabilitation or with a neuromuscular disease.

On especially strong muscles and for weaker testers, it is possible that clinicians may miss subtle changes in strength with AK manual muscle testing as well. In research settings, strapping or mechanically stabilizing the patient's body to ensure muscle isolation should be considered.

Applied Kinesiology Manual Muscle Testing

Kendall and Kendall's *Muscles Testing and Function*¹ has been a gold standard of muscle testing for decades. It is the basis of the manual muscle testing procedures used in applied kinesiology. It includes an extensive discussion of muscle testing and grading. Break testing is described as being applicable to grades above fair. "Fair" is defined as follows (p. 186): "The grade of *fair* indicates that a muscle can hold the part in test position against the resistance of gravity but cannot hold if even slight pressure is added." Fair is equivalent to a grade of 3 on a 0-5 muscle grading system. Grades of "good" (4) and "normal" (5) apply to muscles which can hold against some or full examiner pressure. Most muscles graded as "weak" or "inhibited" in applied kinesiology fall into the good grade, with some grades of fair and below in situations of trauma, nerve damage, etc. Kendall and Kendall do not recommend taking a muscle which is determined to be normal all the way to a breaking point, as it is unnecessary and may cause injury. They also caution that the examiner's application of force must be gradual to achieve an accurate test and to avoid injury.

The test positions shown in Kendall and Kendall differ for muscles spanning one joint and muscles crossing 2 or more joints. Muscles which cross a single joint, such as the deltoid, are tested at the end of the range of motion—in the most shortened position. The best test position for 2-joint muscles, such as the rectus femoris, is in its midrange, or elongated over one joint and shortened over the other. (p. 179 ff)

When expressing the outcome of a manual muscle test as a grade, rather than in units of force, the make/break dichotomy is less relevant. Muscle tests for grading are basically "make" tests, depending solely on the subject's effort against an unchanging resistance (friction or gravity) through grade 3 and potentially break tests once grade 3 has been surpassed. Unless the tester overcomes the muscle being tested every time, this type of testing is theoretically a break test with gradually increasing force until the examiner chooses to stop which may or may not reach the breaking point. In grade 4 tests, where the muscle breaks away in the face of the tester's increasing pressure, it could be called a true break test. The key distinction between "make" and "break" in the physiotherapy literature is whether the resistance the tested muscle contracts against is constant at a fixed location (make) or gradually increasing and mobile (break). This distinction might be purely academic except for the possibility that the two styles monitor different aspects of neuromuscular control.

"Patient Initiated" versus "Doctor Initiated" Manual Muscle Testing According to Schmitt

Schmitt observed that subtle differences in timing seemed to yield different results in A.K. manual muscle testing.¹⁸ He described the usual applied kinesiology muscle test as "doctor-initiated" in which the subject is asked to resist the doctor's gradually increasing force. "Doctor-initiated" testing was described as isometric-to-eccentric testing. "Patient-initiated" testing begins in the same position, but the patient is asked to push

against the examiner's hand as hard as possible and given verbal encouragement through the test. The examiner is described as adding pressure at the end of the test. Schmitt considers this to be concentric-to-isometric testing. In both tests, the examiner attempts to break the patient's contraction, the difference being timing. Theoretically, "doctor-initiated" testing would be similar to physiotherapist's "break" testing. As described, "patient-initiated" testing would be similar to a "make" test which becomes a "break" test. This test has been modeled theoretically as having a force curve of an initial rise, followed by a plateau and a late rise.^{19, 20} In our earlier study,³ only 4 of 242 "patient-initiated" tracings actually showed the predicted force pattern of rise-plateau-rise indicating that the examiner added force late in the test after a perceived maximum contraction was reached. All the rest of the tracings demonstrated a steady rise in force through out the test.

Schmitt postulated that the slight lengthening at the start of the examiner-initiated testing engaged the gamma 1 motor-neuron pathway, the nuclear bag (sensitive to stretch) and primary afferents from the muscle spindle. He suggested that this type of test accessed spinal level proprioceptive reflexes predominantly. Schmitt proposed that the subtle shortening of the muscle at the start of patient-initiated testing tested the static response and preferentially engaged the gamma 2 motor-neurons, the nuclear chain fiber in the muscle spindle and secondary afferents. He observed that patient-started or "gamma 2" testing revealed muscle inhibitions which were caused by supraspinal inputs, such as cranial and temporomandibular joint problems. In later work, Schmitt re-named the 2 testing styles "Type 1" or "G-1" and "Type 2" or "G-2."²¹

Hsieh and Phillips²² did a reliability study with a computerized dynamometer comparing doctor-initiated and patient-initiated testing of 3 muscles by 3 testers over 2 sessions on 2 separate groups of 15 subjects. Testers were an experienced applied kinesiologist, a chiropractic intern with 100 hours of study of applied kinesiology and a physiotherapist with 7 years of experience. Tests were described as follows: "For the doctor-initiated method, after positioning the subject, the tester said, "resist." and began to apply pressure until the subject was able to "lock," or until the tester decided no "lock" was possible. For the patient-initiated method, after positioning the subject, the tester said, "push against me as hard as you can," and when the subject achieved an apparent maximal contraction, the tester then applied slightly more force until a "break" was noted, or no further motion was possible."

The authors concluded that patient-initiated testing was more reliable than doctor-initiated testing with this instrument. However, when the details of this study are examined, problems with this conclusion are revealed. Only peak force was recorded, rather than a continuous recording of force over time, making it impossible to determine the actual timing of each method. There is no record of the duration of these tests. Since the examiners were free to stop the "doctor-initiated" test whenever they were satisfied that the muscle had "locked," or "broken away" it is unsurprising that these tests demonstrated quite a wide variation in peak force. There is no reason to expect that different examiners would make this judgment at the same point. The "patient-initiated" tests required the examiner to maintain pressure until an apparent maximum was achieved. It seems likely that this point would be more similar tester to tester and test to test. The authors also state that different testers appeared not have been doing equivalent things for each testing method. Subjects were tested by one or the other style of testing, not both, making comparison between styles problematic. These problems were addressed to some degree in our later studies by recording force over time and reducing the complexity of the design.

The relative validity of these 2 putative styles became a source of controversy in applied kinesiology based on theoretical arguments. Two studies^{3, 23} were done to try to define what was actually being done when experienced AK testers attempted to test in these different ways. We used surface EMG to identify when the examiner's and subject's muscle contractions started and, in the second study, recorded force over time

with a computerized hand-held dynamometer. We found that very few examiners could accurately identify whether the examiner or subject contraction started first, regardless of the style of testing being attempted. In the second, more detailed, study, the examiner-subject start-time difference of “patient-started” testing was statistically different from “examiner-started” or “near-simultaneous” testing, but all styles of muscle testing centered around 0 difference. Many examiners did not attempt to make a distinction between these styles in practice and, if anything, were attempting to achieve a simultaneous activation of both examiner and subject muscles.

These studies raised the question whether there was another parameter than the relative starting of the muscle contractions which differentiated different testing styles. Forces varied widely and correlated only with duration of the test. Durations of “near simultaneous” tests were significantly shorter than “examiner-started” or “patient-started” tests. Durations seemed to fall into a bimodal pattern, suggesting that perhaps duration was the actual differentiating factor between the styles of testing Schmitt reported.

Vasilyeva²⁴ describes 2 stages of muscle contraction. In phasic contraction the length of the muscle changes concentrically or eccentrically but its tonus remains the same. The balance between agonists and antagonists determines the length of the muscle. This is the initial type of contraction in voluntary movement, regulated by the cerebral cortex. Tonic contraction, involves no change in length of the muscle (isometric) but a change in tone. Vasilyeva cites N.A. Bernstein’s 1929 and 1947 work stating that these two phases are also seen in an isometric contraction. The initial contraction is phasic/voluntary. Tonic contraction appears after 3 seconds of an isometric contraction, fatigues slowly and is involuntary. It is regulated at the striato-pallidar level. A large amplitude pallidar tremor can be seen to develop in the second 3 seconds after passive stretch in a dysfunctional muscle with a hypoactive stretch reflex. She was able to demonstrate these phenomena electromyographically in muscles that test weak by manual muscle testing and posture and motion analysis.

Vasilyeva has done several studies^{24, 25} demonstrating differences between normal and dysfunctional muscles based on testing in two or three 3-second increments with force and sEMG recordings. EMG findings paralleled the perception of the manual muscle tester. In normals, after 3 seconds of an isometric contraction, if the subject is asked to push harder, an increase in force output is seen. In dysfunctional muscles, there is either no rise or a decline. They also found that in normal muscles, after rapid stretching, the force of the muscle contraction increased, but in a dysfunctional muscle, force decreased after stretching, indicating abnormal proprioception. Vasilyeva also used vector EMG²⁴ to demonstrate that in muscular pain syndromes, a weak agonist is activated late in relation to its hyperactive antagonists and synergists.

Applied kinesiology muscle testing in practice, especially undifferentiated or examiner-started styles, is shorter than 3 seconds,³ so per this model we appear to be testing primarily the phasic stage of the muscle contraction. “Patient-started” tests are more likely to be longer and may approach the tonic phase according to this model.

Otis^{26, 27} proposes several variations in muscle testing postulated to differentially assess neurologic pathways activating low threshold versus high threshold alpha motor neurons. He suggests that testing within 2 seconds of a light, isometric preloading pressure accesses primarily the small, low threshold alpha motor neurons involved in maintaining postural muscular tone and the pathways which preferentially activate them. He suggests that the light preload causes a small contraction which produces 1b afferent signals from the Golgi tendon organs to cause inhibition preferentially on the low-threshold (postural) motor neurons while not recruiting large numbers of high-threshold alpha motor neurons to resist the preload and subsequent muscle test.

In contrast, he suggests that muscle tests performed after the muscle has been moved through at least one quarter of its range of motion, lengthening or shortening, preferentially access neurologic pathways affecting high-threshold (voluntary) alpha motor neurons. If this type of test fails, he suggests that it is a failure of stimulation from corticospinal and rubrospinal projections. He further distinguishes neurologic pathways between post-lengthening and post-shortening manual muscle tests and tests after the antagonist is stretched or contracted. He lists additional variables which may affect the outcome of a muscle test: Simultaneous isometric contraction of muscles distal to the test muscle, amount and duration of pre-load force, history of the antagonist muscle, and pre-test movement.

Otis's muscle testing style distinctions do not exactly parallel Schmitt's model, but the neurological theory is similar if more extensive. Otis's insights may help to explain some of Goodheart's observations about muscles which weaken after stretch (fascial release),²⁸ maximal contraction (strain-counter-strain),²⁹ repeated testing by the examiner ("aerobic/anaerobic" testing),³⁰ testing after activation of an antagonist (reactive muscle testing),³¹ repeated motion by the subject without external load (repeated muscle activation patient induced).³²

Most A.K. tests in clinical practice are performed after the subject actively moves into the test position. Few are tested after a light pre-load, but some may be tested this way inadvertently as the tester explains the test to the subject. Some testers may allow the subject to "make a fist" before testing proximal muscles and some may not. This may be a source of variation in testing results. Otis's model and clinical observations are a rich field for future research.

Comparison of MMT to MVIC

Hand held dynamometry has been compared to MVIC for inter- and intra-rater reliability by Visser et al.³³ Both methods were acceptably reliable and correlated well for longitudinal evaluation of muscle strength in patients with progressive lower motor neuron syndrome. Hand held dynamometry was limited by examiner strength and tended to underestimate strength above 250 Newtons (~56 pounds). However manual dynamometry is inexpensive and rapid to use and so is acceptable in many contexts.

Perot et al.³⁴ compared EMG from the examiner's and subject's muscles and torque generated by a muscle during a carefully controlled muscle test of the anterior tibialis at 75% of MVIC. They tested in a reference condition and after a "proprioceptive technique" pressing together in the belly of the muscle, which is thought in applied kinesiology to affect the muscle spindles in such a way as to lower the tone of the muscle. Tests were 5 seconds in duration. EMG was recorded from the examiner's muscle as well as the subject's muscle. Torque - triceps brachii EMG curves were plotted for the examiner. Good subject-examiner coordination of effort was required in order to generate usable recordings in this set-up. Poor coordination, such as premature release of force by the examiner, was clearly visible on their graphed output. This study demonstrated that the tone of the muscle is objectively lowered by this muscle manipulation technique.

Leisman, Zenhausern et al. compared applied kinesiology manual muscle testing ratings to force/integrated EMG data showing the effects of fatigue and task repetition.³⁵ In this study, several muscles for each subject were manually tested by an examiner and rated as "strong" or "weak." The subject assumed a standard position per Kendall and Kendall¹ in which the muscle to be tested was shortened. The subject pressed with increasing force against the examiner's hand until no further increase was felt by the examiner, at which time the examiner added a "slight" force for up to 1 second. The patient's initial contraction is described as lasting no more than 1.5 sec and the examiner's added force lasting for no more than 1 second, for a total maximum of 2.5 seconds duration of the test. At this point the muscle was rated as "strong"—able to meet the added pressure or "weak"—unable to meet the added pressure and breaking away. This description matches Schmitt's

“Type 2” or “patient-initiated” test. The forces employed in these manual tests are not reported. Further electrophysiological testing was then conducted with the examiners blind to the rating of the previous manual muscle tests.

Maximum Voluntary Contraction (MVC) was determined by having the subject contract each muscle studied as hard as possible for 3 seconds against a force transducer. The body part was in a harness to establish good fixation. This was repeated three times and the highest force recorded was taken as 100% MVC for that muscle for that subject for that session.

Subjects then were asked to do a series of short (5 second) and long (as long as possible) isometric contractions at a series of increasing percentages of MVC by keeping a tracing within a target zone on a computer display. Electromyographic data was recorded during these contractions.

In both short and long contractions the relationship between integrated EMG and force was clearly different between muscles rated as strong and muscles rated as weak at all force levels. Weak muscles were associated with less efficient muscle activity, although the EMG output increased. These effects were shown to be different in several respects from the effects of fatigue demonstrated in the long contractions.

In the long condition, strong muscles could maintain 10% contractions for an average of 21.05 minutes descending to .53 min for 75% MVC. The “weak” muscles were unable to maintain the contraction as long as the “strong” muscles, with an average of 16.03 min for 10% MVC down to .33 min for the 75% MVC contraction.

Even at 75% of MVC, weak muscles did not give out until 20 seconds, which is much longer than the manual muscle testing in this study (maximum 2.5 seconds) or in any other studies reporting applied kinesiology muscle tests including Vasilyeva’s studies²⁴ (9 seconds). The manual test was able to distinguish a difference in muscle function between strong and weak muscles rapidly and accurately, without taking the muscle to the point of fatigue.

Nicholas et al.³⁶ studied examiners’ perception of relative weakness of muscles, comparing right to left hip flexors and hip abductors in the same subject. Force was exerted in a break test—the limb was quickly raised against some pressure and then the examiner added pressure to the point of breaking. The examiner maintained pressure until the limb reached the table. Tests where the examiner could not break the muscle away were eliminated from the data analysis. Force was recorded continuously, along with the angle of the limb. Force was averaged by splitting the time up into 6 segments and taking the force at each point to average. Manual ratings were on a scale of 0–3 deficit. Peak force was late in the progress of the break and was greater than breaking force. Seven different variables were considered. The perception of weakness was most affected by a product of force applied and duration of the test. Thus, a test with more force maintained over a shorter time could be rated as weaker by a tester than a test with less force over a longer time for the same range of motion.

This finding corresponds to the common statement in A.K. training that whether the muscle “locks” or “gives out” is the outcome being evaluated, not the total force a muscle is capable of generating. Extrapolating from Nicholas’s results, in tests of equivalent time, force is the variable which would determine perceived strength. Regardless of force, if the muscle contraction doesn’t last, testers call it weak.

The author did a study comparing peak force during maximum voluntary isometric contractions (MVIC) and 1-second and 3-second manual muscle tests of the middle deltoid.³⁷ Although there were few weak muscles in the 42 subjects tested, 3 subjects had weakness on the long tests which was not evident on the short test. Long tests reached higher forces than short tests ($P = .00002$) All manual tests used a small fraction of the force generated during the MVIC's. All subjects were able to maintain MVIC contractions for 5 to 10 seconds until told they could stop. It is highly unlikely that muscle fatigue is what is being measured in a manual test. It has been suggested that a way in which an examiner could bias the outcome of a muscle test would be to apply force more quickly on some tests than others.³⁸ In this study, by a visual analysis, this was not observed. In maximum voluntary contractions, the force increased rapidly in from .5 to 2 seconds to a relative plateau. In both strong and weak manual tests, force increased slightly more gradually, over approximately .5 to 1.5 seconds, to much lower levels, but the initial slopes of the strong and weak tracings were not appreciably different.

Discussion

Maximal voluntary isometric contraction testing is completely under the control of the subject, especially when done against a fixed force transducer rather than by a strong manual tester. It has been shown to be better than manual testing for discriminating small degrees of interval change in muscle strength in neurological disease. Manual testing, especially where the force continues to ramp up during the whole test, as we have observed in AK testing, requires the subject's proprioceptive system to continually assess the tester's changing pressure and to continually adjust the muscle contraction to meet it. This appears to test something fundamentally different than MVIC.

Some muscles which can hold an isometric contraction against an examiner's pressure for a short time cannot maintain the contraction for the 2.5 to 3 seconds of a longer test. Short and long manual muscle tests do sometimes yield different results, supporting the hypothesis that the differences observed by Schmitt between "patient started" and "examiner started" tests may be differences in duration of tests. Schmitt states¹⁸ that if a "examiner-started" or "G1" test is weak, then a "patient-started" or "G2" test on that subject will be weak, but not vice versa. This is consistent with the theory that "examiner-started" tests are short tests and "patient-started" tests are longer tests. The two durations of testing potentially measure different aspects of neuromuscular function—the initial rapid response to external pressure and the ability to sustain a contraction as suggested by Vasilyeva's work. As many AK examiners use tests of one second or less in practice, muscle weaknesses which develop later may be missed.

It appears that muscles which break away exhibit higher peak forces during manual testing than muscles which can hold an isometric contraction. This may simply reflect a tendency of the examiner to allow the force to plateau or ramp more slowly when it is apparent that the muscle is holding, or it may reflect a recruitment of more fibers in a dysfunctional muscle to try to avoid failure. It is consistent with the observations of Nicholas and others that break tests generate higher peak forces than make test and that the peak force occurs after the breaking point. It is also consistent with Leisman's observations that weak muscles exhibit higher EMG output and less efficient contractions than strong muscles.

Applied kinesiology manual muscle testing does not involve the full force which a muscle is capable of generating, even when the muscle tests weak or inhibited. This seems paradoxical at first, but does support the long-held opinion of applied kinesiologists that what is being tested is not the total or peak force of the muscle test, but rather the ability of the neuro-muscular system to adapt to changing pressure.

Conclusion

Manual muscle testing evaluates the net result of activation of complex neurological pathways. Applied kinesiology muscle testing uses submaximal forces and measures the neurological response to gradually increasing pressure, rather than total force which the muscle is capable of generating. Longer test durations at times demonstrate weakness which is not evident when the muscle is tested for only one second. In order to be replicable, any study using manual muscle testing should specify parameters of the tests used, including exact procedures and instrumentation, duration of test, peak force, and timing of application of force, particularly when testing before and after diagnostic or therapeutic interventions and challenges.

References

1. Kendall FP, Kendall McCreary E, Provance PG. *Muscles—Testing and Function*, 4th Ed., Baltimore; Williams and Wilkins; 1993. 179-90.
2. Walther DS. *Applied Kinesiology Synopsis*, 2nd Ed. Shawnee Mission, KS: ICAK-U.S.A.; 2009. pp. 37,71.
3. Conable K, Corneal J, Hambrick T, Marquina N, Zhang Q. Electromyogram and Force Patterns in Variably Timed Manual Muscle Testing of the Middle Deltoid Muscle. *J Manip Physiol Ther.* 2006;29(4): 305-314.
4. Conable K, Corneal J, Hambrick T, Marquina N, Zhang J. Analysis of Peak Force in Applied Kinesiology Manual Muscle Testing. *Proceedings of the Annual Meeting of ICAK Vol. 1, 2007-2008.* 2007; Shawnee Mission, KS: International College of Applied Kinesiology.
5. Walther DS. *Applied Kinesiology Synopsis*, 2nd Ed. Shawnee Mission, KS : ICAK-U.S.A.; 2009. p. 2.
6. Blaich RM, Mendenhall EI. Manual Muscle Testing and Cybex Machine Muscle Testing, a Search for a Correlation. In: WH Schmitt, Jr. editor. *1984 Selected Papers of the International College of Applied Kinesiology.* 1984; Park City UT: International College of Applied Kinesiology.
7. Blaich RM, Mendenhall EI. Manual Muscle Testing and Cybex Machine Muscle Testing, a Search for a Correlation. In: WH Schmitt, Jr. editor. *1984 Selected Papers of the International College of Applied Kinesiology.* 1984; Park City UT: ICAK.
8. Rarick L, Gross K, Mohns M. Comparison of Two Methods of Measuring Strength of Selected Muscle Groups in Children. *Res Quarterly.* 1955; 26:76-79.
9. Wilkhom JB, Bohannon RW. Hand-held Dynamometer Measurements: Tester Strength Makes a Difference. *J Orthoped Sports Phys Ther.* 1991;13(4):191-7.
10. van der Ploeg RJ, Oosterhuis HJ. The “Make/Break Test” as a Diagnostic Tool in Functional Weakness. *J Neurol Neurosurg Psychiatry.* 1991 Mar; 54(3):248-51.
11. Janda V. Muscle Strength in Relation to Muscle Length, Pain and Muscle Imbalance. *International Perspectives in Physical Therapy* 8. Churchill Livingstone: Edinburgh, London, Madrid, Melbourne, New York and Tokyo.1993: 83-91. In *Janda Compendium Volume II.* Distributed by OPTP, Minneapolis, MN. undated.

12. National Isometric Muscle Strength Database Consortium. Muscular Weakness Assessment: Use of Normal Isometric Strength Data. *Arch Phys Med Rehabil.* 1996 Dec;77:1251-5.
13. Colombo R, Mazzini L, Mora G, Parenzan R, Creola G, Pinali I, Minuco G. Measurement of Isometric Muscle Strength: A Reproducibility Study of Maximal Voluntary Contraction in Normal Subjects and Amyotrophic Lateral Sclerosis Patients. *Med Eng Phys.* 2000 Apr;22(3):167-74.
14. Great Lakes ALS Study Group. A Comparison of Muscle Strength Testing Techniques in Amyotrophic Lateral Sclerosis. *Neurology.* 2003 Dec 9;61(11):1503-7.
15. Stoll T, Huber E, Seifert B, Michel Ba, Stucki G. Maximal Isometric Strength: Normative Values and Gender-Specific Relation to Age. *Clin Rheumatol.* 2000;19(2):105-13.
16. Meldrum D, Cahalane E, Keogan F, Hardiman O. Maximum Voluntary Isometric Contraction: Investigation of Reliability and Learning Effect. *ALS and Other Motor Neuron Disorders* 2003 Apr;4(1): 36-44.
17. Meldrum D, Cahalane E, Conroy R, Fitzgerald D, Hardiman O. Maximum Voluntary Isometric Contraction: Reference Values And Clinical Application. *Amyotrophic Lateral Sclerosis.* 2007;8:47-55.
18. Schmitt Wh. Muscle Testing as Functional Neurology: Differentiating Functional Upper Motor-Neuron and Functional Lower Motor-Neuron Problems. *Selected Papers of the International College of Applied Kinesiology* 1986: 21-32.
19. Baker DC. Review of the A.K. Muscle Testing Process. *Proceedings of the Annual Meeting International College of Applied Kinesiology-U.S.A., Volume 1, 2002–2003.* Shawnee Mission, KS: International College of Applied Kinesiology; 2002. 69-74.
20. Gerz W. Quality Muscle Testing. In: *Proceedings of the Annual Meeting of the International College of Applied Kinesiology-U.S.A., Vol. 1, 1995–96.* Shawnee Mission, KS: International College of Applied Kinesiology; 1995.77-83.
21. Schmitt Wh, Yanuck Sf. Expanding the Neurological Examination Using Functional Neurological Assessment Part II: Neurologic Basis of Applied Kinesiology. *Intern J Neuroscience.* 1999;97.77-108.
22. Hsieh C, Phillips R. Reliability of Manual Muscle Testing with a Computerized Dynamometer. *J Manipulative Physiol Ther* 1990;13:72-82.
23. Conable K, Corneal J, Hambrick T, Marquina N, Zhang J. *Marina Jcm Article.*
24. Vasilyeva Lf. Clinical and Experimental Substantiation of the Functional Muscle Weakness Phenomenon. *Proceedings of the International College of Applied Kinesiology Annual Meeting [Cd-Rom], 2004.* Rome, Italy [Cd-Rom]-Shawnee Mission, KS: ICAK-U.S.A.
25. Vasilyeva Lf, Chernysheva Tn, Korenbaum Vi, Aukhtina To. About Peculiarities of the Effect of Muscle Functional Weakness. *Proceedings of the Annual Meeting of the International College of Applied Kinesiology-U.S.A., Volume 1, 2001–2002.* Shawnee Mission, KS: International College of Applied Kinesiology, 2001. 63–6.
26. Otis J. The Use of Manual Muscle Testing to Assess Functional Integration of High-Threshold Versus Low-Threshold Alpha Motor Neurons. *Proceedings of the Annual Meeting of the International College of Applied Kinesiology-U.S.A., Volume 1, 2004–2005.* Shawnee Mission, KS: International College of Applied Kinesiology, 2004. 35–43.

27. Otis J. The Brainstem and Manual Muscle Testing. Proceedings of the Annual Meeting of the International College of Applied Kinesiology-U.S.A., Volume 1, 2004–2005. Shawnee Mission, KS: International College of Applied Kinesiology; 2004. 129–43.
28. Goodheart Gj. Applied Kinesiology 1978 Workshop Procedure Manual, 14th Ed. Privately Published. Detroit: 1978.
29. Goodheart Gj. Applied Kinesiology 1984 Workshop Procedure Manual. Privately Published. Detroit: 1984.
30. Goodheart Gj. Applied Kinesiology 1980 Workshop Procedure Manual. Privately Published. Detroit: 1980.
31. Goodheart Gj. Reactive Muscle Testing. *Chiro Econ.* 1979 Jan/Feb; 21(4):22-7.
32. Goodheart Gj. Applied Kinesiology 1994/5 Workshop Procedure Manual. Privately Published. Detroit: 1995.
33. Visser J, Mans E, Devisser M, Van Den Berg-Vos Rm, Franssen H, Dejohn Jm, Van Den Berg Lh, Wokke Jh, De Haan Rj. Comparison of Maximal Voluntary Isometric Contraction and Hand-Held Dynamometry in Measuring Muscle Strength of Patients with Progressive Lower Motor Neuron Syndrome. *Neuromuscul Disord.* 2003 Nov; 13(9):744-50.
34. Perot C, Meldener R, Goubel F. Objective Measurement of Proprioceptive Technique Consequences on Muscular Maximal Voluntary Contraction During Manual Muscle Testing. *Agressologie* 19091;32(10):471-4.
35. Leisman G, Zenhausern R, Ferentz A, Tefera T, Zemcov A. Electromyographic Effects of Fatigue and Task Repetition on the Validity of Estimates of Strong and Weak Muscles in Applied Kinesiological Muscle-Testing Procedures. *Perceptual And Motor Skills.* 1995;80:963-77.
36. Nicholas J, Sapega B, Kraus H, Webb J. Factors Influencing Manual Muscle Tests in Physical Therapy. *J Bone and Joint Surg.* 1978 March;60-A(2):186-90.
37. Conable K. Duration and Force Variations in Applied Kinesiology Manual Muscle Testing. [Masters Thesis]. Bundoora (Australia): Royal Melbourne Institute of Technology; 2008.
38. Buhler C. Personal Communication Regarding Pre-Publication Findings Using a Pneumatic Manual Muscle Testing System.

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Bilateral Psoas Inhibition and Lumbodorsal Fixation

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Abstract

Current Applied Kinesiology teaching links bilateral psoas inhibition with an occipital fixation. Clinical observations suggest the occipital fixation may be secondary to a lumbodorsal fixation.

Key Indexing Terms

Vertebral Fixation, Applied Kinesiology

Introduction

The psoas muscle originates from the anterior surface of the transverse processes, lateral border of the vertebral bodies, and corresponding intervertebral discs T12-L5, traversing inferior and anterior through the abdominal cavity to its insertion at the lesser trochanter of the femur.¹ Imbalance of the psoas involving either different physical strength or neurological control between the left and right side has been implicated in a myriad of symptoms from antalgia, back pain, and diaphragm disturbance.²

The connection between the psoas and the diaphragm is apparent anatomically when one observes that the diaphragm and the psoas share common attachments in the L1-L3 area. Rotation caused by torque placed on these spinal segments by differences in strength of the left and right psoas will subsequently affect the function of the diaphragm.

Classically, a bilateral inhibition of the psoas muscle has been linked to a spinal fixation involving the occiput-C1 area.³

A lumbodorsal fixation is probable when a bilateral inhibition of the lower trapezius is observed. Lumbodorsal fixation involves the T12-L2 area, sharing commonality with the diaphragm and psoas.⁴ With inhibition of the lower trapezius comes a concomitant over-facilitation of the upper trapezius.

It is the over-facilitation of the upper trapezius that is of interest. The question is: Is it possible that the over-facilitation of the upper trapezius causes the occipital fixation, making it secondary to a lumbodorsal fixation?

Materials and Methods

Ten patients with bilateral psoas inhibition were identified. Each was examined and treated as follows:

1. Motion palpation and challenge for an occipital fixation
2. Palpation for tenderness of the midsternal neurolymphatic reflex point for the diaphragm

3. Manual muscle testing of the bilateral lower trapezius
4. Palpation of the lower trapezius for tenderness
5. Palpation of the upper trapezius for tenderness and hypertonus
6. Motion palpation and challenge for the presence of a lumbodorsal fixation
7. Correction of a lumbodorsal fixation if present
8. Retest psoas and lower trapezius
9. Re-evaluate previous findings

Results

In all ten patients, correction of a lumbodorsal fixation removed the motion palpation and challenge indicators of an occipital fixation. Further, post-treatment, the previously hypertonic upper trapezius was supple and nontender. Concomitantly, the bilateral psoas and lower trapezius muscles were normally facilitated and the midsternal diaphragm neurolymphatic reflex point was nontender. Pre and post-treatment findings are presented in Table I.

Discussion

Given the shared vertebral involvement of the psoas muscle, diaphragm, and lumbodorsal fixation, it would seem plausible a psoas imbalance would have a primary effect at the lumbodorsal area. This clinical study would support that theory. In clinical practice we are always sifting through the many distortions we observe looking for the source of our patient's functional anomalies. This may be a small observation in reaching that goal.

Conclusion

The results suggest that there may be a strong correlation between bilateral inhibition of the psoas muscle and a lumbodorsal fixation, with a secondary occipital fixation. Further study is needed to confirm these findings.

References

1. Walther, D. S., Applied Kinesiology, Synopsis, 2nd Edition. Pueblo, CO: Systems DC: 2000. p. 325
2. Ibid, p.581
3. Ibid, p.87
4. Ibid, p.87

TABLE 1

Clinical Trial Results Bilateral Psoas/Lumbodorsal Fixation

Patient	Atlan-Occ Fix		Diaprgm	Mmt		Palpation		Lumbodor Fix	
	Motion Palp	Chall- Enge		Nl	Bilat Psoas	Bilat L Trap	Bilat Up Trap	Bilat L Trap	Motion Palp
1 PRE POST	pos neg	pos neg	pos neg	inhib norm fac	inhib norm fac	hyp sens wnl	sens wnl	pos neg	pos neg
2 PRE POST	pos neg	pos neg	pos neg	inhib norm fac	inhib norm fac	hyp sens wnl	sens wnl	pos neg	pos neg
3 PRE POST	pos neg	pos neg	pos neg	inhib norm fac	inhib norm fac	hyp sens wnl	sens wnl	pos neg	pos neg
4 PRE POST	pos neg	pos neg	pos neg	inhib norm fac	inhib norm fac	hyp sens wnl	sens wnl	pos neg	pos neg
5 PRE POST	pos neg	pos neg	pos neg	inhib norm fac	inhib norm fac	hyp sens wnl	sens wnl	pos neg	pos neg
6 PRE POST	pos neg	pos neg	pos neg	inhib norm fac	inhib norm fac	hyp sens wnl	sens wnl	pos neg	pos neg
7 PRE POST	pos neg	pos neg	pos neg	inhib norm fac	inhib norm fac	hyp sens wnl	sens wnl	pos neg	pos neg
8 PRE POST	pos neg	pos neg	pos neg	inhib norm fac	inhib norm fac	hyp sens wnl	sens wnl	pos neg	pos neg
9 PRE POST	pos neg	pos neg	pos neg	inhib norm fac	inhib norm fac	hyp sens wnl	sens wnl	pos neg	pos neg
10PRE POST	pos neg	pos neg	pos neg	inhib norm fac	inhib norm fac	hyp sens wnl	sens wnl	pos neg	pos neg

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Muscles Ride Anatomy Trains

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Abstract

The ground breaking work presented in “Anatomy Trains,” by Thomas Myers, represents a new paradigm in thinking about the relationships within the human body. This may be the most important addition to the Applied Kinesiology body-of-knowledge in the last thirty years. The concept reinforces the Applied Kinesiology premise that, in functional neurology, everything is interrelated and no system is an island. As Applied Kinesiologists interact with this new paradigm new discoveries will be forthcoming. An observation is shared on the interplay of Applied Kinesiology and Anatomy Trains.

Key Indexing Terms

Applied Kinesiology, Anatomy Trains, Myofascial Meridians, Golgi Tendon Organs

Introduction

Myer's introduces us to the "...functionally integrated body-wide continuities within the fascial webbing. These sheets and lines follow the warp and weft of the body's connective tissue fabric, forming traceable 'meridians' of myofascia." He points out the fascial trains are continuous and the muscles can be seen as punctuating the fascia along its length. (1) Applied Kinesiology has evaluated individual muscles until now. The interrelationships we have observed involve muscle pair relationships involving gait, reactivity, antagonists, and synergists. I suggest there is new relationship to consider involving multiple muscle continuity.

The Superficial Back Line (SBL) is a myofascial meridian considered to be a 'cardinal' line. A cardinal line is a myofascial train that mediates posture and movement in the sagittal plane. The SBL begins in the plantar surface of the toe phalanges following the plantar fascia through the Achilles tendon and gastrocnemius and hamstring fascia along the sacrotuberous ligament into the sacrolumbar and erector fascia then over the skull via the scalp fascia and Galea aponeurotica.(2) Working from the top back down this translates into a muscular 'train' of the occipitofrontalis, neck extensors, sacrospinalis, quadratus lumborum, gluteous maximus and medius, medial and lateral hamstring, medial and lateral gastrocnemius, and finally the flexor hallucis brevis and flexor digitorum brevis. In Myer's context of the muscles punctuating the fascial train, it is possible to envision a train of muscle continuity. If we visualize an individual standing, leaning forward with the subject looking up, the occipitofrontalis and neck extensors could be the primary movers with the remainder of the erector spinae acting as secondary support and the remainder of the SBL muscles in the lower extremity relegated to tertiary support. Given this position, and considering muscle continuity, if an excessive physical stressor would overload the muscles creating a functional neuropathy, how could that dysfunction manifest itself?

When a functional muscular neuropathy is caused by physical overexertion the trauma often involves the muscle proprioceptors. The most common involvement is the golgi tendon organ. (3) If continuity is involved, meaning more than one muscle of the 'train' is involved, standard evaluation will not uncover the dysfunction. Therapy localization to the area of the golgi tendon in the origin and insertion of the individual muscles will be negative. But, if you therapy localize the origin of the first muscle and the insertion of the last muscle in the dysfunction a positive therapy localization will be present. In the above mentioned example GTO TL could be negative in the occipitofrontalis and the neck extensors individually, but would be positive if the TL points were the area of the frontal brow ridge and the distal end of the involved neck extensor. Evaluating the entire Superficial Back Line with TL could be quite time consuming given the number of muscles in a train. There is an easier way.

Materials and Methods

Janet Trevell's work with pincer palpation of a muscle across its fibers to evaluate function was incorporated by George Goodheart, Jr. into Applied Kinesiology. (4) Corneal, in a current paper, observes that muscles with golgi tendon organ dysfunction are tender throughout the muscle belly when digitally palpated, and can be evaluated by pincer palpation. (5) These observations present an alternative evaluation. First palpate along the suspected train evaluating the extent of tenderness. Use a cross-fiber pinching challenge along the suspected muscles involved using a remote indicator muscle. Corneal has reported the indicator muscle must be on the same side as the muscle being challenged with pincer palpation. (6) The author notes the with anatomy trains the same observation applies unless the involved train crosses the body centerline, in which case an indicator muscle from either side of the body will work. An involved muscle will weaken an indicator muscle when cross-fiber pinched. Once you have determined the beginning and end of the dysfunction, TL the ends to verify and/or challenge the ends towards each other or away from each other. It appears when contiguous muscle golgi tendon organ dysfunctions occur, the origin of the first muscle and the insertion at the last muscle are the only golgi tendon organs that are involved, and they will respond as if the group of muscles is one muscle. Following GTO treatment the involved muscles will be non-tender, and cross-fiber pincer palpation will be negative.

Anatomy trains, like the Superficial Back Line that split in the lower extremity, add an interesting note. If the portion of the train that splits is dysfunctional the involvement will be on one side or the other. In the case of the lower extremity SBL, from the ischium distally the positive pincer challenge will run down the inside or outside of the hamstring and gastrocnemius to the Achilles tendon. If it continues into the foot it will maintain the same sidedness into the toes and the number of toes involved will vary.

Discussion

Superimposing the concept of muscle continuity over myofascial anatomy trains may be an exciting new paradigm for Applied Kinesiology. To date, the most common involvement has been the Cardinal Lines involving the major postural muscles. In cases where a disturbance in muscle continuity has been present and treated, dramatic improvement in patient health has been observed. Hopefully, others will apply the concept in additional ways and advance the reach of Applied Kinesiology therapies.

Conclusion

Anatomy Trains offer an exciting and challenging viewpoint for Applied Kinesiology. More study by a broad group of practitioners will further evaluate the efficacy of the presented evaluation and treatment, and hopefully expand its reach in improving the health of our patients.

References

1. Myers, T.W., *Anatomy Trains: Myofascial Meridians for Manual and Movement Therapists*: London, Churchill Livingstone: 2001, pg 1.
2. *Ibid* pg 61–92.
3. Walther, D.S., *Applied Kinesiology, Synopsis 2nd Edition*: Pueblo, CO, Systems DC: 2000, pg 64.
4. *Ibid* pg 198–199.
5. Corneal, J.M., *Pincer Palpation and Golgi Tendon Organ Proprioceptors: Proceedings of the ICAK-U.S.A. Collected Papers*: 2009.
6. *Ibid*.

Pincer Palpation and Golgi Tendon Organ Proprioceptors

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Abstract

Applied Kinesiology has demonstrated the importance of functional neurology and its role in physiological health. Diagnosis and treatment protocols for the golgi tendon organ muscle proprioceptor were presented in the nineteen sixties and remain an important therapy today. The author offers additional observations for both examination and treatment.

Key Indexing Terms

Applied Kinesiology, Golgi Tendon Organ, Muscle Proprioceptor, Pincer Palpation

Introduction

Walther's presentation of the function, examination, and treatment of the golgi tendon organ is the Applied Kinesiology gold standard. A review of the text states that a muscle with golgi tendon involvement will most often test weak and occasionally appear hypertonic. Evaluation is accomplished by patient therapy localization of the golgi tendon at either the origin or insertion or both. Doctor palpation of the golgi tendon will indicate nodulation and pain over the affected receptor. Therapy is directed to the involved golgi tendon with heavy digital pressure towards the belly to strengthen a weak muscle and away from the belly to weaken a strong muscle.¹

Problems arise using these diagnostic techniques. Some muscles are impossible to test for inhibition or facilitation (ex: occipitofrontalis). Many origin and insertions points are difficult or impossible to doctor palpate (rectus capitus lateralis anterior, scapular insertion of anterior serratus). And, others are difficult or impossible for the patient to TL (ex: anterior serratus, rhomboid). The technique is also somewhat time intensive.

Janet Travell introduced pincer palpation in her diagnosis and treatment of muscle trigger points by grasping the belly of a muscle between the thumb and fingers and squeezing the fibers between them with a back and forth rolling motion.² George Goodheart, Jr. used Travell's pincer palpation in Applied Kinesiology diagnosis and treatment of myofascial gelosis. He found pinching the fibers of the muscle would cause a normally facilitated muscle or a remote indicator muscle to become temporarily inhibited. Percussion to the involved muscle would negate the muscle inhibition.³

The author duplicated Goodheart's myofascial gelosis diagnosis and treatment but with only temporary results. Further investigation, in many cases, revealed the myofascial gelosis to appear secondary to disturbance in the muscle proprioceptors, specifically the Golgi Tendon Organs (GTO). The pincer palpation was still used to identify the functional neuropathy, but instead of treating with percussion to the belly of the muscle, the

GTO at the origin and insertion were challenged by either separating or approximating them simultaneously. If a positive challenge was noted therapy was directed to the GTO and the process was retested.

Materials and Methods

1. Identify a suspected muscle. A muscle with GTO involvement will have tenderness over the entire belly of the muscle when palpated.
2. Pincer palpate across the fibers in the belly of the muscle.
3. Test a normally facilitated muscle (NFM) on the same side as the suspected muscle
4. If positive the NFM will test temporarily inhibited
5. Identify the suspected muscles' tendonous origin and insertion and challenge the GTOs by approximating or separating them, finding which inhibits a NFM
6. Direct heavy digital pressure in the appropriate direction for 10–15 seconds or, until you feel the muscle 'release.' Direction of treatment is determined by the location of the origin and insertion. If both the origin and insertion lie on the central nervous system (on or along the spine, on the head or jaw, on the pelvis), treat in the direction of positive challenge. If one or both the origin and insertion lie outside the central nervous system, treat opposite the positive challenge.
7. Re-challenge GTOs
8. Check with pincer palpation
9. Palpate for tenderness

Discussion

It is often joked, if the evaluation or technique can not be performed quickly it will not sell to the AK community. Diagnosing and treating Golgi Tendon Organs has been one of those areas. The original techniques are somewhat awkward to apply and present difficulties of application with many muscles. Consequently, the subject is barely covered in the Basic coursework. But, when we consider that most of the dysfunction of GTOs come from trauma, and the prevalence of trauma, especially in athletics, the potential importance of effective GTO evaluation appears evident. Pincer palpation, as presented, appears to have the potential of adding effective Applied Kinesiology evaluation of neuromuscular problems.

Conclusion

Using pincer palpation as a muscle proprioceptor diagnostic tool can make diagnosis and treatment more effective and less time consuming. The author has successfully used this technique on thousands of patients and welcomes others in the Applied Kinesiology community to evaluate its efficacy in their own practices. Hopefully, it will stand up to the rigor of our evaluation and help all of us in our common goal of providing relief from suffering for our patients.

References

1. Walther, D. S., Applied Kinesiology, Synopsis, 2nd Edition. Pueblo, CO: Systems DC: 2000, pg 64.
2. Travell, J.G. & Simons, D.G., Myofascial Pain and Dysfunction: The Trigger Point Manual. Baltimore: Williams & Wilkens: 1984, pg 59–60.
3. Walther, D.S., Applied Kinesiology, Synopsis, 2nd Edition. Pueblo, CO: Systems DC: 2000, pg 198–199.

The Holographic Subluxation of the Mandible and its Correlation to the Spine and Extremities

Timothy D. Francis, D.C., F.I.A.C.A., DIBAK, M.S., D.H.M.

Abstract

The holographic subluxation of the mandible has both a spinal and extremity correlation. Proper correction of the spine and/or extremity removes the holographic mandible subluxation.

Introduction

Holographic subluxations (Intraosseous subluxation) require a two handed therapy localization to the bone involved. Correction utilizes bending the bone on a specific phase of respiration to change the piezoelectric effect.

Spinal subluxations can have a profound effect upon the temporomandibular joint (TMJ). (Leaf) Extremity subluxations also may exert a tremendous influence on the TMJ. (Francis)

Sacral, carpal, and talus subluxations are intimately involved with an intraosseous subluxation of the mandible.

Discussion

The hologram was first discovered by Gabor in 1947 and contains complete information about a wave. Principles of holography have been applied in astronomy, physics, biology, and health care. Dr. Goodheart used holographic principles via manual muscle testing (MMT) to identify a new type of subluxation; the intraosseous lesion. This may be visualized as a bent bone and can occur in the skeletal system throughout the body. This is commonly found in the mandible. (Leaf)

Duffy recommends as a screening procedure to therapy localize (TL) the temporomandibular joint (TMJ) with the right hand on the right TMJ and the left hand placed over the right hand. (This is performed the opposite for the left TMJ). If this weakens a strong indicator muscle (IM) then a holographic subluxation of the mandible is suspected. Adding clenching and/or wide opening with the TL protocol may also be necessary to uncover a covert involvement.

Leaf advises to use a two handed protocol. Step one is to place one hand on the upper ramus and the opposite hand on the lower portion. (Bent ramus) Next challenge the ramus with two hands to buckle it internally or externally, and whichever direction weakens a strong IM, determine the phase of respiration which negates it, correct in the positive challenge direction on the phase of respiration which restrengthens it. Step two is to TL the ipsilateral ramus and body of the mandible with two hands. If positive TL then challenge as to approximate or separate, correct in the positive challenge direction on the phase of respiration that negates

the challenge. Step three is to TL the right and left body of the mandible with right and left hands, if this TL's then find a phase of respiration that negates and correct in the positive challenge direction on the phase of respiration that negated the TL. Correction of the holographic mandible has many positive effects on body function. (This is easily demonstrated by an increase in passive range of motion of hip abduction)

A sacral subluxation is related to the occiput via the Lovett brother correlation. An unlevel occiput will affect the TMJ via proprioceptors in the upper cervical vertebrae and as a tension take up mechanism involving the dura. (Goodheart) If the sacral subluxation is chronic and left uncorrected, then the TMJ musculature will try to compensate putting long term stress on the mandible. The effect is an intraosseous subluxation of the mandible. Proper correction of the sacral subluxation/fixation complex will often times correct the holographic subluxation of the mandible.

Extremity subluxations have been correlated by this author to various TMJ dysfunctions in a paper published in 2003. All TMJ muscles are related to the stomach meridian, which is related to the stomach organ. The neurovascular reflexes (NV) for the stomach are also known as the emotional NV reflexes. (ENV) These reflexes are located on the mid-pupillary line of the frontal bone and will TL when emotional issues are involved.

Jammed carpal subluxations display via MMT as a weak opponens pollicis/opponens dgiti minimi. A lateral talus is affiliated with a weak psoas. Both of these subluxations when corrected properly will often negate positive TL to the ENV reflexes. (Francis) These extremity subluxations will display involvement often times if a patient thinks of a stressful situation and when the subluxation is corrected it will negate a strong IM weakening to this stressful thought process. (Francis) If jammed carpals and/or a talus subluxation is present, correction of said subluxations will often remove the holographic mandible subluxation.

Conclusion

The holographic mandible subluxation may have spinal and/or extremity involvements. The spinal involvement is a sacral subluxation/fixation complex. Extremity subluxations include jammed carpals and/or the talus. Correction of the spine and/or the extremities is paramount to the complete correction of the holographic mandible subluxation.

Note: The homeopathic correlation for the holographic mandible subluxation is Natrum Sulphuricum.

Resources

- I. Duffy, Dan, Sr., Applied Kinesiology Basic Course, AK Printing, Box 551, Geneva, Ohio, 44041 (2000).
- II. Francis, Timothy D., Applied Kinesiology and Homeopathy: A Muscle/Remedy Correlation, Proceedings of the summer meeting of the ICAK-U.S.A., Vol. I (1997–1998).
- III. Ibid, Spinal-Rib Subluxation/Muscle Syndrome Correlations. Experimental Observations of the Members of the ICAK., Vol. I (2000–2001).

- IV. Ibid, The Holographic Spine, Experimental Observations of the ICAK-U.S.A., Vol. I (2002–2003)
- V. Ibid, Additional Fixation Patterns, Experimental Observations of the ICAK-U.S.A., Vol. I (2001–2002)
- VI. Goodheart, George J., Jr., You'll Be Better, The Story of Applied Kinesiology. AK Printing; Geneva, Ohio.
- VII. Leaf, David., Applied Kinesiology Flow Chart Manual, 3rd Edition. Privately Published. (1995)
- VIII. Walther, David., Applied Kinesiology: Synopsis, 2nd Edition, ICAK-U.S.A., Shawnee Mission, KS (2009).

The Occiput/Atlas Fixation

Timothy D. Francis, D.C., F.I.A.C.A., DIBAK, M.S., D.H.M.

Abstract

There exists a fixation pattern between the occiput and atlas which displays in the body via manual muscle testing (MMT) as a unilateral supine hamstring weakness.

Introduction

Spinal fixations are generally considered to be a locking together of two or more vertebrae displaying in the body as a bilateral muscle weakness via MMT. These muscle weakness patterns will not therapy localize (TL) in the clear to weaken a strong indicator muscle (IM) but must include motion with TL. However they will TL to strengthen the bilateral muscle weakness pattern associated with it.

The sacroiliac and lumbosacral fixation patterns are exceptions to this rule as they display as unilateral neck extensor and teres major weaknesses respectively. There exists another type of this fixation pattern; the occiput/atlas fixation. This is a locking together of the occiput and atlas which displays as a unilateral hamstring weakness in the supine position only.

Discussion

Fixation patterns were first described by Martindale and later adapted, modified, and muscle correlated by Goodheart. These MMT correlations have been utilized in Applied Kinesiology (AK) for many decades. This locking together of multiple vertebrae displays via MMT as specific bilateral muscle weakness patterns. These bilateral muscle weakness patterns correlate to certain areas of the spine. When these fixation patterns are adjusted properly, the bilateral muscle weakness self corrects.

According to Leaf fixations are the body's attempt to stop dural torque. Dual torque may be caused from structural, chemical, emotional, and/or electromagnetic influences. The clinician needs to unlock the fixation and identify the cause of the dural torque in order to prevent its recurrence.

The lumbosacral and sacroiliac fixations are unusual in that they both display as unilateral muscle weaknesses. This author has discovered another spinal fixation/unilateral muscle weakness association; the occiput/atlas fixation. This fixation displays as a unilateral hamstring weakness only when tested in the supine position. This supine hamstring weakness (when tested as a group) is usually on the posterior atlas side. The muscle dysfunction does not display in the prone position. This hamstring weakness is negated by having the patient TL the occiput/atlas area with both hands. One may also challenge the occiput/atlas to determine the method of correction. Although this area may be adjusted with a single bilateral thrust; in this author's experience

it is better to adjust the atlas first and then the opposite occiput. The occiput should be motion palpated and challenged to determine the correct vector of thrust for the adjustment. Upon successful correction, the supine hamstring group will test strong and the occiput/atlas will no longer challenge.

Proper identification and correction of the occiput/atlas fixation has a profound positive effect on body function. Many neurological disorganization patterns; temporomandibular (TMJ) joint dysfunctions; pitch, roll, yaw, and tilt (PRYT); dural torque patterns; right/left brain imbalances, digestive disturbances, emotional issues, and other fixation patterns are resolved.

Conclusion

There exists an occiput/atlas fixation which displays via MMT as an ipsilateral supine hamstring weakness. This is in addition to the unilateral neck extensor-S/I joint and unilateral teres major-lumbosacral fixations. Correction of the occiput/atlas fixation complex has a very positive effect on overall body function.

Note: The homeopathic correlation to this fixation is *Ruta Graveolens*.

Resources

- I. Duffy, Dan, Sr., *Applied Kinesiology Basic Course*, AK Printing, Box 551, Geneva, Ohio, 44041 (2000).
- II. Francis, Timothy D., *Applied Kinesiology and Homeopathy: A Muscle/Remedy Correlation*, Proceedings of the summer meeting of the ICAK-U.S.A., Vol. I (1997–1998).
- III. Ibid, *Spinal-Rib Subluxation/Muscle Syndrome Correlations*. Experimental Observations of the Members of the ICAK., Vol. I (2000–2001).
- IV. Ibid, *The Holographic Spine*, Experimental Observations of the ICAK-U.S.A., Vol. I (2002–2003)
- V. Ibid, *Additional Fixation Patterns*, Experimental Observations of the ICAK-U.S.A., Vol. I (2001–2002)
- VI. Goodheart, George J., Jr., *You'll Be Better, The Story of Applied Kinesiology*. AK Printing; Geneva, Ohio.
- VII. Leaf, David., *Applied Kinesiology Flow Chart Manual*, 3rd Edition. Privately Published. (1995).
- VIII. Walther, David., *Applied Kinesiology: Synopsis*, 2nd Edition, ICAK-U.S.A., Shawnee Mission, KS (2009).

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A New Digestive Challenge Technique— Simultaneous Testing of the Ileocecal and Houston's Valves

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Abstract

Ileocecal valve syndrome (ICV) is the root of many patients' complaints. It can be responsible for countless problems, from digestive disturbances to headaches to back pain. Imbalances in the sympathetic-parasympathetic system, disturbances in the enteric nervous system, or a local irritation to the gastrointestinal tract are often the results of ICV syndrome.¹

Houston's valves (HV) make up the inner foldings of the rectal lumen. Although not nearly as common as ICV, the valves can be a cause of distress for the same reasons as the ileocecal valve.

Challenging for ICV and HV individually is a common applied kinesiology procedure to help diagnose a patient's ailment. Sometimes the history and/or symptoms present in the patient guides the doctor in considering an ICV or HV problem, yet the valves do not test to be a related problem. However, simultaneous testing of the valves often will reveal this hidden problem.

Key Indexing Terms

Ileocecal Valve, Houston's Valves, Rectal Lumen, Open ICV, Ileal Brake

Introduction

Houston's valves are actually pseudo valves, as they are transverse folds of the rectal wall that protrude into the anal canal—though they do function much like a one-way valve. The average person has two to three valves, while approximately 20% of people have four to seven and 2% have no valve at all.²

The ileocecal valve controls movement between the small intestine and the colon. The sphincter-like portion at the distal end of the ileum is under neurological control, while the valvular cecal portion provides a mechanical one-way valve.³

The ICV challenge is down and toward the right hip (ASIS) to test for an open ICV and up toward the left shoulder for a closed ICV. The HV challenge, located on the opposite side of the ileocecal valve, (approximately half way in-between the navel and the left ASIS), is down and right toward the pubic symphysis to test for an open valve, and up and left (exact opposite direction) to test for a closed valve.

The results obtained by the HV challenge are similar to those obtained by testing for ICV, when tested individually.¹ If there is no response when testing in such a way, then testing both valves together should be performed. This is done by either the doctor challenging one valve and the patient the other valve or the doctor challenging both valves at once if possible (ileocecal valve with the thumb and HV with the index or

middle finger of the same hand). It is also possible for the patient to challenge both valves while the doctor tests, for example, a leg muscle. The valves, when positive for a simultaneous test, will almost always be in the open position. Only once has this author seen the valves test simultaneously closed, which was due to a pelvic imbalance.

Discussion

Often an open ICV or HV syndrome is synonymous with some toxicity, possibly from a food offender, excess refined sugar, or parasympathetic dominance of the enteric nervous system. A closed ileocecal valve, known as an ileal brake,⁴ often points to a problem with fat metabolism. Both the closed ICV and HV tend to represent a sympathetic dominant enteric nervous system.

A positive test (strong indicator muscle weakens) when challenging both the ileocecal valve and the Houston's valves together in the open position is an indication that there is some gastrointestinal toxicity, most often related to poor fat metabolism and concurrent dysbiosis. This is similar to findings with the ileal brake, but occurs when the ileal brake challenge does not.

An additional challenge procedure is to manually “pump” the gallbladder and then immediately perform the simultaneous challenge. This is done by moderately pushing in and releasing three to four times (“pumping”) over the area of the right sixth and seventh ribs, just slightly lateral to the midclavicular line. A weakening of a strong indicator muscle would indicate a positive challenge and treatment is the same as when the pumping test is not performed.

When a positive open simultaneous challenge occurs, having the patient therapy localize (TL) to the gallbladder Chapman's reflex (CR) or the liver CR will most often negate the weakness. A much less common finding is the pancreas CR and the small intestine CR. This appears to correlate with undigested fats in the small intestine and fermented bacteria in the large intestine, (and quite possibly the small intestine too), giving off gas. Speaking of gas – that will be a common complaint of patients with the simultaneous open valves challenge test – they'll be bloated and gassy. The doctor should test for nutrients related to improving fat metabolism per the organ found to negate the weakness, (bile salts for the liver or gallbladder, lipase for the pancreas), as well as check for any offenders which may be causing the problem, such as a food intolerance or poor dietary fat intake. Treating the CR with parasympathetic activity (rubbing the CR) which negates the simultaneous weakness is done to correct the problem.

Conclusion

The simultaneous challenge of both the ileocecal valve and the Houston's valves is a common finding in a patient with a persistent gastrointestinal problem. The test is entirely different than testing the valves individually and will help the doctor uncover a problem that would not be found otherwise. A positive synchronous challenge of the valves is an indicator of intestinal dysbiosis, most often due to poor fatty acid metabolism fueling unhealthy gut bacteria. Interestingly, while the symptoms of such a problem can be as widespread as that of an open ICV, they are most often corrected similar to the closed ICV (ileal brake).

References

1. McCord KM, Schmitt WH, Jr. Quintessential Applications: A(K) Clinical Protocol. St. Petersburg, FL: Healthworks!; 2005. p. 21–2.
2. Gordon PH, Nivatvongs S. Principles and Practice of Surgery for the Colon, Rectum, and Anus. 2nd Ed. New York, NY: Informa Health Care; 1999. p. 7.
3. Walther DS. Applied kinesiology; Synopsis. Shawnee Mission, KS: ICAK-U.S.A., 2009. p. 494.
4. Schmitt WH, Jr. The Uplink. Privately Published 2003; 28.

Advanced (De)Hydration Assessment— When Water Alone is Not Enough

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Abstract

Water is perhaps one of the most overlooked nutritional deficiencies. Dehydration hinders performance starting at just 2–3% of body water weight loss while other symptoms, ranging from headaches to cramping, will soon follow if left untreated. Hydration is much more than having one drink when thirsty or drinking until the urine is a clear color. The amount of water a person consumes is only one piece of hydration. Electrolytes, glucose levels, stored glycogen, hormone levels, and small intestine, colon, and kidney function all have a major impact on the hydration of an individual. Advice to “just drink more water” is no guarantee to ward off dehydration and general manual muscle testing (MMT) with water alone tends to miss many problems associated with dehydration.

Key Indexing Terms

Dehydration, Hydration, Glycogen, Renin, Aldosterone, Hyponatremia, Electrolytes

Introduction

Often the kidneys are the focus when investigating fluid status, as they are the location where renin is produced, which eventually influences the thirst reflex in the hypothalamus via the renin-angiotensin-aldosterone axis. The effect on aldosterone will also lead to changes in sodium and consequently on fluid levels. One also tends to think that since urine is produced in the kidneys, they are a good indicator of hydration. If urine volume is low and very concentrated, this may be a sign of low hydration status. If an individual is urinating often and the color is very clear, then the thinking is that they are well hydrated. However, though often true, this is not necessarily always the case. Functional problems resulting from dehydration often occur long before urinary issues are seen. The kidneys have the ability to conserve or excrete excess water, but they are not the source of water absorption. To understand how well a person is absorbing fluid and holding onto the fluid, one must focus on the small intestine.

Water absorption occurs primarily in the small intestine (duodenum and jejunum) and its efficiency in passing through the intestinal lumen is greatly influenced by electrolyte levels as well as glucose levels.¹ Virtually no absorption occurs before this in the stomach. In addition to the average 1–2 liters of water consumed each day, another 6–7 liters of fluid is received by the small intestine each day from the salivary glands, stomach, pancreas, liver, and small intestine itself. Water absorption occurs by osmosis and this absorption is highly dependent on the amount of solutes present, primarily sodium, as well as glucose and other carbohydrate solutions. Small amounts of sodium added to water have long been known to increase gastric emptying and small intestine absorption.² Certain hormones, such as aldosterone, as well as neurotransmitters, such as norepinephrine, can greatly influence electrolyte status in the intestine and therefore affect hydration.³

The presence of carbohydrates in water will also promote rapid uptake of water, provided the solution is not too dense. Up to an 8% carbohydrate (glucose/sucrose) solution is optimal for absorption, above that the amount of absorption appears to be hindered.⁴ This is equivalent to approximately 20g of carbohydrates per 8oz water. Once the water is absorbed, glycogen levels as well as muscle mass play a major role in water retention.

Discussion

The viscerosomatic relationship of the small intestine is to both the quadriceps and the abdominals. The nutrition associated with the small intestine is vitamin D and B complex for the quadriceps and vitamin E for the abdominals.⁵ This author proposes that the body's most overlooked and vital nutrient, water, should always be investigated when there is a quadriceps and/or abdominal involvement related to small intestine dysfunction.

The theory that there are many people suffering from [functional] dehydration is not supported by testing water alone, which is the way it is so often done. A 2–3% water loss is very common and will affect physical and mental performance. Water must be tested in conjunction with a carbohydrate, (sugar or glucose polymers, such as maltodextrin), or with salt. Glucose plus fructose solutions tend to enhance water absorption,⁶ while fructose solutions alone often hinder absorption because fructose is absorbed by passive (facilitated) diffusion in the gut (this often results in cramping in athletes). Performing the combined test will reveal many overlooked and undiagnosed cases of dehydration that often result in back, hip, and knee pain in patients due to the abdominal and quadriceps involvement.

An individual needs a certain amount of sodium in the body to retain water necessary for good health. If sodium concentrations drop too low, problems will arise. Though this can occur fairly often from a functional perspective, hyponatremia, defined as a serum sodium concentration of 135 mmol per liter or less, is often not diagnosed until the individual is far into the realm of impaired health and performance.⁷ This is common among athletes and often results in too much fluid accumulating in the body as it cannot be absorbed efficiently. Many times athletes will complain of a “sloshy belly” as the water just sits in the stomach or upper small intestine. Likewise, if the salt is present and the water is not, a fluid imbalance will also occur, as water is pulled from other areas (typically extremity muscles) to aid in absorption. This will often result in muscle cramps and is the reason for becoming thirsty while eating salty foods.

An individual also needs glycogen to be properly hydrated. Approximately 2.4g of water are stored for every 1g of glycogen in the liver⁸ and many experts agree that muscle glycogen will hold over 3g of water per gram of glycogen. Therefore, assessing glycogen levels and glucose metabolism is of the utmost importance.

Procedure

1. MMT the small intestine related muscles - the abdominals and quadriceps
2. If weak, test the following, observing for strengthening:
 - a. Oral nutrient test with water by itself
 - b. If water does not strengthen, test with salt (“a pinch”)
 - c. If there is no change in the test with salt, keep the salt on the tongue and add water, asking the patient to mix the two in their mouth, effectively creating a saltwater solution
 - d. If there is no change with the saltwater solution, test the muscle for strengthening with sucrose, glucose, or some other carbohydrate (do not use fructose)
 - e. If there is no change with the sugar, next add water to the sugar on the tongue as performed earlier with the salt, mixing the two into a sugar-water solution
3. Treatment: Per the substance or solution which strengthened the weak small intestine muscle, advise the following dietary changes:
 - a. If water, have the patient drink frequently throughout the day and investigate caffeine intake (too much = dehydration)
 - b. If salt, advise the frequent use of sea salt on foods throughout the day, aiming for ½ to 1 tsp per day, (1,000-2,000mg)
 - c. If saltwater, advise both 3a. and 3b.
 - d. If sugar, investigate dysglycemia or low glycogen stores.
 - e. If sugar-water, combine 3a. and 3d.
4. Sometimes hydration is thought to be a problem with the patient but the small intestine associated muscles remain strong and autogenic inhibition is normal (the muscles weaken with spindle cell activation). In this case, oral nutrient challenging the small intestine related muscles with either salt or caffeine may reveal a hidden weakness to those muscles. This would indicate too much of the [challenge] substance, resulting in subclinical dehydration. Rarely, this author has seen the same occur with a sugar test.

A note regarding caffeine intake At the time of this writing, February 2009, the energy drink “Cocaine” is available in New Zealand and Australia, (US FDA has currently banned the drink). It contains 280mg of caffeine per 8.4oz, which is the equivalent amount of caffeine found in 3 cups of espresso. Products like this and the ever familiar “Red Bull” (80mg caffeine) are what many teens and adults are drinking day in and day out, leading to various health problems as well as functional, and perhaps pathological, problems associated with dehydration.

Conclusion

Proper assessment of hydration, or the lack thereof, involves testing the small intestine related muscles against water, electrolytes (most often salt), and carbohydrate solutions. Some patients will only respond to specific ratios of the substrate to solution, while with others any solution will do provided it is not too concentrated (>8% solution). Assuming that a patient is well hydrated because they do not test for water and/or the psoas-kidney related muscles are functioning normally will often result in many missed dehydration cases. Dehydration is a major health concern, especially with the influx of popular sports drinks on the market containing high amounts of sugar and caffeine. Ultimately, one does not have to exert much effort to lose 2–3% body weight.

References

1. Shaffer EA, Thompson ABR. First Principles of Gastroenterology: the Basis of Disease and an Approach to Management, 2nd Ed. Mississauga, Canada: Astra Pharmaceuticals Canada; 1994. p.191.
2. Maffetone P. Complementary Sports Medicine. Champaign, IL: Human Kinetics; 1999. p.314.
3. Levens NR. Control of Intestinal Absorption by the Renin-Angiotensin System. Am J Physiol Gastrointest Liver Physiol 1985;249:G3-G15.
4. Gisolfi CV, Summers RW, Schedl HP, Bleiler TL. Intestinal Water Absorption from Select Carbohydrate Solutions in Humans. J Appl Physiol 1992;73:2142-2150.
5. Walther DS. Applied kinesiology; synopsis. Shawnee Mission, KS : ICAK-U.S.A., 2009. p. 312–13; 316–17.
6. Jeukendrup AE. Carbohydrate Feeding During Exercise. European Journal of Sport Science 2008;8(2): 77-86.
7. Peate WF, Ayus JC, Arieff A, Moritz ML, Halperin ML, Kamel KS, et al. Hyponatremia in Marathon Runners. NEJM 2005;352:1550-6.
8. Puckett HL, Wiley FH. The Relation of Glycogen to Water Storage in the Liver. J Biological Chemistry 1932;96:367-71.

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Faster and More Efficient Ways to Identify Hidden Injuries and Diaphragmatic Problems

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Abstract

Injury recall technique (IRT) continues to be one of the most important tools a doctor can use during treatment because of the way an injury can affect the body both locally and systemically. Sometimes an injured area that is causing a problem is evident, however many times it is not so apparent. The patient may be unaware of an injury since it is no longer troublesome, the injury may have been forgotten, or perhaps multiple injuries are present but the doctor is unsure of which one to check first. Additionally, many patients develop injuries from prolonged compensatory patterns developed over months or years of dealing with some dysfunction, perhaps even a problem originally created by another injury. These injuries can be increasingly difficult to find, like the proverbial “needle in a haystack.” Sometimes they are at such specific and localized areas, the doctor will be unaware of where to treat the injury without some help. For example, injuries related to the diaphragm are common, but often hard to find. Using some quick and simple tests will help narrow down these less-than-obvious injuries that often plague a patient and inhibit a full recovery.

Key Indexing Terms

Injury Recall Technique (IRT), Autogenic Facilitation, Diaphragm, Psoas, Medial Arcuate Ligament

Introduction

IRT involves a correction by opening the mortis joint for areas of injury below the neck and flexing the atlanto-occipital joint for areas of the head and neck, while either the patient touches the area of injury, the doctor stimulates the area of injury, (cold, pressure, pinching), or origin-insertion technique is performed to the area of injury. The indication to know when to use IRT is when autogenic facilitation, (stretching of the muscle spindle cell), does not strengthen a weak muscle. Currently, the only known exception to this rule is if autogenic facilitation does strengthen the weak muscle, there still may be an injury located in that muscle itself. Once a weak muscle is found to need IRT, the doctor must find the area of injury. This is most easily done by rubbing over the area of suspected injury or having the patient touch the area. If either strengthens the weak muscle, then that is the area where IRT is performed.¹

However, when autogenic facilitation does not strengthen a weak muscle the area of injury is not necessarily obvious. The doctor knows only that there is an injury somewhere in the body, but the precise location remains unknown, especially when the weak muscle tested shows no sign of injury or past trauma, and no history indicates an injury has occurred. This is where some useful “tricks” can help the doctor locate the area of injury.

Injuries to the diaphragm are often overlooked. Since the diaphragm is constantly at work, it is particularly good at masking any symptoms of past or present trauma. The diaphragm can become injured from an impact such as one occurring from a car accident or sports related collision (hockey, football). Improper breathing,

often shallow, may result from an injury to the diaphragm. It is also possible that over time improper breathing could cause a diaphragmatic problem that the body perceives as an injury. The psoas muscles and the diaphragm share a common connection via the medial arcuate ligament. This tendinous arch arises from the fascia covering the psoas major and its fibers converge to a tendon that ascends to the diaphragm.² This connection will be useful in helping the physician find hidden diaphragm problems.

Discussion

When a person injures an area, the first instinct is to examine the site of the injury and rub the affected area. This is the reason why having the patient touch or rub the area works so well in locating the injury site. The eyes can also be used to help find the [hidden] injury. Walter H. Schmitt, D.C., has noticed that by having the patient look at the area of injury, the weak muscle will strengthen. This tends to work very well, at most times, but there are exceptions. When a weak muscle is found that does not respond to autogenic facilitation, the doctor can have the patient look in different quadrants of the body (up & right, up & left, down & right, down & left) as well as directly down (towards the feet) and directly up (towards the forehead). If there is an injury in the area of gaze, the weak muscle will strengthen. They do not need to see the exact injured area—looking in the direction is all that is necessary. The following are three exceptions this author has noted when using this “eye gaze” technique: an injury in the neck and head, a weight bearing injury in the trunk or lower extremities, an injury involving a joint in any extremity.

There is also another quick and easy test first observed by this author that the doctor can perform to narrow down where the injury may be. It simply involves performing the IRT correction—either to the atlanto-occipital area or either mortis joint—and looking for strengthening of the weak muscle. During this test, there is no need for the patient or doctor to do anything else; it is only performed to narrow down the area of injury. For example, if there is a weak pectoralis sternal muscle that does not respond to autogenic facilitation and the doctor performs IRT on the left mortis joint and this strengthens the pectoralis, then this would indicate that the injury is somewhere on the left side of the body, below the neck. If the doctor performed IRT to the atlanto-occipital area and this strengthened the pectoralis, then the injury would be in the neck or head region. This, like the eye gaze technique, is used only to help find the injury. IRT correction is always the same no matter how the doctor goes about finding the actual injury.

Often an injury either occurred while the person was weight bearing, (sitting or standing), or the injury is now currently affecting their body in such a position. In this case, having the patient look at the suspected area of injury often will not help find the problem. Furthermore, other procedures, such as rubbing over suspected areas or having the patient touch these areas, prove fruitless as the injury is a compensatory pattern or an old forgotten injury that is affecting the patient’s gait or the supporting muscles of gait. The way to check for this is to have the person stand while testing the weak muscle. Autogenic facilitation should still not strengthen when they stand, (unless the injury was only a problem while the patient was lying down). Next, have the person shift his or her weight to one side, either the right or left leg. Check again for autogenic facilitation on each side. Do this on both sides. Often autogenic facilitation will only be present when the weight is shifted to one side. This indicates that the injury is on the opposite side, where stretching the spindle cell did not strengthen. If weakness still occurs on both sides during spindle cell activation, the injury is either exactly midline, (commonly spinal), bilateral, in the head/neck/jaw region, or in an extremity (often the one being tested).

Once the side is found that retains the negative autogenic facilitation, the field of gaze can be used to further narrow down where the injury is. This will now provide the anterior or posterior quadrant of the side where injury has been found. For example, if the patient puts more weight on the left leg (simply by leaning more to the left) and autogenic facilitation does not strengthen, then the injury is on the left. Next, they would look up and left or down and left. If up and left strengthened the weak muscle being tested, this would indicate an injury on the posterior left side of the body. The doctor can then begin rubbing over suspected areas in that quadrant, looking for the muscle to strengthen, while the patient maintains his or her weight to that side. Once found, performing IRT as best seen fit, (pinching the area, patient touch, origin-insertion technique), will correct the problem.

The weight bearing technique can also be used if there is a weight bearing related injury to the neck, often common in cervical disc lesions. The doctor can test for this by applying slight downward pressure (cephalic to caudal) on the top of the head and again check for autogenic facilitation of the muscle being tested.

Often, there is an injury that is causing a problem in one of the arms and weight bearing testing in this case would obviously be useless. Sometimes an injury in the leg can't be found because the weak muscle is in the leg and that muscle can't be tested for a weight bearing injury because the patient needs to be standing on that leg in order to test for such a problem (!). This is where a joint compression test will prove extremely useful, particularly with an ankle or foot injury that would not be found otherwise.

Once there is weak muscle showing a need for IRT, the doctor will challenge the suspected joint above and below, jamming the joint together, then immediately after perform IRT to the same side mortis joint. This can be done to a very small area, such as just above and below the elbow, or for the entire extremity, such as from the hand to the shoulder for a suspected limb injury. The area is pushed together with moderate force and immediately after, IRT is performed on the same side of the limb being checked. If the muscle being tested strengthens, then the injury is in that limb and the doctor can narrow down the area of compression to a more specific location. The eye gaze technique will also now be effective, as it would often not have shown beforehand. For example, the patient can gaze in the upper left quadrant if the left arm is being compressed and if that strengthens the muscle being tested, then the injury is most definitely on that posterior side in-between the compressed challenge area. One can see how the hidden injury can quickly be smoked out! For an injury in the ankle or foot, the compression test along with the IRT challenge will often not work, since the IRT challenge often involves the affected area. In this case, the compression test can be used in conjunction with the eye gaze test simultaneously to find the area of injury.

Lastly, the diaphragm tends to be an ignored source of injury and it certainly should not be as it is the hardest continuous working muscle in the body along with the heart. Correcting an injury to the diaphragm will often lead to improved breathing and core strength, due to its integration with the transverse abdominal muscles. If the diaphragm is suspected as a part or all of an injury, then the test to verify this is simple - have the patient perform breathing cessation (stop breathing). If the diaphragm is related to the injury, the muscle tested which is not responding to spindle cell activation will become strong. Unfortunately, this only reveals that something is wrong with the diaphragm, not where in the diaphragm the problem is located. To find this, test the psoas. If the psoas is strong, once again have the patient cease their breathing (not breathe in or out and then hold their breath). One, or sometimes both, psoas muscles will be weak when the breath is stopped. Then the patient can perform the eye gaze test to see if the injury is on the anterior or posterior, left or right, side of the body. Anterior injuries are often in the diaphragm or along the psoas muscle, while posterior injuries tend to be deep into the quadratus lumborum where the lumbosacral arch lies, deep under the twelfth rib.

The psoas-diaphragm breath cessation test can be used to identify a suspected diaphragm problem, in general. If the psoas is weak when the breath is stopped, check spindle cell for strengthening. If negative, then there is an injury. If positive (the muscle turns on), then it is necessary to investigate other therapies to treat the diaphragm, such as Chapman's reflex along the sternum or spinal involvement.

Procedure

1. Identify a weak muscle and Autogenic Facilitation does NOT strengthen the weak muscle = need for IRT
 - a. Perform IRT on the atlanto-occipital joint
 - i. Strong = injury is in head or neck area
 - ii. Remains Weak = injury is elsewhere or weight bearing/joint involved; continue to 1b
 - b. Perform IRT on the right mortis joint
 - i. Strong = injury is on the right side of the body, below neck
 1. Have the patient look up and right or down and right to localize injury
 - ii. Remains Weak = injury is not on the right side of the body, or is a weight bearing/joint injury; continue to 1c
 - c. Perform IRT on the left mortis joint
 - i. Strong = injury is on the left side of the body, below neck
 1. Have the patient look up and left or down and left to localize injury
 - ii. Remains Weak = injury is not on the left side of the body, or is a weight bearing/joint injury; continue to 1d
 - d. Perform breath cessation (patient does not hold breath, but stops breathing) while testing the weak muscle again
 - i. Strong = injury is in diaphragm; see 4 below
 - ii. Remains weak = injury is not in diaphragm
2. Have the patient stand and check for Autogenic Facilitation while:
 - a. Patient shifts weight to the right leg
 - i. Strong = injury is not on right side
 - ii. Weak = injury is possibly on right side
 1. Have the patient look up and right or down and right to localize injury while doctor tests muscle
 - a. Weak muscle turns strong = injury in that area
 - b. Weak muscle remains weak = no injury in that area; continue to 3.
 - b. Patient shifts weight to the left leg
 - i. Strong = injury is not on left side
 - ii. Weak = injury is possibly on left side
 1. Have the patient look up and left or down and left to localize injury while doctor tests muscle
 - a. Weak muscle turns strong = injury in that area
 - b. Weak muscle remains weak = no injury in that area; continue to 3.

3. With the patient supine test the weak muscle (*general test – not with Autogenic Facilitation*):
 - a. Compress suspected joint while performing 1a, 1b, or 1c
 - i. ** if the injury is compromising some or part of the mortis joint, the IRT test may not work (will not strengthen the weak muscle immediately after compressing that same joint); in this case, the field of gaze test will work while compressing

**Example: Weak left biceps muscle. Doctor compresses area above the below the right ankle and then performs IRT. Biceps remains weak. The injury could still be in the ankle. Perform the compression test again (no mortis joint IRT) while the patient looks up and right, or down and right. If the injury is in the anterior or posterior right ankle, the weak left biceps will strengthen.
4. Suspected diaphragm injury
 - a. Strong psoas = weak with breathing cessation; or general weak psoas
 - i. Stretching psoas spindle cell = strong = No injury
 - ii. Stretching psoas spindle cell = remains weak = Injury
 1. Have the patient perform the fields of gaze to localize injury

Conclusion

Autogenic facilitation of any inhibited (weak) muscle needs to be checked before any further treatment can continue. Not only do injuries have a dramatic effect on the body, locally and systemically, but testing with an injured muscle during treatment will often lead to inaccurate, confusing, and marginal results.

Injuries are not always obvious, particularly when a person has had a long time to compensate and adapt to an injury that may have occurred years prior. Performing IRT to narrow down the suspected area, using the eyes to further narrow down the quadrant or area, and testing via the weight bearing and the joint compression test will find the hidden injuries so the doctor may correct them. It is often these difficult to find injuries of which the patient may not even be aware, that are the ones which ultimately lead to the most dramatic improvements in health.

Finally, the exception to IRT that autogenic facilitation may strengthen a tested muscle if the injury is in the actual muscle being tested, is no longer a concern with the described procedures. The strengthening will no longer be present after stretching the muscle spindle of the injured/tested muscle with the joint compression technique; the muscle will remain weak, signifying a need for IRT in that area.

References

1. Walther DS. Applied Kinesiology: Synopsis. Shawnee Mission, KS: ICAK-U.S.A. p. 184–87.
2. Clemente CD. Anatomy: A Regional Atlas of the Human Body. 5th Ed. Hagerstown, MD: Lippincott Williams & Wilkins; 2007. p. 252.

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New and Updated Challenge Procedures to Assess Aerobic, Anaerobic, and Creatine Phosphate Pathways

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Abstract

Applied kinesiology testing methods of aerobic and anaerobic excess and deficiency have been utilized for decades to assess an individual's function of those pathways. Currently, the aerobic challenge test can be performed to assess if there is aerobic excess or deficiency and the anaerobic challenge test performed to assess an excess or deficiency of that system. This paper will update these challenge procedures to incorporate the neglected creatine phosphate (CP) system and redefine the parameters in which the anaerobic challenge must be performed. Additionally, new testing and treatment procedures will also be provided regarding the aerobic challenge test.

Key Indexing Terms

Aerobic, Anaerobic, Creatine Phosphate, Lactic Acid, Glycogen, Glycolysis

Introduction

There are primarily three systems the body utilizes for energy. They are the creatine phosphate (CP), the lactic acid, and the oxygen system. The CP and lactic systems are commonly known as the anaerobic system, while the oxygen system is referred to as aerobic. Except for very short activities, such as a sprint or a jump, most activities employ both the aerobic and anaerobic (lactic) systems to various degrees depending on duration and intensity.¹

Creatine phosphate is stored in very limited amounts in the muscle cells and is utilized after the few seconds of stored ATP are used up. CP only supplies energy for at most 10 seconds, with most experts citing its peak around 5–7 seconds,² and is fully metabolized and out of the system within 15–20 seconds. CP is used for explosive activities such as jumping, throwing, weightlifting and sprinting. No lactic acid is produced during this time; it is referred to as alactic.

The lactic acid system is used (by itself) during intense events up to 2 minutes after the CP system. It breaks down glycogen stored in the muscles and liver (glycolysis) thereby releasing energy. Eventually, the accumulation of lactic acid in the muscles will cause fatigue and be too much for the person to continue. This system relies on energy from carbohydrate metabolism and therefore post-workout restoration of glycogen is essential. This system, combined in part with aerobic metabolism, can provide energy for 90–120 minutes in elite athletes. A person of average fitness can rely on these systems for energy for a duration of approximately 30 minutes.

The aerobic system's energy source is primarily fat and pyruvate from glycolysis, but this time in the presence of oxygen, producing little or no lactic acid. The aerobic system is used during events up to 2–3 hours, beyond which the breakdown of fats as well as protein may occur to replenish ATP as glycogen is depleted.

Currently the anaerobic challenge technique employed during applied kinesiology manual muscle testing (MMT) procedures advises a challenge of 5–10 seconds,³ (Philip Maffetone, written communication, July 2008). However, that time is much more associated with testing the CP (alactic) pathway of anaerobic energy and not the lactic acid system, which is the primary indicator of anaerobic metabolism and fitness.

Discussion

The current anaerobic challenge procedure is performed by having the patient alternately flex and extend the forearms as rapidly as possible for up to 10 seconds, and often less. If the anaerobic system is functioning normally, then the test will neither strengthen any previously weak muscles nor weaken any previously strong muscles. However, if the person is in a state of anaerobic excess, then the strong muscles will weaken temporarily. The current thinking is that this is due to overtraining (too much anaerobic exercise) or from a nutritional deficiency, such as a B vitamin or a mineral needed to clear lactic acid. However, a test of such short duration is clearly focused on neurological MMT of the CP pathway, rather than the anaerobic lactic system. The short duration is alactic, not lactic. If the test is actually performed for the entire 10 seconds, then the CP pathway is beginning to phase-out and the true lactic anaerobic system is starting to take over. A test of very short duration (approximately 5 seconds), as is often performed, will test the CP pathway and only that pathway. During the course of testing this pathway repeatedly over the past two years, this author has found that for the anaerobic challenge to be effective in testing the lactic acid system, the patient must perform the test for at least 12 seconds. Any test performed for 3-4 seconds is going to test the CP pathway. Any test performed for 5–11 seconds is going to, at best, be an indistinguishable test of both anaerobic systems and often a true anaerobic problem will remain undiscovered.

The two separate and distinct anaerobic challenge procedures will correlate with their respective pathways during oral nutrient evaluation. If a patient weakens upon an anaerobic challenge of 3 seconds, they are in need of more support for the creatine phosphate system. He or she will often show a need for phosphorus and [rarely] creatine. If the patient weakens after performing the anaerobic challenge for 12 seconds (or more), then there may be a need for more aerobic activity or there may be a lack one of the citric acid cycle or glycolysis nutrients. It is also very important to note that the individual could be depleted in glycogen and is therefore failing the test due to low glycogen stores, thus requiring replenishment of those stores via carbohydrates.⁴ The doctor can test the patient with either [homeopathic] glycogen or a carbohydrate food, (often sugar will do), and this will negate the anaerobic weakness. It can take a healthy individual up to 48 hours to fully replenish glycogen stores. Therefore, one can quickly deplete those levels and appear to be over-trained (anaerobic excess) from a few hard workouts and lack of dietary follow-thru to replenish the glycogen stores.⁵ This will be completely missed by the doctor if the challenge test is either performed for less than 12 seconds or if the doctor does not test for carbohydrates or glycogen on those who fail a 12+ second test.

Sometimes an individual will strengthen with the [12 second] anaerobic challenge because they truly need more anaerobic activity or less aerobic activity. If the CP test of only 3 seconds is performed and a weak muscle strengthens, this often correlates more with an epinephrine challenge procedure, as noted by Walter H. Schmitt, D.C. Therefore, the adrenals and associated pathways should be investigated.

The aerobic challenge procedure is performed by having the patient raise and lower the legs alternately for 8–10 repetitions while supine.³ A normal response is for the weak muscles to strengthen for a short period of time and the strong muscles should remain strong. A muscle that does not become strong after the aerobic challenge is often a result of a fatty acid or red blood cell nutrient deficiency, (most commonly iron), or from too much carbohydrate in the diet. Additionally, they may need more aerobic activity.

An additional test can be utilized by performing the aerobic challenge with simple sugar on the tongue. If there is too much carbohydrate in the diet, the individual will be primarily using sugar for energy rather than fats and that will shift their metabolism more towards anaerobic from aerobic. In this case, the sugar on the tongue while performing the aerobic challenge test will result in the weak muscles staying weak and the strong remaining strong.

Rarely does a patient actually fail the aerobic test to the point where the challenge will cause all strong muscles to weaken. The person must be severely over-trained or over-stressed for this to occur and endocrine system imbalances will be evident during the treatment. Anemia and/or fatty acid deficiencies are also a possibility. However, what does occur much more often than a weakening of all the muscles during an aerobic excess challenge is that only the thyroid related muscles (or acupressure alarm point) will show a sign of weakness, (Philip Maffetone, written communication, October 2008). It appears that the thyroid is the first of the endocrine organs to reveal itself during a failed challenge for aerobic excess.

Procedure

1. Determine that the teres minor [thyroid] muscle is functioning correctly (is neither weak nor over-facilitated), as well as another muscle that will be used as an indicator. You can also test to make sure that the thyroid alarm point does not therapy localize (TL). Also determine at least one muscle that is weak and can be turned on by autogenic facilitation (stretching spindle cell = strong).
2. Perform the NEW AEROBIC CHALLENGE procedure by having the patient raise and lower the legs alternately for 8–10 repetitions while supine.
 - a. Check the weak muscle(s) and the strong muscle(s). Normal is for the weak muscle(s) to turn on and all strong muscle(s) to stay strong.
 - i. Weak >> weak, check the patient for fatty acids (omega 3 & 6) as well as RBC nutrients (Iron, B12, folate (including 5-MTHF), Mo, Cu (excess & deficiency), and evaluate sugar/carbohydrate intake *AEROBIC DEFICIENCY

- ii. Strong >> weak, evaluate for endocrine disorders, RBC nutrients, as well as injuries via IRT procedure;⁶ consider anaerobic activity per challenge result (#4 below) *AEROBIC EXCESS
 - iii. Teres minor >> weak or thyroid alarm point positive TL, investigate thyroid support nutrients; consider anaerobic activity per challenge result (#4 below) *NEW AEROBIC EXCESS
 - b. If the above aerobic testing is normal, perform the 2.a.i. test again with sugar challenge (and treat accordingly if weak >> weak) *NEW AEROBIC DEFICIENCY
- 3. Perform the NEW CREATINE PHOSPHATE CHALLENGE procedure by having the patient alternately flex and extend the forearms as rapidly as possible for 3 seconds.
 - a. Check the weak muscle(s) and the strong muscle(s). Normal is for the weak muscle(s) not to turn on and the strong muscle(s) not to turn off.
 - i. Strong >>weak; this is a fault in the creatine phosphate pathway, check for phosphorus and creatine; Glycine (GLY) can also be tested as creatine is synthesized from GLY (and therefore requires B6 (P-5-P), B2, folate(s), and manganese) *Note that phosphorus is also needed for B6 conversion to P-5-P
 - ii. Weak >> strong, check epinephrine via endocrine and neurological pathways
- 4. Perform the NEW ANAEROBIC CHALLENGE procedure by having the patient alternately flex and extend the forearms as rapidly as possible for at least 12 seconds.
 - a. Check the weak muscle(s) and the strong muscle(s). Normal is for the weak muscle(s) not to turn on and the strong muscle(s) not to turn off.
 - i. Strong >>weak; this is a fault in the anaerobic (lactic) pathway, check for glycolysis and citric acid nutrients, adrenal gland stress, and glycogen (or some form of carbohydrate) *NEW ANAEROBIC EXCESS
 - ii. Weak >> strong, consider need for more anaerobic activity (or less aerobic) *NEW ANAEROBIC DEFICIENCY

Conclusion

The aerobic and anaerobic pathways are much more complex from a treatment perspective than were previously thought. Although the systems are almost always constantly working together, an imbalance in one system or the other can only be identified through specific testing. Prior to this paper, the anaerobic challenge procedures took into account both the lactic and alactic (CP) system as being one in the same. The current anaerobic challenge also appears to be too short as anything less than 12 seconds is not entirely lactic. This will often result in missing a fault that may be present, but not challenged appropriately. The aerobic system may also only reveal a problem if the thyroid related muscles/meridian is tested and/or if the general challenge is performed with sugar. Additionally, many athletes and non-athletes may appear to be over-trained but only appear so due to depleted glycogen levels—a dietary factor, not an exercise consideration. Performing these new and updated tests as described will result in a much more thorough understanding of the patient's aerobic, anaerobic (lactic), and creatine phosphate metabolism.

References

1. Bompa TO. *Periodization: Theory and Methodology of Training*. Champaign, IL: Bompa; 1999. p. 19–24.
2. Mougios V. *Exercise Biochemistry*. Champaign, IL: Human Kinetics; 2006. p. 128–30.
3. Walther DS. *Applied Kinesiology: Synopsis*. Shawnee Mission, KS : ICAK-U.S.A. p. 189–90.
4. Gangemi SC. The Dysglycemia Test and its Connection to Temporomandibular Joint Dysfunction and Tinnitus. In: *Proceedings of the ICAK-U.S.A.; 2009–2010*.
5. Ivy JL. Regulation of Muscle Glycogen Repletion, Muscle Protein Synthesis and Repair Following Exercise. *J Sports Science Med* 2004; (3):131-8.
6. McCord KM, Schmitt WH Jr. *Quintessential Applications: A(K) Clinical Protocol*. St. Petersburg, FL: Healthworks!; 2005. p. 4b.

The Brain Visceral Referred Pain Area

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Abstract

Every organ has a cutaneous area to which it refers pain. Visceral referred pain (VRP) areas exist throughout the body. The location of the brain VRP will be discussed.

Key Indexing Terms

Visceral Referred Pain (VRP), Supraspinatus, Brain, Viscerosomatic

Introduction

Visceral problems will result in either a muscle inhibition or over-facilitation pattern.¹ Activating a VRP area with some type of sensory stimulation, usually rubbing (mechanoreceptor stimulation) or pinching (nociceptor stimulation), will elicit a muscle response if the VRP is related to the organ with a problem. The VRP areas are extremely useful in guiding the physician in whether to perform more sympathetic (pinching strengthens) or parasympathetic (rubbing strengthens) activity.² Although the brain is the most complex of all organs and the different parts serve their own unique functions, there appears to be a common VRP for the entire organ, and knowing such can be very helpful in identifying brain related disorders and imbalances, both functional and pathological.

Discussion

The viscerosomatic relationship of the supraspinatus to the brain can be used to identify the VRP of the brain. Understanding when to provide more sympathetic or parasympathetic activity to the organ is important as it will determine treatment procedures. The author has found a referred pain connection for the brain to be present over the posterior arch of atlas, just slightly lateral to the posterior tubercle. The VRP is present on the same side of supraspinatus inhibition or over-facilitation, and is most often only unilateral.

The Chapman's reflex (CR) for the supraspinatus-brain is just below the coracoid process as well as posterior to the transverse process of atlas.³ Therefore, if brain involvement is present, this CR should therapy localize (TL). Whether to rub the CR to create a net parasympathetic response or to perform visceral challenge technique to create a net sympathetic response requires the use of the VRP.⁴ Rubbing or pinching over the skin covering the posterior arch of atlas will guide the physician towards the treatment necessary to help improve brain function.

If there is an inhibition of the supraspinatus and rubbing over the VRP causes facilitation, then there is a need for more parasympathetic activity. If pinching over the brain VRP negates the inhibition, this would indicate a need for more sympathetic activity. Visceral challenge technique with the appropriate offender will correct this problem. Having the patient TL to the supraspinatus-brain CR with the offender on the tongue, and performing IRT to the ipsilateral talus or atlanto-occipital joint will negate the supraspinatus inhibition. The same procedure would hold true for a supraspinatus which is over-facilitated, and therefore cannot be turned off with normal autogenic inhibition. The physician would use the same VRP areas during the assessment to see which one would normally inhibit (turn-off) the over-firing muscle.

The [common] imbalance between the right and left side of the brain results in either a unilateral inhibited or over-facilitated supraspinatus with a contralateral normal functioning supraspinatus, or a unilateral inhibition and contralateral over-facilitation. Excess excitatory neurotransmitters such as aspartic acid, glutamic acid, and homocysteic acid are often responsible for brain imbalances.⁵ Cytokines resulting from immune system stress as well as dietary offenders such as hydrogenated fats, excess caffeine, aspartame, MSG, and food allergies (histamine), should also be considered. Often the supraspinatus muscle may be functioning normally but will test weak (or over-facilitated) only when the offender is introduced, in which case the ipsilateral VRP can be used to guide the treatment.

Conclusion

There is an apparent brain visceral referred pain area which exists over the posterior arch of atlas, slightly lateral to the posterior tubercle, and is ipsilateral to the side of brain involvement. This area may be used to determine the need to rub the brain Chapman's reflex or to perform visceral challenge technique to the organ.

References

1. Goodheart GJ. Applied Kinesiology 1968 Workshop Procedure Manual. Detroit: Privately Published; 1968.
2. Schmitt WH, Jr. The functional Neurology of Referred Pain. In: I.C.A.K. Collected Papers. U.S.A.; Summer 1989. p. 229.
3. Walther DS. Applied Kinesiology: Synopsis. Shawnee Mission, KS: ICAK-U.S.A. p. 348.
4. Schmitt WH, Jr. The Somatic Window on Neurological Function, Part 1. In: Proceedings of the ICAK; 1999–2000; 2: p. 141–48.
5. Schmitt WH, Jr. Neurotoxicity and Elevated Homocysteine: the Roles Played by Homocysteic Acid, Aspartate and Glutamate and Activated Forms of Folic Acid, Vitamin B-12, and Vitamin B-6. In: Proceedings of the ICAK-U.S.A.; 2003–2004; 1: p. 211–5.

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The Dysglycemia Test and its Connection to Temporomandibular Joint Dysfunction and Tinnitus

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Abstract

The temporomandibular joint (TMJ) is often a reflection of other problems gone awry in the body. Often the TMJ will present as a problem when there is an immune system impairment,¹ a cranial fault, or a subluxation somewhere in the spine. The TMJ, aside from local tooth and jaw problems, often compensates for these imbalances and is a symptom of some health distress. This author has found that the TMJ often reflects an imbalance of glucose levels in the body, commonly referred to as dysglycemia. Treating a patient for the cause of the dysglycemia, through dietary changes, nutrient therapies, and endocrine support often corrects, or helps to correct, TMJ dysfunction. Additionally, these common TMJ problems often have a strong link to the inexplicable tinnitus that many suffer from.

Key Indexing Terms

Dysglycemia, Temporomandibular Joint Dysfunction, TMJ, Tinnitus, Dysglycemia, Discomalleolar Ligament, Pinto's Ligament, ACTH, Glycogen

Introduction

TMJ dysfunction is a common complaint for many people. For those who are symptomatic, a cracking, popping, tight or painful jaw may be a frequent discomfort or they may experience neck pain, sinus pressure, ear problems, or headaches stemming from the jaw dysfunction. Asymptomatically, the jaw may deviate to one side while opening or closing, without causing the patient any discomfort, or one or both TMJs may therapy localize (TL) and either strengthen or weaken a tested muscle. The latter would indicate a problem either in the jaw or perhaps somewhere distant from the jaw. This dysfunction, often a result of dysglycemia, is the purpose of this paper.

Dysglycemia is a disorder of blood sugar metabolism. An individual may have a normal blood glucose reading, whether fasting or not, yet present at the time of blood testing or even some other time during the day with symptoms resembling altered sugar handling, (headaches, shaky, unclear thinking, fatigue, etc). There are many factors contributing to balancing blood sugar, and although hormones such as thyroxine and growth hormone are involved to some degree, the majority of work lies with the balance between the pancreas and the adrenal glands.

The pancreas will release the anabolic hormone insulin to lower blood glucose levels by converting the glucose to glycogen in the liver and muscles. It will also release the catabolic hormone glucagon when blood glucose levels are low, pulling the fuel from the stored glycogen.

The catecholamines epinephrine and norepinephrine from the adrenal glands will also be released in response to low blood sugar. Although they do have an impact as catabolic hormones along with glucagon, they do not have as much of an influence as cortisol. Dysglycemic patients tend to have altered cortisol levels, leading to a low conversion ability of glucagon to glucose, so their blood sugar levels either tend to run low or they “feel” as if they are low (hypoglycemic). This can result in the pancreas producing more glucagon to make up for the lack of cortisol. Conversely, high cortisol levels can often increase blood sugar levels too much and stress the pancreas by increasing insulin in response to elevated blood sugar.

The pattern is all too common, yet often physicians are left with either focusing on the adrenal glands or the pancreas to balance this system. Dietary changes such as consuming foods low on the glycemic index and eating frequent meals throughout the day often help. Additionally, supplying any missing nutrients, such as chromium and zinc for pancreas support, B and C vitamins and various minerals for adrenal support, and calcium, magnesium and vitamin B6 for glucose to glycogen metabolism can also be beneficial. However, during the treatment process it is not always apparent when a dysglycemic problem should be addressed nor how it should properly be treated.

Additionally, dysglycemic patients may not actually be aware they are having blood sugar problems. Just because they don't get headaches, dizzy, or moody after a prolonged period of not eating doesn't mean they have stable and healthy blood glucose levels. The dysglycemia could be causing their back pain, their TMJ problem, or even the often heard complaint of tinnitus (no pun intended!).

A simple tinnitus study in 1992 found that 19 of the 20 subjects had “one or more clinical, electromyographic, and radiographic indications of a temporomandibular disorder,” yet all were completely asymptomatic.² Other studies have shown that tinnitus can be a primary or secondary complaint of TMJ disorders.³

The evident connection between tinnitus and the TMJ has been investigated rather thoroughly. What is the link? Currently, the best explanation is the discomalleolar ligament, also known as Pinto's ligament, named after its' discoverer. This ligament is rarely described in the anatomy textbooks but was shown by Dr. Pinto in 1962 to be a ligamentous structure connecting the malleus in the tympanic cavity to the articular disc and capsule of the temporomandibular joint.⁴ As recently as October 2008, the International Journal of Oral & Maxillofacial Surgery published a study suggesting that “extreme stretching of the condyle in conjunction with the ligaments between the ossicles of the inner ear and the TMJ could be the reason for unexplained otological problems”.⁵

Discussion

The discomalleolar ligament provides the connection from the malleus to the TMJ, most possibly resulting in symptoms such as tinnitus and vertigo, stemming from the TMJ. Yet often these otological problems exist without TMJ symptomology. Additionally, there appears yet another link between the TMJ and dysglycemia, effectively linking all three problems together—TMJ (dysfunction), tinnitus, and blood sugar handling disorders. This link is the pituitary gland.

Adrenocorticotrophic hormone (ACTH) secreted from the pituitary increases production of cortisol from the adrenal cortex. Therefore, as blood sugar levels drop, ACTH levels increase to raise cortisol levels and in turn, bring the blood sugar back up. This occurs over and over again with dysglycemic patients. Often dysglycemic patients will not show a problem in the pancreas related muscles, (triceps, latissimus dorsi), or the adrenal

related muscles, (sartorius, gracilis, posterior tibialis, gastrocnemius, soleus), to the extent that one would think they should. Having to treat these areas for more efficient blood glucose metabolism is not always evident and when it is, the treatment is not always successful. The barrage of ACTH on the pancreas, much like the barrage of cortisol on the pancreas and insulin on the adrenals is the piece to this missing puzzle.

Using homeopathic ACTH will create a neurological response to the pancreas resulting in an over-facilitation of the pancreas related muscles, (latissimus and triceps will not weaken with autogenic inhibition). This is easily seen by testing the long head of the biceps for inhibition (weakening) while testing with the homeopathic ACTH. If ACTH is not available, slight rubbing over the pituitary Chapman's reflex (glabella), will elicit the same response; patient therapy localization (TL) to the glabella will not.

The indication to test for the ACTH-pancreas dysglycemic pattern is when there is a positive TL to the left TMJ. Any weak muscle will strengthen when the patient TLs to the left TMJ regardless of another muscle, cranial, or immune involvement affecting the TMJ. (However, these problems should be dealt with first, if present.) The TL to the left TMJ will also weaken a strong [extensor] indicator muscle with the head in extension. This is a common injury-recall pattern (IRT), in which the doctor treats one of the jaw related muscles with origin-insertion technique, often the internal or external pterygoid. However, the muscle imbalances often reoccur over and over again—because of the dysglycemia. The weakening of the indicator muscle with the TL to the left TMJ will remain weak in any jaw position (open, closed, protrusion, etc.), and then patient TL over the pancreas Chapman's reflex (CR) will negate the weakening. This reflex, cofounded by this author and his colleague, Walter H. Schmitt, DC, appears to be slightly more lateral than the more commonly known pancreas CR. ACTH will weaken any indicator muscle when the patient TLs to this CR. No other pattern appears to exist for this dysglycemia test. Clenching, opening, or moving the jaw in any position which may create a weakness or strengthening of a tested muscle, or may create an illeo-cecal valve response or any other visceral or somatic response, will not provide the same information as the dysglycemic ACTH-pancreas pattern. If the TL is positive to the right TMJ, the patient is switched, (neurological disorganization), and this must be corrected accordingly.

The correction of the problem starts with an investigation as to what caused the problem in the first place. It could be a dietary issue where the patient is eating foods high on the glycemic index such as processed flours, sugars, soda, etc., or is skipping meals or going more than four or five hours without eating. Often there is an offender either creating or driving the problem. Common offenders in the dysglycemic patient are artificial sweeteners such as aspartame (NutraSweet) and sucralose (Splenda), as well as caffeine, food allergies, medications, and hormonal stress (cortisol and estrogen are very common). Very often there is a nutrient imbalance/deficiency that is causing or provoking the dysglycemia. Since a dysglycemic patient is constantly pulling glucose from glycogen stores, and both glycogen and glucose play a major role in ATP production, a homeopathic solution of ATP can often be used to screen for these deficiencies. When ATP strengthens the bilateral biceps weakness caused by ACTH or rubbing over the glabella, nutrient support, or glycogen/glucose support, is necessary.

Procedure

1. TL to the left TMJ is positive (strengthens a weak muscle) and/or TL to the left TMJ with head in extension weakens a strong extensor muscle
 - a. There is no change with any jaw movement
 - b. Spleen and lower sternum immune involvement is not present or has already been corrected¹
 - c. * If the above pattern is found on the RIGHT TMJ then the person is switched, or there is some other problem, (such as a local jaw problem), which needs to be addressed
2. ACTH or rubbing the pituitary CR weakens both [long head] biceps
3. Both 1(head in extension weakness) and 2 will be negated by either ATP, glucose, or glycogen, and patient TL to the pancreas CR. The point tends to be slightly more lateral than the normal pancreas CR found on the patient
 - a. The TL to the pancreas [lateral] CR with ACTH will weaken a strong indicator muscle

Now the doctor must investigate—why does the patient have this pattern? There are three most likely scenarios:

- A) Some offender is causing the person to be dysglycemic. Common offenders include cortisol, trans fats, food allergies, caffeine, another hormone besides ACTH, ammonia toxicity, neurotransmitters, medications, or some excitatory chemical/neurotransmitter such as MSG, homocysteine, aspartic acid/Aspartame
 - B) They are lacking a nutrient to help them effectively make ATP or glycogen. Investigate the glycolysis pathway, Citric Acid Cycle, and especially check for COQ10 as it is the main component in the electron transport chain. Since the thyroid helps modulate the CAC, it should also be checked. Simply having the patient TL to the thyroid CR will negate the ACTH-biceps pattern weakness. *The need for COQ10 in high stress patients and/or athletes appears to be very common and overlooked. This author has recognized that supplementing patients with 500 to 1500mg of COQ10 a day is often necessary for short durations, (2–4 weeks), and provides extraordinary results.
 - C) Their diet is the problem. This could be from the following: too many refined carbohydrates, not enough [complex] carbohydrate intake during the day, going too long in-between meals or simply just not eating enough. If this is the case, the patient will strengthen with sugar (sucrose, not fructose), glucose, and/or glycogen. Obviously a patient like this does not need more refined sugar, but due to their dysglycemia and continuous blood sugar swings they will test positive for it. Most likely in this situation you will see cortisol to be the offender. However, glycogen stores could be depleted from a low carbohydrate diet or prolonged heavy exercise.⁶ Sometimes a person just simply needs to eat more carbohydrates.
4. Correction of the problem:
The correction is simple. After investigating the need for the respective nutrients, the doctor will treat the pancreas CR (parasympathetic activity—rubbing) with the offender, (unless the thyroid has been shown to need treatment). ACTH can be used if no specific offender can be found. Counseling the patient on their diet is a must, especially if the pattern reoccurs. Following the correction, the TL to the left TMJ should be negative and ACTH or glabella stimulation should not weaken the biceps.

Conclusion

Dysglycemia is a rampant functional disease process that can and often does lead to pathological diseases such as diabetes and cancers. The TMJ-dysglycemia link has been well observed by this author for over two years now, with estimates that this pattern occurs in approximately 75% of new patients and 30–40% of existing patients, (for reasons described above). Whether the TMJ is presenting a problem to the patient or not, its connection to dysglycemia cannot be ignored. Lack of proper glucose stability and/or glycogen depletion will result in a positive TL to the left TMJ. Additionally, the unpleasant need for origin-insertion technique to the pterygoid muscles will be greatly reduced, if not eliminated.

The link between the temporomandibular joint and the auditory system is evident by way of the discomalleolar ligament. The common reflection of this, tinnitus, is a prevalent complaint experienced by patients. Many patients of this author who have had intermittent spells of tinnitus, (once a day or a few times a week, lasting seconds to minutes), have seen remarkable changes from this treatment. The condition becomes significantly improved and in some cases is completely resolved. Patients will understand their tinnitus to be a blessing in disguise—a signal that their glucose levels are wildly imbalanced.

Acknowledgement

Special thanks to Steve Haase, PhD, assistant professor Dept of Biology, Duke University, for his time and energy in helping to discover these connections via muscle testing and research.

References

1. McCord KM, Schmitt WH. Quintessential applications: A(K) clinical protocol. St. Petersburg, FL: Healthworks!; 2005. p. 9.
2. Douglas MH. Tinnitus of tmj origin: a preliminary report. J of Craniomandibular Practice 1992;10(2):124-9.
3. Gelb H, Gelb M, Wagner M. The relationship of tinnitus to craniocervical mandibular disorders. J of Craniomandibular Practice 1997;15(2):136-42.
4. Pinto OF. New structure related to the temporomandibular joint and middle ear. J Prosthetic Dentistry 1962;12(1):95-103.
5. Şencimen M, Yalçın B, Doğan N, Varol A, Okçu KM, Ozan H, et al. Anatomical and functional aspects of ligaments between the malleus and the temporomandibular joint. Int J of Oral Maxillofacial Sur 2008;37(10):943-47.
6. Gangemi SC. New and updated challenge procedures to assess anaerobic, aerobic, and creatine phosphate pathways. In: Proceedings of the ICAK-U.S.A. 2009–2010.

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The Use of Low Level Laser Therapy and Injury Recall Technique in the Treatment of Closed Head and Other Brain Injuries

James D.W. Hogg, D.C., DIBAK

Abstract

This paper discusses the use of Low Level Laser Therapy (LLLT) coupled with Injury Recall Technique (IRT) in ameliorating symptoms of brain injury from various sources such as closed head injuries, stroke, surgical or other sources of ischemia and birth trauma. It builds on a previous paper by this author and the work of Walter Schmitt, D.C., DIBAK, D.A.B.C.N. A protocol is described for identifying and treating patients. Several specific patients are referenced along with their outcomes.

Key Indexing Terms

Low Level Laser Therapy (LLLT), Injury Recall Technique (IRT), Brain Injury

Introduction

Closed head injuries are a common occurrence in the United States with an estimated incidence of 200 per 100,000 people per year.^{1,2} A “closed head” injury is one in which there is trauma to the brain which does not pierce the cranium. Common causes of closed head injuries include traffic accidents and falls in which the head is struck. Often the greatest injury is not from the original trauma but due to edema and intracranial bleeding putting pressure on vulnerable neural tissue in an enclosed space. Free radical damage and ischemia are likely contributors to this secondary type of brain injury. Approximately 100,000 people die as a result of closed head injuries in the United States each year.^{3,4} Of those who survive, another 90,000 each year suffer some level of long-standing or permanent disability.^{3,4} As our service men and women return, injured, from Iraq, Afghanistan and elsewhere, persisting disability resulting from brain injury becomes an increasing concern.

Types of trauma in closed head injuries include “coup” injuries from direct transmission of trauma through the skull to the brain which causes injury directly beneath the point of impact. A second type of injury is the “contrecoup” in which indirect trauma to the brain occurs via rotational shear forces that cause the brain to bounce against or sweep across the interior of the cranium. In the contrecoup injury, multiple areas of brain trauma occur that are less obvious based on the point of impact. When all primary and secondary sources of brain injury in a closed head incident are considered, understanding the possible brain areas actually affected becomes complex.

Other types of brain injury considered in this paper will include additional sources of ischemic injury. Specifically I will be discussing my experience with stroke, open heart surgery and birth trauma.

Materials and Methods

The approach to various types of brain injury presented here will be a combination of the Injury Recall Technique (IRT) first presented by Schmitt^{5, 6} and a previous paper presented by this author incorporating low level laser therapy (LLLT).⁷ Various light therapy devices have been used in this approach but, for the purposes of this paper, the device of choice will be a device from www.laserpointers.net. This laser has a wavelength of 635nm (+/- 10) and an output of approximately 5mw. Additional features include an on/off switch and the ability to adjust the beam width.

In standard IRT the suspect injury area is stimulated either via pinching or other nociceptive stimulation or therapy localization. This stimulation is followed rapidly by a cephal tug on the ipsilateral talus. If this procedure results in brief inhibition of a previously facilitated skeletal muscle (eg the pectoralis major clavicular) on manual muscle testing, it is considered to be a positive test for a persisting subliminal withdrawal reflex to a former injury with all the associated neurological consequences. A variation on this test for injuries superior to the clavicle involves extension of the neck at the atlanto occipital joint by the patient immediately following stimulation of the suspect injury area substituted for the talus pull above.

In a previous paper⁷ this author detailed a method wherein stimulation using a class 3a laser may be substituted for either TL or pinching/nociceptor stimulation. As I explained at that time, use of a laser allows for stimulation at a deeper tissue level making it particularly useful for clearing IRT findings after surgeries and other types of deep tissue trauma. I find that IRT clearing at both the superficial level (TL or pinching stimulation) as well as deeper, laser stimulation is often necessary.

When treating brain injuries, I have found it important to consider the following areas for evaluation of persisting IRT patterns:

1. The point of impact or trauma to the skull
2. The area of damage indicated by functional loss, eg. Left hemisphere for right side muscular impairment in stroke or hypochampal area for signs of acetylcholine deficit.
3. For contrecoup type injuries, basically any severe trauma in which the head is thrown around, including: whiplash, falls, or explosions, all brain areas should be examined
4. For ischemic brain injury such as may result from some birth trauma, surgical procedures, or carbon monoxide poisoning, all brain and spinal cord areas should be examined. The same is true for evaluating brain injury from any chemical or toxic exposure.

This can be accomplished by setting the laser beam to a wide dispersal and passing it several times over the brain area to be evaluated followed by asking the patient to extend their head and testing a previously facilitated muscle for temporary inhibition.

Discussion

I have found the laser IRT protocol described above to be extremely useful in treating lingering effects of brain injury, even of long duration. Some of the results described below may relate to my observation, described in a previous paper⁷ that, in many cases scars and other indicators of injury seem to complete the healing process after IRT even when the original injury is years or decades in the past.

A 65 year old woman had a 30 year old closed head injury from an auto accident. She had been to many chiropractors: Sacral Occipital Technique (SOT), Gonstead, Atlas Orthogonal (AO) and finally AK. She

has had loss of “executive ability” (the ability to organize and get things accomplished.) I tried a variety of treatment modalities with her with mixed results. After describing the procedure, she consented to laser IRT evaluation and treatment. I found multiple areas indicated the need for deep, laser IRT as described above. After treatment this patient reported dramatic improvement in her organizing skills especially numerical skills. She was delighted that she could balance her checkbook for the first time in decades. She still has some “bad days” when she is especially tired or stressed but has enjoyed long-term improvement in cognition.

A woman in her late 60s had a left hemisphere stroke 6 months earlier. As a result, she had significant problems with right arm and leg strength and control with a very erratic gait. After a description of the laser IRT protocol she consented to treatment. After laser IRT to her left hemisphere she reported dramatic improvement in her right side strength and control. Her gait showed a 20%–30% improvement on her next visit. She gained another 10–15% improvement in right side muscular control over the next year but the initial one-week improvement after IRT was dramatic.

A man in his mid-60s had open heart surgery. He reported that, after the surgery, he had a lot of trouble concentrating and became easily confused, got lost a lot when driving and often would forget what he was doing. He was late to several appointments because of getting lost on the way, despite having been a regular patient for two years before his surgery. I suspected brain damage resulting from either inadequate oxygen supply during surgery or anesthesia. After laser IRT to several head areas he reports that he can focus better think much more clearly and is no longer getting lost. The results from this single treatment persist three years later.

A 50 year old woman had endometriosis surgery 12 years ago. The blade of the endoscopic instrument nicked her descending aorta on the way in. The surgeon immediately withdrew the instrument but nicked the aorta again on the way out. She bled out on the table. Fortunately there was a cardiac surgeon in the hospital at the time. They opened her from pubis to clavicle and saved her life but she had a long and difficult recovery period. She had ischemic brain trauma from bleeding out with a number of neurological deficits. She felt she had recovered most of them except for one area when she asked for my help recently. She had a very hard time with right and left. She was taking ballroom dance classes and had a very hard time following instructions. Before treating her I gave instructions like “bend your left elbow” or “wiggle you right toes.” She could do it but there would be a full 4–5 second lag time. After a description of the procedure she was eager to try laser IRT to see if it could help her. After laser IRT to several brain areas she could follow these directions instantly, no lag time at all. She reports that she now has little to no trouble with right and left and can follow instructions well at class. Since this single treatment she has continued to enjoy good right and left discrimination, has become a proficient ballroom dancer and entered several dance competitions.

I have used laser IRT successfully with many of my other patients. I always check IRT with any cases of attention deficit disorder or other learning difficulties. Results have varied from mildly helpful to dramatic improvement in concentration and behavior as reflected in higher grades and fewer detentions among my school age patients. Many patients have reported improved focus, concentration, memory and coordination after laser IRT to indicated brain areas. I would be extremely interested in seeing this technique applied more specifically by ICAK members with a better grounding in neurology than I enjoy.

Laser IRT Brain Injury Testing and Treatment Overview

- I. Testing
 - A. Start with the patient supine
 - B. Find a strong (facilitated) muscle such as pectoralis major clavicular
 - C. Test to see if active extension of the head (on the table) causes inhibition
 - i. if so clear any occipital fixation or other causes of the positive finding above
 - D. When C, above is no longer positive
 - i. Set the laser to wide beam if possible
 - ii. swipe the beam 3–4 times over the suspect area with a right to left or up to down type movement and ask patient to extend the head
 - iii. Immediately after laser stimulation, test a previously facilitated muscle from B above
 - E. Temporary inhibition of a previously strong muscle following laser stimulation and head extension suggests the need to laser IRT
 - F. Occasionally I find that a cephal pull on the talus needs to be used instead of or in addition to head extension in the above testing protocol
- II. Treatment
 - A. Repeat laser stimulation to the area indicated exactly as for testing, above
 - B. Immediately after laser stimulation, take the patient's head and passively flex it, 3 times
- III. Repeat the original testing sequence to verify correction
- IV. Occasionally I find that a caudal talus pull needs to be used instead of or in addition to head flexion the above treatment protocol as indicated by testing in I,F above

Conclusion

IRT is one of the most powerful techniques in my AK “toolbox.” I know many ICAK members have experienced similar results with the original technique introduced to us by Wally Schmitt. The addition of LLLT as a diagnostic and therapeutic modality greatly enhances the areas that can be treated with IRT, especially in regard to various types of brain injury. The therapeutic benefits of laser IRT for brain injured patients are often dramatic and usually long lasting or permanent. These benefits seem to go far beyond a simple elimination of the injury withdrawal reflex and suggest the possibility of healing and recapture of cognitive and motor abilities even years after the original injury.

With the thousands of brain injuries occurring each year and especially as our brain injured soldiers return from serving our country in foreign wars, I commend the combination of IRT and low level laser therapy as a powerful addition to the many tools we as professional applied kinesiologists employ in our efforts to restore optimal brain function!

References

1. Klonoff H, Thompson GB. Epidemiology of Head Injuries in Adults: A Pilot Study. *Can Med Assoc J.* Feb 1 1969;100(5):235-41.
2. Kalsbeek WD, McLaurin RL, Harris BS 3rd, Miller JD. The National Head and Spinal Cord Injury Survey: Major Findings. *J Neurosurg.* Nov 1980;Suppl:S19-31
3. Kraus JF. Epidemiology of Head Injury. In: Cooper PR, ed. *Head Injury*. 2nd Ed. Baltimore: Lippincott Williams & Wilkins; 1987:1.
4. US Census Bureau, Population Division. Data as of July 2003. Available at: <http://www.census.gov/cgi-bin/popclock>.
5. Schmitt, W.H., Jr., Injury Recall Technique: Dealing With the History of Injury and Trauma. Proceedings of Summer Meeting, ICAK, 1990.
6. Schmitt, W.H., Jr. A Neurological Rationale for Injury Recall Technique. Proceedings of Summer Meeting, ICAK-U.S.A., 1999.
7. Hogg, J, Injury Recall Technique Revisited. Proceedings of the Summer Meeting, ICAK-U.S.A. 2004

Systemic Changes with Abnormal TMJ Position

David W. Leaf, D.C., DIBAK

Abstract

To examine physical changes with an abnormal position of the condyle of the mandible, 50 subjects were tested for changes in vital capacity, rib expansion, extremity abductor strength and extremity abduction were tested. A high percentage of subjects demonstrated decreased values for the above. This shows some of the possible symptoms that can be related to abnormal position of the condyle.

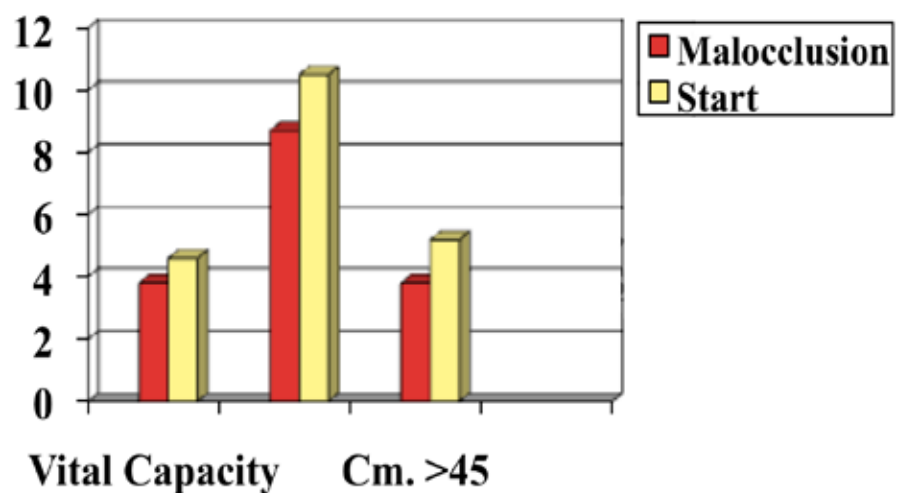
The importance of the TMJ and its relationship to a patient's well being is a debate within the healing professions. The ADA on its website talks only of pain in relationship to TMJ imbalances.¹

The site states "more than fifteen percent of American adults suffer from chronic facial pain. Some common symptoms include pain in or around the ear, tenderness of the jaw, clicking or popping noises when opening the mouth, or even headaches and neck aches." Here the discussion of complications of imbalances in the TM joint ends.

This paper was done to show that there are far more symptoms that need to be considered when TMJ imbalances exist.

Most research papers have been done on showing an increase in strength or flexibility when a dental splint is employed.² These splints are designed to correct a malposition of the condyle of the mandible. For this paper, the opposite has been tested. The subject, with no history of TMJ imbalance, is asked to place the condyle in an abnormal position and occlude firmly and the effects of this change in mandible position are evaluated.

In each of the following examples, 50 patients were examined for any imbalance in the TMJ. They had no palpable tenderness, normal opening, no clicking, and tenderness of the pterygoid muscles. Gelb has stated that the abnormal position of the condyle is when it is a posterior superior position in the fossa.³ After making physical measurements, the subjects were instructed to retract their mandible and clench their teeth firmly but not maximally.



The first areas to be tested were changes in respiration. For this test, the rib cage expansion was measured at the xiphoid. The subject was asked to fully expire and then to take a deep breath. This was done twice and the results averaged. Then the person was asked to retract and clench and two recordings were made. Measuring the vital capacity with an electronic machine followed this.

The results of these tests are summarized below.

Only 4 individuals showed no changes in vital capacity or change in rib expansion.

No subject showed an increase in rib expansion or vital capacity.

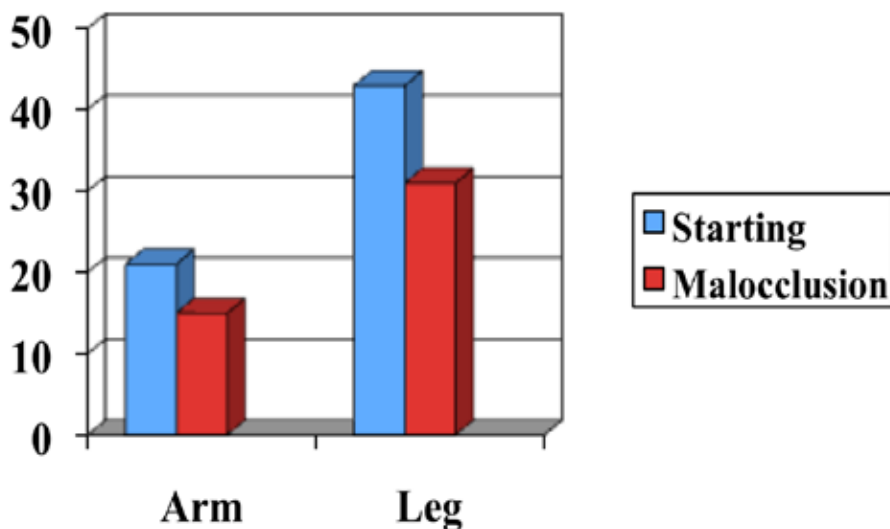
The average decrease in vital capacity was .8 liters of air. The greatest decrease being 1.3 liters.

Rib expansion was decrease followed an age variable.

The younger subjects, under 45 years of age, showed an average of 1.9 cm. The subject group over 45 years averaged 1.4 cm.

The author has noted that subjects with TMJ imbalances have a tendency to walk with the leg adducted. When asked, they many times admit that they will trip over their own feet. To test the possible relationship between the TMJ and the abductor muscles, the supraspinatus/deltoid and the gluteus medius muscles were tested using a computerized muscle testing device developed by Faro.

The subjects were again asked to retract the mandible and clench. The muscles were retested in a sitting position.



In the test group 6 subjects showed slight differences, less than 5 percent in strength values. On average in the 44 other subjects, there was a 27 percent decrease in strength in the muscles tested.

Goodheart⁴ would routinely demonstrate an increase in leg abduction with a reduction in pterygoid pocket hypertonicity. The author when confronted with a retired dentist that had severe pain when extending his arm found that when he wore his dental appliance, that he did not like to wear, had normal motion.

This increase in range of motion was approximately 30 degrees with a dramatic decrease in pain.

To test the relationship between range of motion in the extremities and TMJ dysfunction, 50 subjects were tested for leg abduction and shoulder extension as above.

The subjects were again asked to retract the mandible and clench. The muscles were retested in a sitting position. In this case, 9 subjects showed only slight changes in range of motion as defined as less than 5 degrees.

In the remaining 41 subjects, abnormal position of the condyle showed an average reduction in abduction of 15 degrees and shoulder extension of 10 degrees.

Discussion

It is obvious that TMJ imbalances can have a greater influence on patients than just causing pain or ache in the head and neck. Further research needs to be done to expand these out of date concepts so that all practitioners can consider the implications of abnormal functioning of the TMJ.

The author has also found consistent changes in gait and spinal flexibility with TMJ imbalances.

References

1. www.ADA.org.
2. Gelb, Harold, D.M.D., A Too-Polite Silence About Shoddy Science: Dynamic Strength Testing And Beyond: Journal of Craniomandibular Practice, Williams & Wilkins, 1992.
3. Gelb, Harold, Private Seminar 1977.
4. Goodheart, George, Seminars 1977–2000.

Blind Sided: Vasoconstriction

Brian Llewellyn, B.S., D.C.

Abstract

A major underlying reason for stroke and heart attack besides atherosclerotic buildup is vasoconstriction; a proposed mechanism where chronic painful muscles drive the intermediolateral horn cells inducing the vasoconstrictive event. Diagnosis and treatment with A.K. protocols bring substantial relief pre or post CVA event.

Key Indexing Terms

Vasoconstriction, Blood Pressure, Neurology

Discussion

I have encountered a fairly common phenomenon with respect to the mechanisms of aberrant blood pressure regulation. It seems to me that a neurological fault can develop from chronic pain and the source is a sore muscle. I suspect this operates in a similar fashion to the classic “trigger point” in its ability to radiate beyond its source cord levels, only the radiating pattern is into the intermediolateral horn cells or I.M.L.

Neurology

A brief neurology lesson is now in order. The intermediolateral horn cells (I.M.L.) are the motor output cells of the sympathetic system that control blood pressure. They exist in the thoracic spinal cord in two lateral columns. Proprioceptive data is stimulatory to the I.M.L. ipsilaterally, before this data makes its way to the contra lateral brain. I.M.L. stimulation raises blood pressure out the cord levels from whence the data came. This is generally a good thing, but, I.M.L. output could theoretically reach a point of vasoconstriction to reduce blood flow. The reason we don't reach a point of fainting when, for example, running a marathon, is that the outflow of the ipsilateral brain is inhibitory to the I.M.L., so normally we do not exceed a certain range of blood pressures. Pain, or more correctly nociception, is also stimulatory for increased blood pressure.

Pain

I am going to propose that in many vasoconstrictive events, the system has been near a physiological maximum and driven so by a painful muscle. Bear in mind that the patients overall blood pressure could be unremarkable. This effect is segmental initially, but grows like the spreading pain of a trigger point. The I.M.L. outputs from the most superior segments climb to regulate B.P. in the brain as well as the heart. If there is nociception also feeding into these higher segments, there could be a commensurate raise in I.M.L. output with a local increase in B.P. Taken to the extreme we have a T.I.A., C.V.A., or worse.

To diagnose these problems the examiner can use pain as a challenge. I don't recommend being over zealous in this regard. A scratch is a proprioceptive input that is carried by pain tracts. So a less stressful way to generate nociception is to scratch the skin over the painful muscle sites. Simply scratch various muscles,

with particular attention to those that are commonly sore like the upper trapezius, rhomboids, para spinal musculature, and infraspinatus to name a few.

However, the diagnostic endeavors reveal themselves on the contralateral side of the body. If the I.M.L. is over driven, the blood will be squeezed out on the same side. Therefore when we test a muscle, its control from the brain is from the other side. If one suspects T.I.A. type activity, the muscle you pinch or scratch will affect the brain on the same side, but the weakness generated will be on the side opposite your pinch or scratch. If you find that a simple scratch to the skin causes muscle weakness on the contralateral body, then the tight painful muscle is over driving the I.M.L. Do not attempt to massage or induce trigger point type therapies. The entire time you are rubbing the soreness out you are generating the very same nociception that drove the I.M.L. in the first place. The proper correction is to find out why that particular muscle is sore and or hypertonic and relieve it. One of the most basic axioms in A.K. is that if one muscle is in spasm its antagonist is weak. This will be the case with our painful muscle. Find the antagonist weakness and correct it thoroughly. In my opinion you have not corrected the weak antagonist until the spasming muscle will test for fascial flush. Then, and only then, should the nociceptive generating muscle be gently massaged (FF). After the massage/(FF), re-challenge with the scratch to make sure no more muscles weaken.

You may elect to test the subscapularis with the intent of cardiovascular involvement. Any brain function could be compromised by this T.I.A. generating nociception, so you have to be a little creative to figure out ways of testing for these types of losses. I have witnessed the plantar aspect of the feet inducing these ischemic effects, and sometimes blatantly so. Also, do not neglect muscles in the forearm, neck and head. It is a cause for suspicion if a patient reports that they have several problems and they happen to be only on one side of the body.

Conclusion

In conclusion, I have found that hypertonic muscles can feed nociception to the I.M.L. to create ischemia. The treatment must be initially directed at the weak antagonist. It has been my experience that many A.K. protocols seldom bring about sufficient normalcy to the hypertonic muscle so a state of acceptance for the procedure of Fascial Flush (F.F.) occurs. This point is crucial or the hypertonicity will continue. What does work with regularity is the Injury Recall techniques in conjunction with Impact Challenge.

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Local Switching and Total Switching

Brian Llewellyn, B.S., D.C.

Abstract

At certain times the entire body does not seem to manifest switching conditions, but with a TL to the appropriate site, either k27/umbilicus or All Muscles Strong k27-Sp21, switching will manifest. There are also switching patterns other than k27 and Sp21.

Key Indexing Terms

Local Switching, Additional Switching Combinations

Discussion

I found that on cases where you would expect to find the associated weakness with oral challenges or TL's, but fail to elicit any weaknesses, the problem may be one of a switching nature, but the basic switching procedure will not be verifiable. The usual protocol is to TL an NL of a suspect organ, and while maintaining the TL, check for the usual switching patterns. If positive, just rub the NL while performing the switching procedure. Often many indicators will change after this "local" switching has been rectified.

I will mention this just in case no one has thought of it before, but for years I have found that the standard k27 on the right and Sp21 on the left is not the only manifestation. I often find this pattern reversed but can still cause an "all muscle strong" condition. Also consider both k27 and Sp21 simultaneously. I have the patient TL both k27's while I stimulate the two Sp21's.

Prescription Drugs

One very potent switching inducer is a patient's prescription drugs. I always have my patients bring their drugs for a few visits because often the prescriptions are a significant source of their discomfort. Because their system has had to cope with the chronic poisoning, switching patterns will often result, but only with a challenge of their drug. Furthermore, a drug from a patient's past can still have induced a permanent switched state. For this reason I try to collect one pill of as many drugs as possible because you would not expect a patient to still have some prescription that they may have been on years ago. Another thing to consider is that the offending drug may have been one that the patient had an initial bad reaction to and quickly stopped taking. They don't tell you about it because in their mind, they only took it for a short duration so it doesn't count. They tend to tell you only about the long term ones.

Total Switching

Lastly, a more recent finding was that k27 and Sp21 are not the only switching points. Who etched in stone k27's and Sp21 only? I started to try other combinations like Lv and LgI and they exist. Why not k1 and Sp21, or Sp1 and k27? For meridians that don't end on the head I sometimes add their corresponding B&E point as well. I call this total switching.

Conclusion

In conclusion, if my math is correct, there are over 140 switching combinations between any two meridians, not including cv, gv. Who is to say that switching combinations can only occur between two meridians and do they have to be contralateral to one another?

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Impact Challenge

Brian Llewellyn, B.S., D.C.

Abstract

“Impact Challenge” is the use of a specifically vectored force into the patient so as to mimic a past trauma that patient had suffered to elicit hidden patterns of muscle weakness.

Key Indexing Terms

Vectored Force, Muscle Weakness, Mimic Past Trauma

Discussion

I was having trouble finding suspected weaknesses in a patient who had suffered a whiplash type injury from an automobile accident. The thought occurred to me to “tap” their head in the same vector as the head had snapped during the accident. The change was dramatic and a host of new weaknesses presented themselves. The usual treatment is one of Origin & Insertion to the muscle or ligament, but sometimes Reverse Origin & Insertion is also common. Be advised that this protocol is intimate with another paper on a new Injury Recall method (Injury Recall Squint).

I used this to good effect on whiplash cases, but it soon became logical to extrapolate these vectored forces to other types of injuries as well; such as in the case of a fall to one side where a force proceeds to the shoulder from the outstretched arm trying to brace the fall.

Multitude of Varying Vectors

However complexly intervened, it became apparent that in the instance of suffering an accident, there can be a multitude of varying vectors, and in a sequence. Think of a crash test dummy in slow motion, for example, in a “head on” impact. First, the head would accelerate P-A. Then perhaps both arms braced and extended against the steering wheel. This could be followed by the right foot on the brake and the tightening of the shoulder and lap belts (if worn). The shoulder harness would logically induce a torque to the torso. The knees may then impact the dashboard only to be finished off with the air bag in a knockout punch A-P to the head.

The practitioner must be diligent and creative with these Impact Challenges, “I.C’s”, as to their sequencing and vectors to mimic the patient’s injury. If successful, the weaknesses that explain the pains and subluxation patterns observed will manifest.

However, nothing has been accomplished at this point unless you are able to remove the persistence of the “Trauma Reflex”. One must use the “Injury Recall” methods as proposed by Dr. Walter Schmitt, and the extrapolations I have made that will be described in the “Injury Recall Squint” paper.

Conclusion

In conclusion, this protocol is really nothing more than a variant of “shock absorber technique” only with the twist being specific as to the direction of the hit. The Shock Absorber Technique actually works on a different mechanism which involves a fatigue in the nervous system due to its usual practice of multiple hits into a limb.

The implication of this is how normal activities, like a foot strike in gait, may induce inappropriate weaknesses. This explains some of the frequent imbalances we see, like a lordosis, only to test the abdominals and they remain strong. There are many patterns of injury which have their accumulative effect. This carries much significance taken in light of the “muscle organ relationship.” The experience of this technique over the last ten plus years has led me to a general conclusion and reaffirmation of the old axiom “nothing happens in a vacuum.”

The patient’s statements of “I just bent over and my ‘whatever’ went out” or “why do I have a bad ‘whatever,’” now has very clear ancestry rooted in their accumulated traumas. What is left is to prove it to yourself. As this challenge technique evolved, I began to trigger deeper and older or inherently more significant patterns. For example, a trauma to a wrist extensor muscle generally does not carry with it the capacity to be hugely debilitating as would one involving the Erector Spinea, Psoas, etc. What hides these weaknesses is the systems’ attempt to compartmentalize the times weakness is allowed to manifest. However, in those times when proprioceptive input mimics the original injury, it reflexively triggers the muscles that were originally involved in the protection of the trauma as well as the accompanying reciprocal inhibitions. This persistence of memory results in the framework for why we palpate these tight/sore muscle patterns in such places as the upper trapezius, infraspinatus and gluteus max, to name a few. With this technique I believe you can elicit responses as far back as birth. Always repeat the I.C. post treatment to be assured the trauma reflex has been erased.

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Injury Recall Squint (I.R.S.)

Brian Llewellyn, B.S., D.C.

Abstract

I discovered two more mechanisms in line with the protocols of Dr. Walter Schmitt's Injury Recall Technique (talus and occiput). The main one involves the TMJ, and the other lesser one is pelvic. These mechanisms must be manipulated in a similar fashion in response to injury for the erasure of the persistence of the "trauma reflex".

Key Indexing Terms

Dr. Walter Schmitt, Injury Recall Technique (IRT), TMJ, Trauma Reflex

Discussion

In the early 90's I had fallen out of the practice of using Dr. Schmitt's IRT. Yet, in my practice, I was having a difficult time with a whiplash patient, and while at one of the yearly A.K. meetings in Detroit, Dr. Schmitt again reiterated the use of IRT. I re-implemented this technique on the whiplash case and it was indeed the missing piece. However, I started to ponder the reason there would be an Injury Recall mechanism in one's talus as well as occiput. Secondly, if there are two such mechanisms, is that all that there are? One would think there should be a reciprocal mechanism in the wrist. I eventually deduced that the reflex of eye protection (a blink) would precede a flinch to the neck. As it turns out, the primary spot became the TMJ, as in the act of jaw clenching for skull protection when receiving a trauma. I say primary because my observations were that if the TMJ were utilized in an IRT method, the need to perform IRT at talus and occiput became a rather rare occurrence. There have been times since the TMJ IRT capacity was discovered that the talus or occiput was the primary IRT spot. But my experience puts these at 1% or 2% over the TMJ as the initiator of IRT.

Open the Jaw

The procedure of IRS is generally the same as with the talus or occiput. One nearly demonstrates the injury via T.L. or Impact Challenge. The correction is to open the jaw, like a yawn, or as if to bite a sandwich. I usually have the patient say "ah" which induces them to open the TMJ. However, you have to watch the patient because they still say "ah" through clenched teeth and some patients will do this. The vocalization is unimportant. The action of the TMJ opening is the key.

How a Dog Runs

Another IRT spot I discovered after the TMJ is the sacrum. It occurred to me from the visual of "how a dog runs with its tail between its legs when about to be swatted on the behind" induced me to look for another IRT zone in the pelvis. It eventually proved to be the same action as what a dog does with its tail/back hunching protection maneuver. The human equivalent is to clench the gluteals together. The IRT reversing

mechanism is to perform a valsalvas maneuver. I tell patients, “to push a little, like a bowel movement, but don’t have any accidents or the fee goes up.”

Protocol Variation

I realized that my use of IRT has a variation in protocol in that I don’t just erase positive TL’s. I actually perform the therapy to the injured structure, be it an origin/insertion, reverse O&I of muscle or ligament, spindle cell, golgi tendon, acupuncture meridian, holographic subluxation, or blunt trauma impact sight, etc. Just as important, I also use Impact Challenge to initiate that whole complex of reflex protective mechanisms while I perform the therapy to the injury structure with the simultaneous IRT of the TMJ primarily. The proof of correction can be loss of pain, but I generally feel that until the challenge manifests for fascial flush in the tight muscles, the trauma reflex has not been thoroughly deactivated. So, if upon the re-challenge or IC the prior inhibited muscles still weaken, look to the occiput, talus, or sacrum IRT as the primary deactivating zone for that particular injury. In my experience with the TMJ, the other sites are only needed about 1% or 2% of the time.

Conclusion

In conclusion, I cannot stress enough the implementation of IRT to reduce any injuries one may have as they seem to have a cumulative effect. Their persistence is a major inducer of posture shifting with its attendant afferent alteration that, as it feeds through the nervous system, brings about many of the vexing phenomena we witness in A.K.

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Patterns of Reverse Origin and Insertion of the TMJ Muscles Whose Correction Reveal Ligament Interlink Across the TMJ

Brian Llewellyn, B.S., D.C.

Abstract

I followed Dr. Goodheart around his office on a day in 1988 and I witnessed nine out of ten patients having sagittal suture jamming which was corrected thru a cranial manipulation. Subsequently, the first three patients I saw also had sagittal suture jamming, however, the third patient would not clear from cranial adjustment. Eventually a pattern of Reverse Origin/Insertion was uncovered involving the TMJ muscles.

Key Indexing Terms

Sagittal Suture Jamming, TMJ Muscles, Pattern of Reverse Origin and Insertion

Discussion

First, the temporalis on one side was challenged with reverse O&I and corrected. Secondly, the temporalis on the opposite side was challenged with reverse O&I and found to exist, but in the opposite direction, which was corrected. This same approach was done to the masseters and the pterygoid. The result was this same pattern, only in reverse to the temporalis.

There are rare variations to this pattern where the direction of the reverse O&I correction is the same on both sides. i.e. both temporalis correction directions are inf. or sup. When this occurs, the masseters will then be in the opposite direction as was the temporalis. The pterygoids will be in the same direction as was the temporalis.

This latter pattern is usually found on a patient in pain but only less than approximately twenty times in several hundred. This patterning seems to work best starting with the temporalis, the masseters and, lastly, pterygoids. After correction to the TMJ muscles, have the patient TL each TMJ. This will weaken an indicator muscle. I usually use quadriceps and the weakness is dramatic, which would indicate ligament interlink. (One hand at a time will not TL and if it did you need to address this problem as a TMJ fault unto itself). The next step requires the direction of the hyoid deviation for correction. I have only found seven in nearly 500 patients with this pattern who have had to have the hyoid deviated to the patient's right. Two of these patients had a jaw fracture and the others did not have any correlation I could identify as the causation. The hyoid deviation is easily accomplished by having the patient use one thumb (rt) while they are already performing the two handed TL. If the indicator muscle strengthens, hold the hyoid in the direction of the strength and rub the mandibular ligament on the side of the direction of the hyoid deviation.



This is the usual pattern or its mirror direction. After completion of the reverse O&I patterns, ligament interlink will test usually on the left TMJ.



This is a rather rare variation or its mirror direction. The same ligament interlink patterns follow O&I completion.

Photo III-1

Conclusion

This technique is useful in any cranial/TMJ problem, and in any low back problem because of the abdominal muscle weakness association. Completion of this procedure will often result in “hidden” cranial manifestations that can now be found and treated.

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Meridian Tension Technique and the Mechanization of Acupuncture

Brian Llewellyn, B.S., D.C.

Abstract

The premise is that acupuncture is an electrically mediated mechanism which is conducted on the fascia whereby trauma to fascia can initiate a myriad of acupuncture dysfunctional phenomena distinguishable and treatable through standard AK procedures.

Key Indexing Terms

Acupuncture, Electrical Energy, Meridians

Discussion

There is an interesting book written by John Oschmoan called “Energy Medicine”. It attempts to give state-of-the-art findings as of 2000 in regards to scientific validity to such things as polarity therapy, acupuncture, and a host of other possible interactions involving energies. One thing the chapter on acupuncture basically said was that there is electricity flowing along the connective tissue. So this finding made me realize that the so called “chi” was not some manner of some heretofore undiscovered and mystical energy, but good old fashioned electrical energy. This allows for a certain amount of demystification. Electricity has properties, and one is that it likes to flow through a conductor. In acupuncture these conductors appear as the meridians.

The thought occurred to me then that the injury to the connective tissue could result in disruption of the acupuncture circuitry, much like a break in a wire. A short time later I was working to find what I suspected was a thyroid involvement but none of the usual methods were producing any Teres Minor weakness. Then, with this connective tissue concept in mind, I started to pull on the 4th finger and eyebrow in such a way as to separate the ends of the TW meridian. To my amazement the Teres Minor weakened. Upon further investigation, if the eyebrow was not pulled in the correct direction to lengthen the meridian, the weakness did not occur.



Photo I.I

Pull the connective tissue at the end points in such a way as to lengthen or separate them. Example: TW

Initially my treatment was to pull/push the skin together in a way, if you will conceive of it, to shorten the meridian. A diagnostic positive result is to lengthen the meridian at the end points to weaken an associated muscle. Treatment in its simplest form is to approximate the end points.

Variations and Complexities

However, several years' worth of experience with this discovery brought more variations and complexities. First, and a general truism, is that during the correction the protocols of Injury Recall and Impact Challenge must be done or eventual recidivism will result. Eventually I found that one can run the course of the meridian pulling the skin apart and find the sight of the actual break.



Photo I.II

Separation of the CX meridian longitudinally

This technique is somewhat more sensitive in finding a problem in the suspect meridian than is pulling the endpoints. This brought about the evolution of the treatment sight from the endpoints to the actual “break”. Second, the damage to fascia supporting the meridian does not always occur in a longitudinal direction. The tissues can also be separated transversely across a length of a meridian. The treatment is the same except you pinch the skin at 90 degrees across the meridian. Photo I.II above demonstrates the stretching along the meridian.

Another aspect of this analysis is that the five element laws still apply. I use this as a way to gauge the magnitude of a meridian specific injury. What I have found is that an injured meridian will usually also weaken the other muscles of its own element. For example, if you challenge and find a break in the stomach meridian there is a high probability of inducing weakness in the spleen muscle since meridians are paired. The effect is usually ipsilateral. However, in a serious injury, the weakness will also cross over to weaken the associated muscles contralaterally. In addition, the Sheng and Ko cycles, when involved, can be easily demonstrated. In the preceding example, if severe enough, the challenge of separating the stomach meridian will also weaken muscles of the air element lung/large intestine.

Sometimes the meridian challenge will not behave in a Sheng configuration but only in the KO direction, so eliciting weakness in the stomach meridian may skip the air element and make the water element of kidney/bladder muscles weak. I have found “breaks” in the meridian that have weakened all muscles on one side of the body and three of five elements on the contra side as well. When breaks of this magnitude are found and corrected there is usually a profound change in the patient.

Meridians are a circuit and don't just stop at the endpoints. They continue along and have interconnections between themselves. These interconnections also can be damaged. For example, the stomach is intimate with the spleen but you are unable to elicit with challenges any stomach/spleen muscle weakness or both groups are weak but non-responsive to approximating their respective meridians. The clue is that both meridians are suspect. Challenge the tissue that would be between the endpoints of the two meridians (I believe these are known as the “extraordinary vessels”). If positive, the appropriate stretch or approximation of the interconnecting channel will change the pre-test muscle findings. This can apply to meridians of the same element or different elements.

I believe that the other interconnections between the meridians are fascial in character and help to explain why Sheng and Ko patterns exist. I will speculate that these interconnections may exist in the fascia near the classic points that pull/drain chi between meridians.

In practice the implementation of these “mechanizations of acupuncture” protocols are done in combination with the Impact Challenge and Injury Recall Techniques. As often happens, the sight of the Impact Challenge is not the site of the meridian damage. The impact pulls on the fascia only to cause the break at a far removed site on the meridian. For example, you may fall on your knee and cause stomach meridian involvement but the correction to the meridian is “not necessarily” where the ST meridian courses by the knee, but somewhere else in the meridian.

Conclusion

I think of the meridians as an electrical wire or fishing line, but glued down to the fascia. The forces conspire to cause a break in the line that must be stuck back together. But, like a fishing line when it breaks, the break is not necessarily always next to the hook or the reel.

Oshanann also provides some evidence that the acupuncture system not only has some control functions over the emotions, but also the immune system as well. I speculate on the possibility that specific injury may be patternable as to the type of susceptibility one has; however, I have not been able to elucidate consistencies except that thorough corrections often negate prior A.K. tested infections.

References

- I. Robert O. Becker, MD. *The Body Electric*. New York: Morrow; 1985.
- II. Richard Gerber, MD. *Vibrational Medicine*. New Mexico: Bear & Company updated edition; 1996.
- III. James L. Oschman. *Energy Medicine: The Scientific Basis*. 1st Ed. Churchill Livingstone; 2000. p. 59–72.

More Developments in Anatomy Train Dysfunction Via AK Diagnosis

Brian Llewellyn, B.S., D.C.

Abstract

Dr. Goodheart observed that if one does “Pincer Palpation” to a muscle comprising the fascial network of an Anatomy Train (AT), a positive result is a weakness of a muscle within that train as an indicator of dysfunction. I have elaborated several more protocols to further define AT dysfunction.

Key Indexing Terms

Anatomy Train Dysfunction, Protocols, OI Pairs

Discussion

Using “Pincer Palpation” as coined by Dr. Goodheart as a diagnostic challenge entity to the Meyer’s Anatomy Trains (AT), there exists several more diagnostic protocols to define further dysfunctions within the AT system.

The first being that there can be multiple injuries to a particular AT and, if so, one Pincer Palpation will not elicit the weakening of a muscle in that line. What one must do is pinch a second muscle of the same AT line simultaneously to garner the weakened muscle. The treatment of this type of finding requires usually two origin/insertions (OI) pairs to remediate the problem. However, after correction of the first OI pairing, the prior diagnostic single “Pincer Palpation” will now be the observed result. It will have a second OI pairing along the AT, and with its correction, the negation of the Pincer Palpation challenge.

Be advised that AT corrections fall under the same oversight of the use of Impact Challenge and Injury Recall Techniques. If neglected, recidivism is much more likely.

Multiple AT’s

I have also found that the AT’s do not have to necessarily exist as a singular entity. In the same injury one can affect a multiple of AT’s simultaneously. A single “Pincer Palpation” challenge will not manifest weakness when a combination of AT’s are involved. For example, the Deep Anterior and Superficial Anterior lines are injured in combination. The diagnostic test under this circumstance is to “Pincer Palpate” one muscle in each corresponding line simultaneously. The examiner could “Pincer Palpate” the Adductor group and Rectus Femoris to get the appropriate weakness which should show up in a muscle of either line. Treatment usually has been an OI pattern to some fascia that is generally common to both lines. In this example the injury that set both lines off could be the symphysis pubis.

I have on occasion had the displeasure of up to five AT lines dysfunction simultaneously.

A second examiner as well as the patient pinching themselves was required to provide enough pinching resources.

I believe due to the concept that the AT lines form a tensegritis network, certain forces conspire thereby loading the system to failure is how these AT combos develop. Consider injury to the superficial anterior line and spiral line. The shift of load from the superficial line to the spiral line could occur at the ASIS. You may find the OI pair to be the patella and serratus anticus contra laterally.

Another AT phenomenon to consider is both AT's of the same line being dysfunctional. ie. both Deep Anteriors.

I have seen this as well as the superficial front line go from one leg across the pelvis and down the other leg.

Conclusion

In conclusion I feel that the Anatomy Trains are going to be a significant area of research but much work awaits.

References

1. T.W. Myers. Anatomy Trains & Myofascial Meridians for Manual and Movement Therapists. Churchill Livingstone; 2003.

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Non-Adaptive Weight Bearing Test

Brian Llewellyn, B.S., D.C.

Abstract

The Non-Adaptive Weight Bearing Test is the loading of the limbs/joints in a simulated weight bearing manner, but one limb at a time, thus inducing a unique proprioceptive condition which foils many adaptive processes by the body and allows for hidden conditions to avail themselves.

Key Indexing Terms

Weight Bearing, Foils Adaptive Processes, Non-Standing

Discussion

When I was still in Palmer, I had a patient who perpetually had a very bad sacral (apex left). In the history was a fracture to the right foot. The right piriformis would test strong however. One day I tried to test the piriformis prone but in addition I wrapped my fingers over the heel in such a way as to mimic a weight bearing force through the structures of the ankle with the medial to lateral force translated via the medial malleolus. (See Photo II.I)



Photo II.I

This produced a dramatic weakness of the piriformis. The foot obviously was the source reflexively and corrections at the fracture site produced a far better sacral stability.

This resolution lead to a whole host of unilateral non-standing yet weight bearing challenges to be used during normal or any other testing.

Some examples:

1. Patient prone: Lean into one leg at a time then perform the standard pelvic/spine TL's and challenges. (See Photo II.II)



Photo II.II

2. Patient sitting: Lean into one leg at a time then perform the standard pelvic/spinal TL's and challenges. (See Photo II.III)



Photo II.III

3. Patient sitting: One leg weight bearing piriformis. (See Photo II.IV)



Photo II.IV

4. Patient sitting: Contra lateral leg weight bearing piriformis. (Photo II.V)



Photo II.V

5. Patient supine: Psoas test with ipsi or contra weight. (See Photo II.VI), (See Photo II.VII)



Photo II.VI



Photo II.VII

6. Patient sitting: Psoas test with ipsi or contra weight. (See Photo II.VIII), (See Photo II.IX)



Photo II.VIII



Photo II.IX

7. Patient sitting: Weight into knee with piriformis (a rather specific test for ligament reverse O & I at the acetabulum from a fall on knee or prolonged work on the knees). (See Photo II.X)



Photo II.X

Conclusion

In conclusion, any manner of combinations can be applied to bring changes to muscle testing outcomes.

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AK Glossary of Terms— Neurologically Expressed

Kerry M. McCord, D.C., DIBAK

Abstract

A glossary of terms published in the clinical reference manual *Quintessential Applications: A(K) Clinical Protocol*, is re-published, with permission, and presented herein as a model for defining and re-defining descriptive terms and expressions commonly used in applied kinesiology.

Key Indexing Terms

Applied Kinesiology (AK), Manual Muscle Testing, Quintessential Applications

Introduction

In an effort to more clearly define terminology used in applied kinesiology (AK) with concepts and language germane to the generality of medical science (in particular neurology) and in keeping with the use of manual muscle testing as a somatic window on neurologic function, a glossary of terms was developed and published in *Quintessential Applications: A(K) Clinical Protocol (QA Book)*.¹

The QA Book clinically reflects the application of a neurologically based comprehensive clinical protocol (QA) developed by Walter H. Schmitt, D.C., DIBAK, D.A.B.C.N.² QA utilizes the manual muscle testing response (inhibited, facilitated, over-facilitated – biased toward facilitation) as a reflection of the status of the anterior horn motor neuron pool (AHMN) for the muscle being tested.

Within this comprehensive clinical protocol, AK assessment procedures are prioritized in an effort to deal with systemic neurological phenomena prior to addressing what otherwise might be misconstrued as primarily local problems. QA is a physiologically based, basic science driven, neurological hierarchy for the ordered application of clinical procedures, and demands, by its own expression, a revised understanding of the language commonly used to describe the clinical observations and procedures viewed and utilized by AK practitioners.

The following is the glossary of terms published in the QA Book. This initial effort to more clearly define our terminology facilitates intra and inter-professional communication, which is, most assuredly, a vital and compelling issue confronting those utilizing the principles and practices of AK.

Glossary of Terms

AF (Autogenic Facilitation) – A manual manipulation of muscle spindle cells (fingers in muscle's belly pushing apart toward muscle's tendons) or Golgi tendon organs (fingers on muscle's tendons pushing toward muscle's belly) resulting in a net facilitation at the anterior horn motor neuron pool for that muscle.

AI (Autogenic Inhibition) – A manual manipulation of muscle spindle cells (fingers in muscle’s belly pushing towards each other) or Golgi tendon organs (fingers on muscle’s tendons pushing away from muscle’s belly) resulting in a net inhibition at the anterior horn motor neuron pool for that muscle.

FRA (Flexor Reflex Afferent) Subluxation “Hierarchy” – Utilizing a nociceptive stimulus (pinching) over spinal segments, foot and ankle, to evoke the flexor reflex afferent (flexor withdrawal) response in an effort to determine the order in which subluxations should be adjusted.

Indicator Muscle – Any muscle used to monitor the manual muscle testing response to sensory receptor based diagnostic challenges. An indicator muscle must respond appropriately to autogenic facilitation and inhibition.

In the Clear – Denotes a manual muscle test condition in which no sensory receptor based diagnostic challenge is, intentionally or unintentionally, engaged.

IRT (Injury Recall Technique) – IRT is a distraction (micromanipulation) of the talus (or flexion of the atlanto-occipital area) performed simultaneously with a stimulus (e.g. TL) to a site of injury (past or present). IRT appears to relieve cerebellar adaptations and subsequent neurological habituation associated with trauma. Far-reaching injury driven autonomic concomitants, sensory, motor and cognitive dysfunctions are often dramatically moved toward normal following IRT corrections.

LQM (Location, Quality, Memory) Technique – Pain relief technique utilizing tapping of acupuncture head points with simultaneous cognitive activity (location, quality, and/or memory of pain). LQM technique appears to inhibit nociception-induced cortical activity.

NSB (Nociceptor Stimulation Blocking) Technique – Pain relief technique utilizing tapping of acupuncture head points and simultaneous, intermittent, nociceptor activation (mild aggravation to injury site). NSB technique appears to inhibit nociceptive transmission, presumably via a recurrent loop from the caudal reticular nuclei to transmission cells in Lamina V of the spinal cord.

PTI (Pre-Test Imaging) – Just prior to testing a weak indicator muscle, the patient imagines the specific muscle test to be performed. If the weak indicator muscle strengthens following PTI, a disruption of cerebellar activity (presumably resulting from nociceptor feedback secondary to the presence of cranial faults) is suggested.

Sensory Receptor Based Diagnostic Challenge – Any sensory input (activating mechanoreceptors, touching, tasting, smelling, seeing, hearing) used to elicit potential changes in the manual muscle testing response (i.e. strong to weak, weak to strong).

SP (Set Point) Technique – Pain relief technique utilizing tapping of acupuncture head points with patient simultaneously touching the area of injury or altered sensation. SP technique appears to inhibit nociceptive transmission.

TL (Therapy Localization) – Patient touches a specific area of the body activating sensory pathways into the central nervous system. When TL to a specific location results in a change in motor activity, as observed in manual muscle testing responses (i.e. strong to weak, weak to strong), that site is in need of therapy. The appropriate therapy must be determined by further evaluation.

TLR (Tonic Labyrinthine Reflexes) – Inborn reflexes that monitor head position in relation to gravity and influence muscle activity. TLR must be considered when performing a manual muscle test since these primitive reflexes may obscure muscle inhibition (e.g. facilitation of extensor muscles in the supine position and flexor muscles in the prone position). Head position challenges can be used to evaluate for intact or disrupted TLR patterns of muscle inhibition and facilitation.

VRP (Visceral Referred Pain) Area – A cutaneous location of organ (visceral) referred pain that can be challenged with pinching (nociceptor activation creating a sympathetic effect) or rubbing (mechanoreceptor activation creating a parasympathetic effect) to differentiate the need for specific modalities of treatment.

Conclusion

A shift toward viewing applied kinesiology as functional neurological assessment³ requires, by its very expression, the redefining of terms, using a language that more clearly reflects the phenomena attempting to be described, and more efficiently communicates to others the meaning of the terminology used, as we continue making determined efforts to illustrate the principles and procedures utilized in an AK based clinical practice.

In concert with this new neurologically based model, QA organizes clinical thought and procedures in such a way as to allow the AK practitioner “to navigate the terrain of the patient’s physiology and be led through a forest of symptoms toward a favorable, and often remarkable, outcome.”⁴ This is accomplished by the carrying out of clearly defined neurological tasks (without attachment to how, but rather to order, efficiency and efficacy) that have as their end result an outcome that relieves barriers to healing by moving the patient’s physiology toward optimal function. Walter H. Schmitt, D.C., DIBAK, D.A.B.C.N., describing the work AK attempts to accomplish in terms of its affect upon our genetic potential, remarks: “When we restore normal afferent activity, supply the appropriate nutrients, and administer to the mental and emotional environment, we pave the way for efficient cellular function and allow for optimal expression of our genetic potential.”

The above offered, neurologically expressed, glossary of terms, might well be adopted as a model in our persistent attempts to clarify and communicate the genius of our collective endeavors in furthering the quintessential application of AK.

References

1. McCord, K.M., and Schmitt, W.H., *Quintessential Applications: A(K) Clinical Protocol*. St. Petersburg, Florida: Privately Published, 2009.
2. Schmitt, W.H., *The Neurological Rationale for a Comprehensive Clinical Protocol Utilizing Applied Kinesiology Techniques*. Proceedings of the Annual Meeting of the ICAK-U.S.A., Volume 1, 2005–2006
3. Schmitt, W.H., & Yanuck, S.F. *Expanding the Neurological Examination Using Functional Neurological Assessment Part II: Neurologic Basis of Applied Kinesiology*. Intern J Neuroscience, 1999, 97, 77-108.
4. McCord, K.M., *Clinical Response to a Neurologically Based Comprehensive Clinical Protocol Developed by Dr. Walter H. Schmitt*. Proceedings of the Annual Meeting of the ICAK-U.S.A., Volume 1, 2005–2006

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Dynamic Muscle Proprioceptors Classification, Testing, P DTR & TX. Part II

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Abstract

A reclassification of the classical muscle proprioceptor dysfunctions and proprioceptor deep tendon reflex treatment, including additional ways to find these problems and treat them are described. In the Dynamic muscle proprioceptors research published in the 2008 proceedings only part of the material was presented. This paper will complete the research.

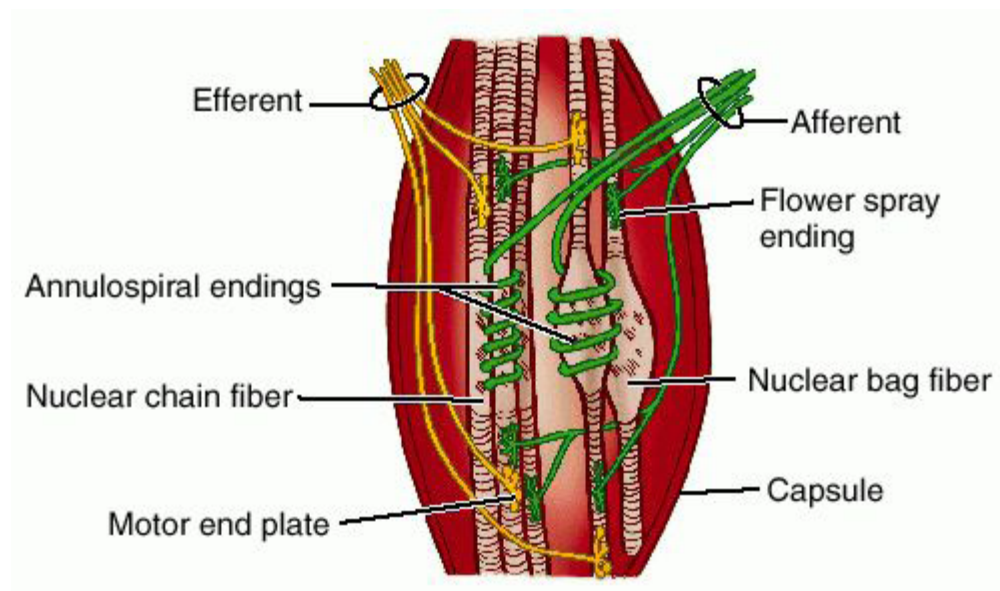
Key Indexing Terms

P-DTR (Proprioceptive Deep Tendon Reflex), Reactive/Reactor Muscles, Strain/Counterstrain, Origin/Insertion and Meridians

Introduction

Classical dysfunctions—Strain/Counterstrain, Myofascial, Reactor/Reactive, Origin/Insertion and Meridians have been found to have more varied presentations than previously considered and require re-classification.

All these dysfunctions result mostly from trauma and all are a hyper or hypo response of a normal neurological reflex. The reflexes can show different levels of dysfunction.-Each level has it's particular properties and tests differently.



Reactor / Reactive Muscles Dysfunction

(Paired dysfunction):

Classically, a reactor/reactive muscle pair is defined as both muscles are strong in the clear, but, when tested in sequence, A–B, B–A, one or the other muscle now tests weak. One muscle, neurologically, is dominating the other and results in dynamic dysfunction of the pair. Treatment by “turning down” the spindle cells of the Reactor muscle is indicated. (Synopsis by David S Walther, 2nd Ed.).

New Classification: Basic, Multi, Hyper and Mixed

Basic Reactor / Reactive muscle Pair

1. There is one reactor muscle and one reactive muscle.
2. The reactive and reactor muscles are strong in the clear.
3. T.L. or one or more taps over the reactor muscle causes weakness of the strong reactive muscle, but will not weaken a strong indicator muscle.
4. T.L. over the reactor muscle and, at the same time, T.L. over the reactive muscle negates the test.
5. Tap one or more times and then maintain T.L. over the reactor muscle causes weakness of the single strong reactive muscle and also of any strong indicator muscle.
6. Tap, one or more times, and T.L. over the reactor muscle and at the same time T.L. to the reactive muscle will negate the tests on the reactive and the indicator muscles.
7. If the patient can't T.L. the reactive or reactor muscle, the practitioner can T.L. with his own fingertips, but his hand needs to be touched by the patient's fingertips of one of his hands, (excluding the thumb).
8. The treatment consists of T.L. to the Reactor and the Reactive muscles at the same time, and eliciting a DTR (deep tendon reflex) to fix the dysfunction. Tapping with T.L. enhances the DTR correction.

Multi Reactive Muscle Dysfunction

The reactive muscle tests strong in the clear, but after the reactor muscle is activated, more than one reactive muscle become now tests weak.

1. There is one reactor muscle and two or more reactive muscles.
2. The reactive and reactor muscles are strong in the clear.
3. T.L. or tap over the reactor muscle causes weakness of all the strong reactive muscles, but does not cause weakness of a strong indicator muscle.
4. T.L. over the reactor muscle and at the same time T.L. on any of the reactive muscles negates the test.
5. Tap one or more times and T.L. over the reactor muscle causes weakness of all the strong reactive muscles and of any strong indicator muscles.
6. Tap one or more times and T.L. over the reactor muscle and at the same time T.L. on any of the reactive muscles negates the tests on all the reactive muscles and the indicator muscles.

7. T.L. the reactor muscle and elicit a DTR (deep tendon reflex) in any part of the body and the multi reactive muscle dysfunction becomes fixed; only the main reactive muscle continues to dysfunction. Then the problem becomes a classical reactor / reactive dysfunction, with only one reactor and one reactive muscle. Tapping with T.L. enhances the DTR correction.

Hyper Reactor Muscle

The reactive muscle tests weak in the clear, because the muscular tone of the Reactor muscle is enough to inhibit the reactive muscle all the time.

1. There is one reactor muscle and one reactive muscle.
2. The reactor muscle is strong but the reactive muscle is weak in the clear, inhibited by the muscular tone of the reactor.
3. T.L. over the reactor muscle causes facilitation of the weak reactive muscle and tests strong, and causes weakness of a strong indicator muscle. Rubbing over the reactor muscle causes facilitation of the weak reactive.
4. Tap one or more times and T.L. over the reactor muscle causes weakening of a strong indicator muscle.
5. Tap one or more times and T.L. over the reactor muscle and at the same time T.L. on the reactive muscle negate the tests on the reactive and indicator muscles.
6. T.L. the reactor muscle and elicit a DTR (deep tendon reflex) in any part of the body and the weak reactive muscle now tests strong. Then the problem becomes a basic reactor / reactive dysfunction, with a strong reactive muscle in the clear. Tap and T.L. enhances the DTR correction.

Hyper Reactor & Multi Reactive Muscles Dysfunction (Mixed)

This is a mixed dysfunction. There is one reactor muscle and two or more reactive muscles. All reactive muscles test weak in the clear.

T.L. the reactor muscle and elicit a DTR (deep tendon reflex) in any part of the body and the reactive muscles in the clear become strong, and all multi reactive muscles becomes fixed, only the primary muscle continues to dysfunction. Then the problem becomes a classical reactor / reactive dysfunction, with only one reactor and one reactive muscle, now strong in the clear. Tap and T.L. enhances the DTR correction.

Multi Reactor Muscles

There is one reactive muscle and two or more reactor muscles. The reactive muscle test strong in the clear, but if one of the reactors muscle is activated, the reactive muscle now tests weak. This dysfunction is not common in clinical practice.

T.L. the reactive muscle and elicit a DTR (deep tendon reflex) in any part of the body and all multi reactor muscles becomes fixed; only the primary muscle continues to dysfunction. Then the problem becomes a classical reactor / reactive dysfunction, with only one reactor and one reactive muscle, now strong in the clear. The treatment for basic dysfunction has been described above. Tap and T.L. enhances the DTR correction.

Multi Hyper Reactor Muscles Dysfunction

This is a mixed dysfunction. There is one reactive muscle and two or more reactor muscles. The reactive muscle test weak in the clear. It's not a common dysfunction in clinical practice.

T.L. the reactive muscle and elicit a DTR (deep tendon reflex) in any part of the body and the reactive muscle in the clear become strong, and all multi reactor muscles becomes fixed, only the primary muscle continues to dysfunction. Then the problem becomes a classical reactor / reactive dysfunction, with only one reactor and one reactive muscle, now strong in the clear. The treatment for basic dysfunction has been described above. Tap and T.L. enhances the DTR correction.

Meridians Dysfunctions

Meridian dysfunctions resemble the reactor / reactive dysfunction, where one dominant meridian inhibits one or more meridians, as reflected in their particular muscles. The difference is that the dysfunctions pertain to an electromagnetic flow, and the diagnosis is made with the alarm points. Pulse points diagnosis is less suitable.

New Classification: Basic, Multi, Hyper and Mixed

Basic Meridian Dysfunction

1. There is one overactive meridian and one underactive meridian. Always obeying a meridian flows like 24 hours, Sheng, Ko cycles, etc.
2. The overactive and underactive meridian muscles are strong in the clear.
3. T.L. over the overactive meridian's alarm point causes weakness of the strong underactive meridians muscle, but will not weaken a strong indicator muscle.
4. T.L. over the overactive meridian's alarm point and, at the same time, T.L. over the underactive meridians alarm point negates the test.
5. Tap one or more times and then maintain T.L. over the overactive meridian's alarm point causes weakness of the underactive meridian's single related muscle and also of any strong indicator muscle.
6. Tap, one or more times, and T.L. over the overactive meridian's alarm point and at the same time T.L. to the underactive meridian's alarm point will negate the tests on the underactive meridian's related muscle and on the indicator muscles.
7. If the patient can't T.L. the overactive or the underactive alarm point, the practitioner can T.L. with his own fingertips of one of his hands, but his hand needs to be touched by the patient's fingertips, (excluding the thumb).
8. The treatment consists of simultaneous T.L. on the overactive and underactive alarm points, and eliciting a DTR (deep tendon reflex) to fix the dysfunction. Tapping and T.L. enhances the DTR correction. The second stage of the treatment consists of T.L. on the overactive meridian alarm point and on the associated point of the overactive meridian at the same time, and eliciting a DTR (deep tendon reflex) to fix the dysfunction. Tapping and T.L. enhances the DTR correction.

Multi Meridian Dysfunction

The underactive meridian muscles tests strong in the clear, but after the overactive muscle is activated, more than one underactive meridian muscles test weak. Always following a meridian pathway like 24 hours, Sheng, Ko, etc., cycle.

1. There is one overactive meridian and two or more underactive meridians.
2. The overactive and underactive meridian's muscles are strong in the clear.
3. T. Ling the overactive meridian's alarm point causes weakness of all the underactive meridian's muscles, but does not cause weakness of a strong indicator muscle.
4. T. Ling the overactive meridian's alarm point and at the same time T.L. on any of the underactive alarm points negates the test.
5. Tap one or more times and T.L. over the overactive alarm point causes weakness of all underactive meridians muscles and of any strong indicator muscles.
6. Tap one or more times and T.L. over the overactive meridian's alarm point and at the same time T.L. on any of the underactive meridians alarm point negates the hyper tonicity on the overactive and the weakness of the underactive and the indicator muscles.
7. T.L. the overactive meridian's alarm point and elicit a DTR (deep tendon reflex) in any part of the body and the multi meridian muscle dysfunction becomes fixed, only the overactive and the first underactive muscle of the cycle continue to dysfunction. Then the problem becomes a basic meridian dysfunction, with only one overactive and one underactive meridians. Tapping with T.L. enhances the DTR correction. Then fix the basic dysfunction as described before.

Hyper Meridian Dysfunction

The underactive meridian's muscle tests weak in the clear, because the over activity of the excessive meridian is enough to inhibit the muscles of the underactive meridian all the time.

1. There is one overactive meridian and one underactive meridian.
2. The overactive meridian's muscle is strong but the underactive meridian's muscle is weak in the clear, inhibited by the excess of the overactive meridian.
3. T.L. over the overactive meridian's alarm point causes facilitation of the muscles of the underactive meridian, and causes weakness of the related muscles of the overactive meridian, and of any strong indicator muscle. Rubbing over the overactive meridian's alarm point causes facilitation of the weak underactive meridian muscle, keeps the overactive meridian's muscles strong but abolished for a few seconds the hyper tonicity.
4. Tap one or more times and T.L. over the overactive meridian's alarm point causes weakening of a strong indicator muscle, and facilitation of the muscles of the underactive meridian.
5. Tap one or more times and T.L. over the overactive meridian's alarm point and at the same time T.L. on the underactive meridian's alarm point negate the tests.

6. T.L. the overactive meridian's alarm point and elicit a DTR (deep tendon reflex) in any part of the body, the hyper meridian dysfunction becomes fixed, and the underactive meridian's weak muscle now tests strong. Then the problem becomes a basic meridian dysfunction, with a strong underactive meridian's muscle in the clear. Tapping with T.L. enhances the DTR correction. Then fix the basic dysfunction as described before.

Hyper & multi Meridian Dysfunction (Mixed)

This is a mixed dysfunction. There is one overactive meridian and two or more underactive meridians. All underactive meridian's muscles test weak in the clear. This is the most common and classical pattern as the one described in the David S. Walther Synopsis.

The underactive meridian muscles test weak in the clear, because the excess of the overactive meridian is enough to inhibit the underactive muscles all the time.

T.L. the overactive meridian's alarm point and elicit a DTR (deep tendon reflex) in any part of the body and all the underactive meridians muscles become strong in the clear and becomes fixed, only the overactive and the primary underactive muscle continues to dysfunction. Then the problem becomes a basic meridian dysfunction, with only one overactive meridian and one underactive meridian, now strong in the clear. Tap and T.L. enhances the DTR correction.

The mixed dysfunction can be fixed with T.L. over the alarm point of the overactive muscle and the alarm point of the first underactive weak muscle of the cycle, followed by DTR. The second stage of the treatment consists of T.L. on the overactive muscle alarm point and the overactive associated point at the same time, and eliciting a DTR (deep tendon reflex) to fix the dysfunction. Tapping and T.L. enhances the DTR correction.

With this approach there is no need to treat the Luo or Command points, and there is no need to adjust any vertebrae due to the associated point relationship.

It's not frequently found in clinical practice, but is possible to find one underactive meridian and two or more overactive meridians. The treatment can be achieved by T.L. the underactive meridian's alarm point and elicit a DTR (deep tendon reflex) in any part of the body and all the overactive meridians muscles becomes fixed, only the underactive and the primary overactive muscle continues to dysfunction. Then the problem becomes a basic meridian dysfunction, with only one overactive meridian and one underactive meridian. The treatment for basic dysfunction has already described above.

Strain – Counter Strain / Myofascial Dysfunction

(A Paired dysfunction)

Strain Counterstrain: Classically, a previously strong muscle tests weak after a three second maximal contraction. The muscle will not test weak if the Chapman's point of the Strain-counterstrain muscle is therapy localized.

Myofascial Dysfunction: Classically, when a muscle that tests strong in the clear is stretched and then re tested, it now tests weak. (Synopsis from David S Walther, 2ed ed.).

Traumatic Triad: A strain counterstrain muscle is accompanied by a myofascial antagonist and a weak synergist.

New Classification

Basic Strain Counterstrain muscle paired with Myofascial Dysfunction muscle (classical)

1. There is one Strain Counterstrain muscle paired with one Myofascial dysfunctioning muscle.
2. Both muscles are strong in the clear.
3. T.L. over the Strain Counterstrain muscle causes weakness of the same muscle, but does not cause weakness of a strong indicator muscle.
4. T.L. over the Strain Counterstrain muscle and the Myofascial dysfunction muscle negates the weakness of the related weak muscle described by Goodheart in the traumatic triad.
5. Tap three or more times and T.L. over the Strain Counterstrain muscle causes weakness of that same muscle, and of all strong indicator muscles.
6. Tap three or more times and T.L. over the Strain Counterstrain muscle and at the same time T.L. on the muscle with Myofascial dysfunction, negates the tests of the Strain Counterstrain muscle, the Myofascial muscle and the indicator muscles.
7. Rubbing over the Strain Counterstrain muscle negates the weakness of the related weak muscle described by Goodheart in the traumatic triad.
8. Myofascial dysfunction muscle becomes weak after one firm swipe, and the test becomes negative if the patient T.L.'s the related Chapman reflexes, or T.L.'s the paired Strain Counterstrain muscle.
9. If the patient swipes and T.L.'s the Myofascial dysfunction muscle, that same muscle and any strong indicator muscle will now test weak.
10. T.L. the Strain CounterStrain muscle and elicit a DTR (deep tendon reflex) in any part of the body and the weak muscle of the traumatic triad will becomes strong, but the problem in the Strain Counterstrain and the Myofascial muscles keeps their dysfunction. Tap and T.L. enhances the DTR correction.
11. The treatment consists of T.L. to the Strain Counterstrain and Myofascial dysfunction muscle at the same time, and elicit a DTR (deep tendon reflex) to fix the dysfunction. Tapping with T.L. enhances the DTR correction, and sometimes is needed.
12. If the patient can't T.L. the Strain Counter strain or Myofascial dysfunction muscle, the practitioner can T.L. with his own fingertips of one of his hands, but his hand needs to be touched by the fingertips of one of the patient's hands, (excluding the thumb).

Multi Strain Counterstrain muscle paired with Myofascial Dysfunction

1. There is one Strain Counterstrain muscle and two or more muscles with Myofascial dysfunction.
2. The Strain Counterstrain Muscle is strong in the clear.

3. T.L. or Tapping three or more times over the Strain Counterstrain muscle causes weakness of the same muscle, but does not cause weakness of a strong indicator muscle.
4. Tap three or more times and T.L. over the Strain Counterstrain muscle causes weakness of the same muscle, and of any strong indicator muscle.
5. T.L. over the Strain Counterstrain muscle and at the same time T.L. on one of the muscles with Myofascial dysfunction negates the test.
6. Tap three or more times and T.L. over the Strain Counterstrain muscle and at the same time T.L. on one of the muscle with Myofascial dysfunction, negates the tests on the Strain Counterstrain, Myofascial muscle and the indicator muscles.
7. T.L. over the Strain Counterstrain and Myofascial dysfunction muscles at the same time negates the weakness of the related weak muscle described by Goodheart in the traumatic triad.
8. Rubbing over the Strain Counterstrain muscle negates the weakness of the related weak muscle described by Goodheart in the traumatic triad.
9. Myofascial dysfunction muscles becomes weak after one firm swipe, and the test becomes negative if the patient T.L. the related Chapman reflexes or the Strain Counterstrain muscle at the same time.
10. If the patient swipes and T.L. one of the Myofascial dysfunction muscles, the same muscle and any strong indicator muscle becomes weak.
11. The treatment consists of T.L. (and sometimes needs tapping) of the Strain Counterstrain muscle and elicit a DTR (deep tendon reflex), it will fix the Multi Myofascial dysfunction muscles, the weak muscles of the traumatic triad becomes strong, and leaves only one Myofascial dysfunction muscle. Then the problem becomes a classical Strain Counterstrain / Myofascial dysfunction, and can be fixed as in the basic description.

Hyper Strain Counterstrain muscle paired with Myofascial dysfunction

The hyper Strain counterstrain muscle tests weak in the clear, because its muscular tone is enough to inhibit itself.

1. There is one Strain Counterstrain muscle and one muscle with Myofascial dysfunction.
2. The Strain Counterstrain Muscle is weak in the clear.
3. Rubbing or T.L. over the Strain Counterstrain muscle negates the weakness of the same muscle.
4. Tap three or more times and T.L. over the Strain Counterstrain muscle causes weakness of the strong indicator muscle, but the Strain Counterstrain muscle remains weak.
5. T.L. over the Strain Counterstrain muscle and at the same time T.L. on the muscle with Myofascial dysfunction negates the weakness of the Strain Counterstrain muscle.
6. Tap three or more times and T.L. over the Strain Counterstrain muscle and at the same time T.L. on the muscle with Myofascial dysfunction, negates the weakness of the Strain counterstrain, and negates the test of the indicator muscle.

7. T.L. over the Strain Counterstrain and T.L. over the Myofascial dysfunction muscle negates the weakness of the related weak muscle as described by Goodheart in the traumatic triad.
8. Rubbing over the Strain Counterstrain muscle negates the weakness of the related weak muscle described by Goodheart in the traumatic triad.
9. Myofascial dysfunction muscle becomes weak after one swipe, and the test becomes negative if the patient T.L's the related Chapman reflexes or the Strain Counterstrain muscle at the same time.
10. If the patient swipes and T.L's the Myofascial dysfunction muscle, the same muscle and the indicator muscles become weak.
11. The treatment consists of T.L. (and sometimes needs tapping and T.L.) of the Strain Counterstrain muscle and elicit a DTR (deep tendon reflex), it will fix the weak Hyper Strain Counterstrain muscle dysfunction and the weak muscle of the traumatic triad also becomes strong. Then the problem becomes a classical Strain Counterstrain / Myofascial dysfunction, with a strong in the clear Strain Counterstrain muscle, and can be fixed as in the basic description.

Hyper & Multi Strain Counterstrain muscle paired with Myofascial dysfunction (Mixed)

This is a mixed dysfunction. There is one Strain Counterstrain muscle and two or more muscles with Myofascial dysfunction. The Strain Counterstrain muscle tests weak in the clear.

Tap three or more times and T.L. the Strain Counterstrain muscle and elicit a DTR (deep tendon reflex) in any part of the body and the Strain Counterstrain muscle becomes strong in the clear, all multi Myofascial muscles become fixed, and the weak muscle of the traumatic triad becomes strong, only the primary Myofascial muscle remains dysfunctional. Then the problem becomes a classical Strain Counterstrain / Myofascial dysfunction, with only one strong in the clear Strain Counterstrain and one Myofascial muscle.

Basic Myofascial Muscle dysfunction

It's a myofascial muscle strong in the clear, one swipe and T.L. over the same muscle weakens a strong indicator muscle.

This dysfunction must be fixed with the Strain CounterStrain muscle with the treatment described before.

Hyper Myofascial Muscle dysfunction

It's a myofascial muscle weak in the clear, one swipe and T.L. over the same muscle weakens a strong indicator muscle.

Tap and T.L. plus DTR turn this dysfunction in a basic myofascial dysfunction, and must be fixed with the Strain CounterStrain muscle with the treatment described before.

Multi Myofascial Muscle dysfunction

It's a myofascial muscle strong in the clear, but with multiples Strain CounterStrain muscles associated. Tap and T.L. plus DTR turn this dysfunction in a basic myofascial dysfunction, and must be fixed with the Strain CounterStrain muscle with the treatment described before.

Hyper & Multi Myofascial Muscle Dysfunction (Mixed)

It's a myofascial muscle weak in the clear, and with multiples Strain CounterStrain muscles associated. Tap and T.L. plus DTR turn this dysfunction in a basic myofascial dysfunction, and must be fixed with the Strain CounterStrain muscle with the treatment described before.

Origin / Insertion Dysfunction

Origin and Insertion is when a weak muscle strengthens with TL to the origin or insertion of the same muscle. Often there are nodules at the origin or insertion. Deeply massage to the nodular area at the origin or insertion is the treatment (Synopsys from David S Walther, 2nd ed.).

Basic Origin / Insertion dysfunction

1. Muscles are strong in the clear.
2. T.L. over the Origin / Insertion causes weakness of the same muscle, but do not causes weakness of a strong indicator muscle.
3. Tap and T.L. over the Origin / Insertion of the muscle causes weakness of the same muscle, and of the strong indicator muscles.
4. Spreading on both sides of the origin or insertion while the patient T.L. the same origin or insertion at the same time as the doctor elicits a DTR (deep tendon reflex) will fix the dysfunction.

Multi Origin / Insertion dysfunction

1. Muscles are strong in the clear.
2. T.L. over the Origin / Insertion causes weakness of two or more muscles attached to the same bone, but does not causes weakness of a strong indicator muscle.
3. Tap and T.L. over the origin / Insertion of the muscle causes weakening of two or more muscles attached to the same O/I , and also weakens any strong indicator muscle.
4. Tap and T.L. over the Origin / Insertion and elicit a DTR (deep tendon reflex), will fix the Multi Origin Insertion dysfunction, leaving only a basic origin / insertion dysfunction. Then the problem can be fixed like in the basic description.

All Multi Origin / Insertion dysfunction (RMAPI)

1. Muscles are strong in the clear.
2. T.L. over the Origin / Insertion causes weakness of two or more muscles attached to the same bone, but does not causes weakness of a strong indicator muscle.
3. Tapping over or activation of the involved O/I of the muscle causes weakness of all the muscles of the body including the same involved muscle and activates the related T.S. line point for an average of 60.” Patient can activate contracting the muscle repeatedly. The weakness is not eliminated when the patient therapy localizes the Chapman reflex while doing the contraction. The dysfunctional muscle can be shortened, but must weaken if autogenic inhibited.
4. Tapping over the origin or Insertion of the involved muscle causes weakening of all muscles of the body including the same muscle.
5. Compression of both sides of the involved origin or insertion towards the middle while tapping or activating the involved muscles causes no dysfunction and causes no weakness of any muscle.
6. T.L. and tapping over the involved origin or insertion in combination with DTR (Deep Tendon reflex) will fix the multi dysfunction, leaving only a basic origin / insertion dysfunction. Then the problem can be fixed as in the basic description.
7. Spreading or tapping on both sides of the origin or insertion while the patient T.L. the same origin or insertion and eliciting a DTR (deep tendon reflex) will fix the Multi Origin Insertion dysfunction and negate all RMAPI findings.

Hyper Origin / Insertion dysfunction (classical)

The origin / insertion muscle tests weak in the clear, because the muscular tone is stressing the origin or insertion proprioceptors, and this is enough to inhibit the muscle all the time.

1. Muscle is weak in the clear.
2. T.L. over the Origin / Insertion facilitates the muscle, and causes weakness of a strong indicator muscle.
3. Tap and T.L. over the origin / Insertion has the same response to T.L. only.
4. Tap and T.L. and elicit a DTR (deep tendon reflex), will fix the hyper Origin Insertion dysfunction, and left only a basic origin / insertion one dysfunction. Then the problem can be fixed like in the basic description.

Hyper & multi Origin / Insertion dysfunction (Mixed)

This is a mixed dysfunction. There are two or more muscles involved in the same origin or insertion area, and the muscles are weak in the clear.

Tap and T.L. and elicit a DTR (deep tendon reflex), fixes the multi hyper Origin Insertion dysfunction, leaving only a basic origin / insertion dysfunction. Then the problem can be fixed like in the basic description.

Results

More than 400 patients has been diagnosed and treated with this technique, with structural problems.

100 patients were treated with Reactor / Reactive Muscles dysfunction.

100 patients were treated with Meridians dysfunction.

100 patients were treated with Strain Counterstrain dysfunction.

100 patients were treated with Origin / Insertion dysfunction.

In all patients treated, the rules described above worked without exception.

98 to 99% of all patients treated by proprioceptive recalibration responded positively to the treatment, and showed long lasting results, but the treatment required 30 to 45 % less time to complete. 1 to 2% of patients with recurrent problems are attributable to concomitant chemical or emotional sources.

Discussion

The preceding procedures will simplify and, at the same time, broaden the scope of treatment of two basic AK testing methods.

These novel testing and treatment procedures find and correct previously described dysfunctions, but at a much deeper level.

This method is fast, safe, and seems to affect the patient in a more profound and long lasting way. Results are quite surprising and we feel that we are only scratching the surface at this point.

Most structural problems seen in the clinical practice can be treated successfully with these new techniques. These procedures, the Kinematic Chain technique and the Event technique are complementary.

References

1. Palomar, Jose. Dynamic Muscle Proprioceptors testing, Proceedings ICAK 2008.
2. Kandel Eric R., Schwartz, James H., Jessell, Thomas M. Principles of neural Science; Fourth edition.
3. Arthur C., M.D. Guyton, John E. Hall. Textbook of Medical Physiology, 2006.
4. Walther, David S., Applied kinesiology Synopsis, Pueblo, Colorado, Systems D.C. 2000, 2nd Ed.
5. Leaf David, Applied kinesiology Flowchart Manual, Third edition, Plymouth, Ma.
6. Silvestre D et Baetcher R., Counterstrain: technique de médecine manuelle . Encycl. Méd. Chir. (Elsevier, Paris, France) , Kinésithérapie – Médecine physique – Réadaptation, 26-075-A-10, 1998, 14 p.

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The Event:

The Traumatic Event and Neurological Consequences

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Abstract

The following is a derivative of our investigations of the Proprioceptive DTR Recalibration paper of last year (2008).

Introduction

We were aware that if we placed the patient in a specific posture that stressed a connective tissue tract with aberrant proprioceptive signaling, muscles deriving stability from the tract would now test weak or inhibited even though all muscles pertaining to the stressed tract had previously been evaluated, corrected as necessary, and were deemed “strong” or conditionally facilitated.

We used Therapy Localization and tapping, or combinations of the same, to determine the ends of the deficient tract and then elicited a Deep Tendon Reflex to clear or reset the CNS recognition of the involved proprioceptive fields in the stressed tracts.

Following this the previously inhibited posture would now test strong.

Continuing this thinking, we began testing people in a variety of postures in the hope that if the correct posture was attained we would be able to eliminate all of the deficient proprioceptive tracks in one swoop. What we got was much more than that.

Since the person that came to consultation was normal before their injury, we tried placing them in the posture they had when they became injured. We found that when the adequate position was attained the patient now tested all inhibited, but only in that posture. Minimal changes in position were enough to restore muscle strength.

It is our contention that the posture related global weakness is due to aberrant proprioceptive signaling in the supporting connective tissue stressed when the patient assumes the specific posture.

As an added bonus, patients that were previously found to be hypertonic or who lacked normal autogenic responses would now test normal after DTR.

At the Start of any consultation it is important that the patient is normal-tonic, such that any strong muscle can be conditionally inhibited by manipulating to compress the neuromuscular spindle cells, and any conditionally inhibited (weak) muscles can be facilitated by spreading the spindle cells. We need to know that Autogenic Facilitation and Autogenic Inhibition, described by Dr. Richard Belli, are both operating normally.

Dr. Walter Schmitt describes a method to restore autogenic responses by use of Injury Recall Technique. This is reported in the Synopsis. After successfully applying IRT autogenic responses are now normal. Then, as a bonus, many conditionally weak muscles will now test strong, reactive muscle patterns are reduced and other trauma induced reactions are also resolved or lessened.

The following is a fast and effective alternative when the patient presents with dysfunction due to trauma.

Procedure

Method

I studied 150 random patients, 40% of which were males and 60% were females, who sought consultation for various reasons, and who showed a traumatic event.

When gave patient complains of difficulty or pain with movement, and/or proper autogenic and responses are absent, and a defined trauma, recent or ancient, was the cause of the dysfunction, the following technique will often prove effective.

Try to position the patient in the posture he had at the time of the painful incident. If the fall was painful or stunned them, then the position they were in at the time of contact with the ground will work or if they fell and then felt a sharp pain as they got half to their feet, use that painful posture. Accurate positioning is the key. If they were driving at the time of the painful incident then maybe place their hands on the imaginary steering wheel, foot on the brake, head tuned toward the rearview mirror, etc. Keep adjusting their position until a previously strong muscle now tests weak. Neck flexors are handy, but anything will work. Once the correct position is achieved **all** muscles in the previously all hypertonic individual will now test weak. All muscles becomes weak, doesn't matter if they were hypertonic or not.

Treatment

To now correct the patient simply elicit a Deep Tendon Reflex (DTR). Usually it is found that all reflexes are much attenuated and several should be elicited until a good muscle jerk response is seen. If the treatment was successful the patient will now have correct autogenic facilitation and inhibition responses and they will now test strong in the position that previously tested all weak or inhibited. Often a dramatic improvement in mobility, flexibility and pain reduction is observed, to the point that no further treatment is necessary.

It may be necessary to treat several events in a multi traumatized patient. Proper and exact positioning will be required for each event.

Commentary

The event positioning stresses many kinematic chains at the same time, including the emotional component if the patient remembers the event in that context.

This tool can explain some of the results of the BID (Body into Distortion), and PRYT (Pitch, Roll, Yaw, and Tilt), described by Applied Kinesiology years ago.

Correctly functioning autogenic responses are basic to a normal neurology. Establishing them at the start of the consultation will help clarify muscle testing outcomes.

The many and diverse ways that trauma affects the nervous system still needs more investigation. The marvelous tool of muscle testing allows us to continue to find new manifestations of the many adaptations human neurology undergoes as a result of the insult of trauma.

References

1. Palomar, Jose. Dynamic Muscle Proprioceptors Testing, Proceedings ICAK 2008.
2. Kandel Eric R., Schwartz, James H., Jessell, Thomas M. Principles of Neural Science; Fourth Edition.
3. Arthur C., M.D. Guyton, John E. Hall. Textbook of Medical Physiology, 2006.
4. Walther, David S., Applied Kinesiology Synopsis, 2nd Ed. Shawnee Mission, KS: ICAK-U.S.A. (2009).

Tongue Neurology: Multiple and Powerful Tongue Neurological Functions

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Abstract

Description of the tongue maps: organs map, taste map, and innervations map. Their anatomy and clinical applications in the practice. Description of the kinematic chains between the tongue and the organs using the organ map and VPP (visceral parietal pain).

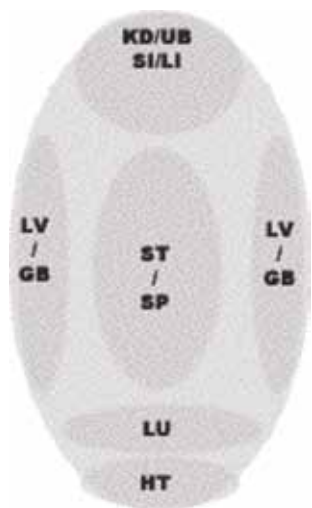
Introduction

There are many disorders caused by the malfunction of the tongue. We know how the hyoid muscles can affect the body function. The tongue has ½ of the muscles attached to the hyoid, and is innervated by many cranial nerves. The clinical importance of the tongue is enormous.

History

The tongue has been used for diagnosis in the last 5,000 years. Tongue diagnosis is an important diagnostic tool in Chinese medicine. It is much easier to learn and less subjective than pulse diagnosis. Generally, it is less channel specific than the pulse, however, the tongue will show the depth and nature (hot, cold, etc.) of an imbalance and it is less affected by short-term influences such as nervousness. The tongue is also useful as a measurement tool to gauge the progress of a disorder.

Common Tongue Geography and Meridian Correlations.



Lower Jiao

The Base of the tongue corresponds to the Kidney, Urinary Bladder, Large Intestine and Small Intestine Meridians.

Middle Jiao

The sides of the tongue correspond to the Liver and Gall Bladder meridians. Some theories place the Gall Bladder on the patients left side and the Liver on the patients right side.

The Middle of the tongue corresponds to the Stomach and Spleen Meridians.

Upper Jiao

The Tip of the tongue corresponds to the Lung and the Heart Meridians

Tongue Body Colors and Clinical Indications

Body Color	Indications
Pink	normal or mild disorder
Pale	yang, blood a/or qi def Deficiency Cold + thin & dry = blood def + wet = qi def + swollen = qi def + swollen & wet = yang def
Red	heat + no coating = yin def empty heat + yellow coat = excess heat + wet = damp heat + dry = injured fluids
Dark Red (Scarlet, Cardinal)	extreme heat more severe conditions than red
Purple	stagnation lv qi stagnation is likely + pale = cold
Blue	severe internal cold stagnant blood

Tongue Body Shapes and Clinical Indications

Body Shape	Indications
Cracked	<p>if develops during illness indicates chronic and severe, otherwise normal</p> <p>location of cracks relates to organ pathology</p> <p>+ red = empty heat consuming fluids</p> <p>+ pale = blood & qi def</p> <p>crack runs from center to the tip = ht disorder or congenital ht problems</p> <p>horizontal cracks = yin def</p>
deviated (crooked)	wind
Flaccid	<p>deficiency heat</p> <p>+ pale = blood & qi def</p> <p>+ dark red = yin collapse</p>
Long	heat in the ht
Rigid	stroke or early signs of stroke
short (contracted)	<p>serious conditions</p> <p>blood deficiency</p> <p>ht deficiency</p> <p>+ pale or purple = cold or yang def</p> <p>+ swollen = damp or phlegm</p> <p>+ red = heat consuming the fluids</p>
stiff	<p>heat in the ht</p> <p>ht/sp heat</p> <p>phlegm obstructing the ht qi</p> <p>+ normal & pale = wind, stroke</p>
Swollen	<p>deficiency</p> <p>+ pale & wet - yang def</p> <p>+ teethmarks & pale = qi def or excess fluids</p> <p>+ dark red = excess heat usually ht/sp</p>
Thin	<p>blood or fluid def</p> <p>empty heat consuming fluids</p> <p>+ pale = blood & qi def</p> <p>+ red = yin def</p>
thorny (strawberry, granular)	<p>heat</p> <p>congealed blood</p> <p>+ on tip = ht fire</p> <p>+ on edges = lv/gb fire</p> <p>+ on center = st a/or intestines heat</p>
trembling (quivering)	<p>wind</p> <p>+ pale = qi def</p> <p>+ red = heat producing internal wind</p>

Tongue Coatings and Clinical Indications

The tongue coat is a good indicator of the state of the Stomach and Spleen. It also shows the strength, depth and temperature of pathogenic factors.

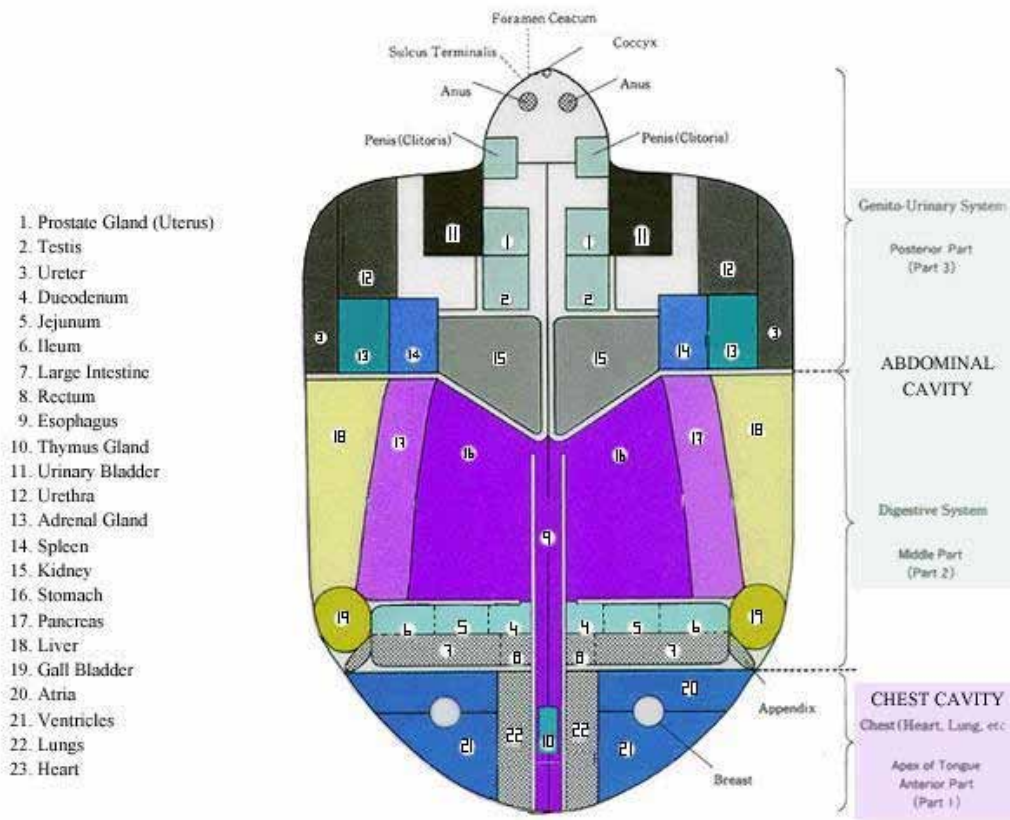
A normal tongue coat is thinnest at the edges, thicker in the center and thickest at the root. It is thin and white, slightly moist and has a root.

Tongue Coat	Indications
Thin	normal exterior condition, wind-cold
Thick	excess damp/phlegm food stagnation
Dry	heat consuming yin excess yang or fire deficiency fluids
Moist	normal or mild imbalance
Wet sticky (greasy, creamy)	excess fluids from yang def dampness dampness or phlegm retention of food

Coat Coloration	Indications
White	internal or external cold if coat looks like cottage cheese = ST heat + thin coat & body aches = exterior wind-cold + thin coat & thorny = wind-heat
Yellow	internal or external heat effected by coffee, tea a/or smoke intake
Gray	hot or cold internal condition retention of phlegm heat + dry = heat consuming body fluids + moist = damp cold
Black	severe condition involving hot or cold + pale = excessive cold from yang def + dry & possible thorny = consumption of body fluids

Coat Rooting	Indications
rooted moss appears firmly implanted	strong st/sp qi
rootless moss appears to float on the surface	st/sp qi def
Peeled	sp qi def deficient yin or fluids

Relationship between body organs and Tongue: Map.



This diagram of the tongue shows the latest organ representations from the work of Dr. Y. Omura. You might look at your tongue. If you find irregularities or changes in color in any of the areas noted on the diagram you should consider seeing your health provider. Tongue diagnosis is as ancient as Chinese Medicine and, when abnormalities are present, the acupuncturist treats the appropriate meridians related to the organs.

Anatomy

Three parts:

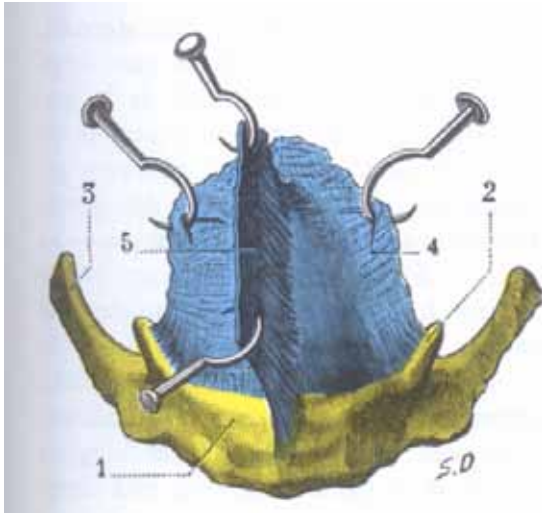
1. Osteofibrous internal structure (tongue skeleton).
2. The Tongue Muscles.
3. Superficial Mucous Membran.

These are subdivided as follows:

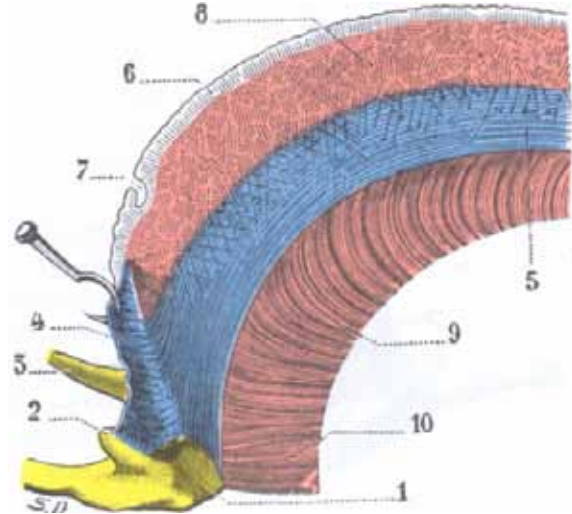
1. Tongue Skeleton:

1.- One bone, the Hyoid; 2.- Two fibrous laminae, the Hyoglossal Membrane and the Middle septum.

In man, tongue mobility and independence of function is due to the elevated functions demanded of it and is only joined to the hyoid by the fascial insertions of the muscles that arise from it and to the two fibrous laminae previously mentioned.



Hyoglossal membrane (anterior view)



Lingual septum (Lateral view)

2. Hyoglossal Membrane:

The Hyoglossal membrane (glossohyoid) is a fibrous laminae situated at the posterior part of the tongue and runs transversally. It arises from the superior border of the hyoid body, in the interval found between the the minor pole of one side and the minor pole of the opposite side. From there it runs almost vertically and slightly forward, it soon difuses among the muscular slips of the tongue.

3. The Central septum:

The central or middle ligual septum (fig. 413, 5) is yellowed white fibrous laminae situated on the midline between the two genioglossus muscles.

2. Tongue Muscles

A: Extrinsic Muscles

- 2 Genioglossus
- 2 Hyoglossus
- 2 Styloglossus

Arising from Organs

- 2 Palatoglossus
- 2 Faringoglossus
- 2 Amigdaloglossus

Arising from Bone and Organs (mixed)

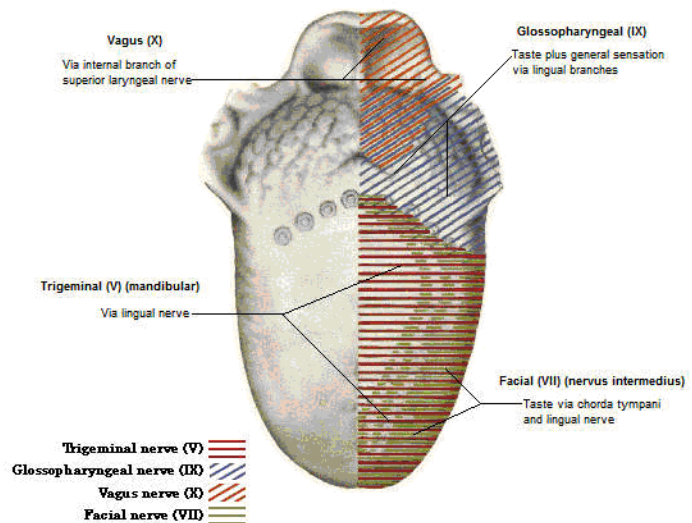
- 1 Lingual Superior (unpaired)
- 2 Lingual inferior

B: Intrinsic Muscles

- 2 Transversus

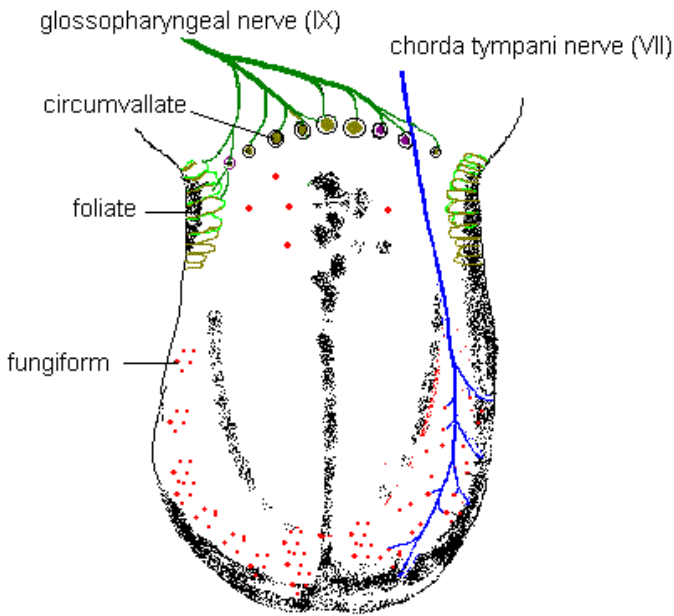
Afferent Innervation of Mouth and Pharynx

Dorsum of Tongue



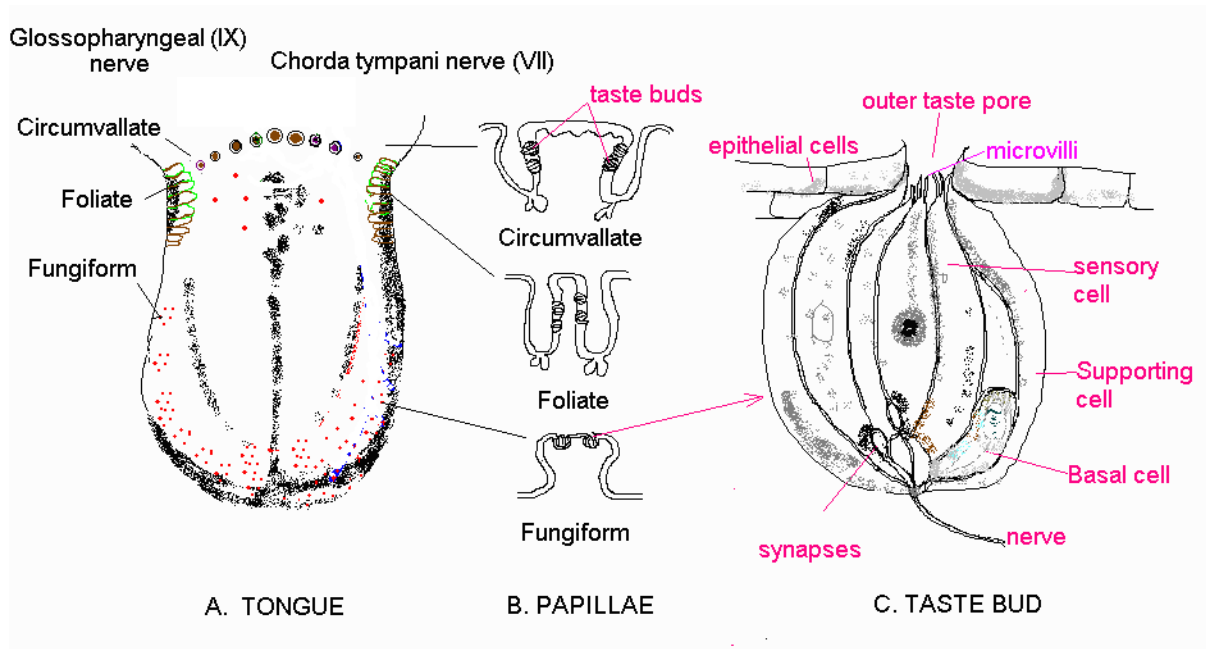
Afferent Innervation Of The Tongue

Cranial nerve afferentation



Papillae and taste buds

(often mixed up - papillae are visible with the naked eye, taste buds are not)



The Physiology Of Taste

SWEET, SOUR, BITTER AND SALTY. That's it, pal, unless you want to count umami, the weird, nearly-indescribable sensation associated with monosodium glutamate. Which you probably don't, unless you're a chemical senses researcher or about to chow down on cheap Chinese take-out.

Every time you stick something in your mouth, one or a combination of those four primary tastes alerts you to vital information about that mouthful of matter. If it's sweet, maybe it's got the nutrients your body needs to keep running for another few hours. If it's salty, perhaps you can replace some of those vital minerals you just excreted through sweat or urine. If it's sour, there's a chance it's not ripe and will give you a bad bellyache. If it's bitter, watch out -- it could be poisonous and your next swallow will be your last.

Of course, these are not the things you think about when sitting down to an elegant, five-course French meal or even while scarfing down a chili dog, fries and a Bud at a baseball game. Mostly, you're hungry, and you want something that tastes good. Simple as that.

But deciding what tastes "good" is anything but simple. A food's flavor doesn't usually depend on data from a single sense. Rather, smell, touch, sight and even hearing often come into play, and the best methods of pleasurable exciting those senses during a meal or snack occupies the days of thousands of chefs, brewers, marketing flaks, and scientists around the world.

You might call the little knobs dotting the surface of your tongue taste buds, but you'd be wrong. Those are papillae, and there are four kinds of them: fungiform and filiform on the front half, foliate and vallate on the back. The actual taste buds, described variously as resembling either tiny navel oranges or onions, cluster together in packs of two to 250 within the papillae. The buds in turn consist of up to 100 cells, either receptor or basal.

When something tasty enters the mouth, its chemicals are dissolved by the saliva, and the free-floating molecules enter the taste bud through a pore in its center. If the molecule binds to the tip of a receptor cell, it will excite that cell into issuing a series of chemical and electrical signals. It used to be thought that these electrical signals would then be fired directly into the brain, but the process turns out to be more complicated than that.

For example, sweet and some bitter taste stimuli activate a chemical messenger known as gustducin, member of the old and venerable G-family of proteins and cousin to transducin, the protein in the eye which helps to translate light into vision. In ways not completely understood, the activation of gustducin initiates an electrochemical dialogue among the receptor cells, which then transmit their messages to the basal cells at the bottom of the bud. The basal cells can also "talk" back to the receptor cells and among themselves. Once everybody has their stories straight, the data are relayed to the brain, to the gustatory cortex to be specific. "Geez, that's sweet," you think.

Salty and sour molecules don't seem to need to mess around with the receptor tips, permeating the taste cells directly through special channels in their walls. For example, the channels allow electrically charged sodium ions in and potassium ions out. As the interior of the cell grows progressively more positively charged, it sets up a small electric current that triggers more intercellular messages and, once again, word is passed to the brain that something salty, perhaps a pretzel, is about to plummet down the esophagus.

In the map of the tongue the buds detecting sweetness are on the tip of the tongue. Those were flanked by the salt-detecting buds, with the sour ones running farther along the sides. The bitter buds, last defense against gag-inducing toxins, lurked across the back of the tongue.

Nice, neat, orderly, and not very accurate. There are taste buds throughout the oral cavity, even on the upper palate. Any bud is capable of detecting all the basic tastes. It's just that some are more sensitive to a particular taste than to the others.

The tongue map also neglects to take into account the impact the other senses have on taste. In a lot of cases, you pick up clues about the food you're about to eat long before any of it gets into your mouth. Like that left-over beef stroganoff that's been sitting at the back of your refrigerator for a month. Chances are, you won't even bother to dirty a fork before chucking that rank mess into the disposal. Your nose knows what's up, that the last thing your body needs is a stomach full of virulent bacteria in cream sauce.

Smell, of course, doesn't simply warn against spoiled food. It also increases your enjoyment of practically everything you eat. Much of what we commonly refer to as "flavor" is actually a combination of smell and taste, with taste most often assuming the secondary position.

The pungency of a wad of green mustard served with sushi doesn't correspond to any of the four basic tastes. Rather, the kick you get from it is a function of how much pain it inflicts on nerve fibers in your mouth. Also located in the tongue's papillae, these pain fibers are actually wrapped around the taste buds.

Chemical irritants that humans have learned to like in their food include capsaicin in chili peppers, the gingerols in ginger, piperin in black pepper and the various isothiocyanates in onions, mustard, radishes and horseradish. You consider them "hot" because they stimulate only a subset of the pain fibers in your mouth, not all of them. But that subset also includes sensors that monitor temperature, hence the burning sensation associated with even an ice-cold super-jalapeno.

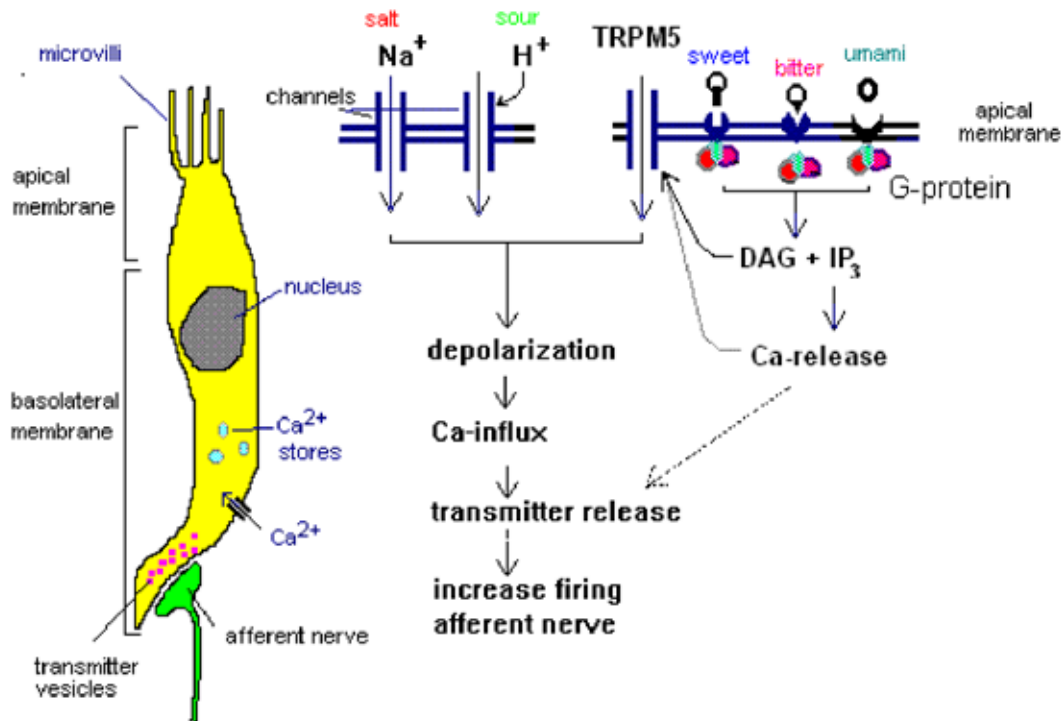
Why do some folks prefer to eat foods that actually inflict pain? In a study done at the University of Pennsylvania in 1980, Dr. Paul Rozin hypothesized that eating chilis and the like releases endorphins, the euphoric, pain-killing neurochemicals responsible for the fabled "runner's high." Or maybe it's simply that, as they say, variety is the spice of life and a bit of oral irritation now and then pleasurably broadens the spectrum of flavors.

As to the reason why some people can cheerfully withstand the ravages of irritant-packed food and others bolt for the water fountain at the first nibble on a wayward jalapeno, part of it is no doubt genetic, but there's also a phenomenon known as "transient desensitization." Keep eating chili after chili, and your mouth is going to get hotter and hotter. Take a break, though, maybe two or five minutes, and when you resume your meal, the burning sensation won't be quite so fierce. ... Desensitization can last hours, and people who make a habit of eating spicy food may be partly desensitized virtually all the time.

Taste transduction

There are five basic tastes: salt, sour, sweet, bitter and umami.

The current (as of 2008) thinking¹ is that sweet, amino acid (umami), and bitter taste converge on a common transduction channel, the transient receptor potential channel TRPM5, via phospholipase C (PLC) (see Figure 2). TRPM5 is a newly discovered TRP related to other channels in sensory signaling systems.



It has been shown² that PLC, a major signaling effector of G-protein coupled receptors (GPCRs), and TRPM5 are co-expressed with T1Rs and T2Rs and are vital for sweet, amino acid, and bitter taste transduction. Activation of T1R or T2R receptors by their respective tast molecules would stimulate G proteins, and in turn PLC (PLC-β2). The activation of PLC generates two intracellular messengers - IP₃ and diacylglycerol (DAG) - from the hydrolysis of phosphatidylinositol-4,5-bisphosphate (PIP₂) and opens the TRPM5 channel, resulting in the generation of a depolarizing receptor potential. Other additional pathways may modulate sweet, amino acid, or bitter taste reception but would not, themselves, trigger a taste response. It is not at present known how PLC activates TRPM5 or whether DAG is involved. Future experiments should help reveal the G proteins for the various taste modalities and the mechanism of TRPM5 gating.

It is suggested that the TRPM5 channels are calcium sensitive, thus IP₃ would activate the TRPM5 channels by releasing Ca²⁺ from internal stores - depolarization would follow and this would release the transmitter (ATP - see "Transmitter" below) an increase the firing rate of the gustatory nerve..

1. Salt taste

Salt is sodium chloride (Na⁺ Cl⁻). Na⁺ ions enter the receptor cells via Na-channels. These are amiloride-sensitive Na⁺ channel (as distinguished from TTX-sensitive Na⁺ channels of nerve and muscle). The entry of Na⁺ causes a depolarization, Ca²⁺ enters through voltage-sensitive Ca²⁺ channels, transmitter release occurs and results in increased firing in the primary afferent nerve.

2. Sour taste

Sour taste is acid and acid is protons (H⁺). There is exciting new evidence that there is an acid-sensing channel - the PKD2L1 channel¹. This channel is a member of the transient receptor potential channel (TRP) family and is a non-selective cation channel. The activity of PKD2L1 is gated by pH (H⁺ ion concentration). This new discovery displaces the previous ideas that H⁺ ions block K⁺ channels causing a depolarization, or that H⁺ ions enter the cell through ENaC channels. These mechanisms may exist but do not lead directly to sour perception.

3. Sweet taste

There are receptors (T1R2 + T1R3) in the apical membrane that bind glucose (sucrose - a combination of glucose and fructose - and other carbohydrates). Binding to the receptor activates a G-protein which in turn activates phospholipase C (PLC- β 2). PLC generates IP₃ and diacyl glycerol (DAG). These intracellular messengers, directly or indirectly, activate the TRPM5 channel and depolarization occurs. Ca²⁺ enters the cell through depolarization-activated Ca²⁺ channels, transmitter is released increasing firing in the primary afferent nerve.

4. Bitter taste

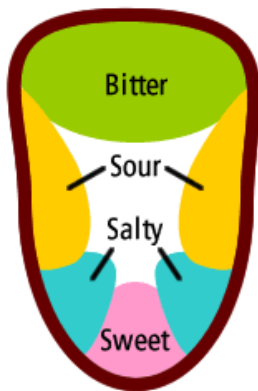
Bitter substances bind to the T2R receptors activating the G-protein and causing activation of PLC. The second messengers DAG and IP₃ are produced (by hydrolysis of phosphatidylinositol-4,5-bisphosphate) activating TRPM5 and mediating release of Ca²⁺ from internal stores. The elevated Ca²⁺ causes transmitter release and this increases the firing of the primary afferent nerve.

5. Umami taste

Umami is the taste of certain amino acids (e.g. glutamate, aspartate and related compounds). It was first identified by Kikunae Ikeda at the Imperial University of Tokyo in 1909. It was originally shown^{2,3} that the *metabotropic* glutamate receptor (mGluR4) mediated umami taste. Binding to the receptor activates a G-protein and this elevates intracellular Ca²⁺. More recently it has been found that the T1R1 + T1R3 receptors mediate umami taste⁴. Binding to the receptors activates the non-selective cation channel TRPM5 as for sweet and bitter receptors (i.e. via G-protein, PLC, IP₃ and DAG - see above). Guanosine 5'-monophosphate (GMP) and inosine 5'-monophosphate (IMP) potentiate the effect of umami tastes by binding to another site of the T1R1 receptor.

Monosodium glutamate, added to many foods to enhance their taste (and the main ingredient of Soy sauce), stimulates the umami receptors. But, in addition, there are *ionotropic* glutamate receptors (linked to ion channels), i.e. the NMDA-receptor, on the tongue. When activated by these umami compounds or soy sauce, non-selective cation channels open, thereby depolarizing the cell. Calcium enters, causing transmitter release and increased firing in the primary afferent nerve.

Glutamate is found in most living things, but when they die, when organic matter breaks down, the glutamate molecule breaks apart. This can happen on a stove when you cook meat, over time when you age a parmesan cheese, by fermentation as in soy sauce or under the sun as a tomato ripens. When glutamate becomes L-glutamate, that's when things get "delicious." L-glutamate, said Ikeda, is a fifth taste. When Escoffier created veal stock, he was concentrating umami. When Japanese made their dashi, they were doing the same thing. When you bite into an anchovy, they are "like glutamate speedballs. They are pure umami," Jonah writes. "Aristotle was wrong. Plato was wrong. We have five tastes, not four. But when Ikeda's findings were published," Jonah says, "nobody believes him".



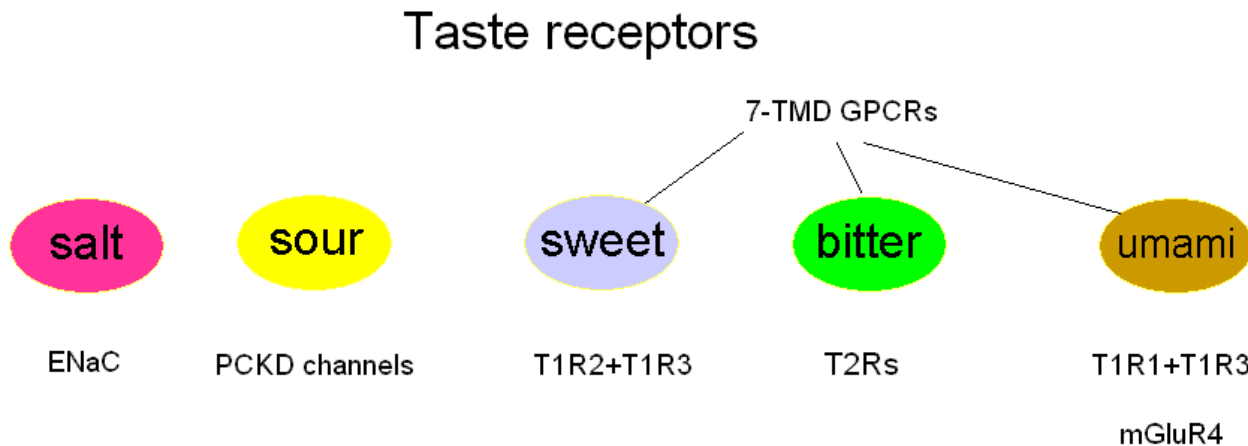
Classical taste map of the Tongue.

Transmitter

Finger and colleagues¹ showed that all sweet, bitter, sour, salty and umami nerve responses were lost in the purinergic double-knockout mouse. This suggests that ATP (a purinergic agonist) is the taste neurotransmitter, released by the receptor cells to activate the primary afferent nerve. The taste receptor cells release ATP in a non-vesicular fashion to activate the gustatory nerve fibres². Because the ATP is released via pannexin hemi channels rather than by vesicular fusion, Ca-influx is not necessary³.

Receptors

Sweet, bitter and sour taste receptors have recently been cloned. A summary of the different types of receptor responsible for each of the 5 taste modalities is given below.



Salt receptor

- ENaC (Epithelial Sodium (Na) channel)
- ubiquitously expressed

Bitter receptor family – T2Rs

- 50–80 members
- expressed in small subset of all taste papillae
- expressed in cells that also express α -gustducin
- 70% of gustducin cells in circumvallate & foliate papillae express T2Rs

Sweet and Umami receptors

Heteromeric receptors made up of a combination of different subunits, coded for by a small gene family – T1Rs.

- T1Rs (3 genes distantly related to mGluRs)
- By in situ hybridization, Liao and Schultz (2003) found that all 3 T1R genes are expressed selectively in human taste receptor cells in the fungiform papillae, consistent with their role in taste perception.
- T1R1+3 = amino acid receptor (umami)
- T1R2+3 = sweet receptor
- T1R3 - on its own may be the sweetener receptor
- Umami is possibly mediated by both mGluR4 and T1R1+3 receptors

Sour receptors

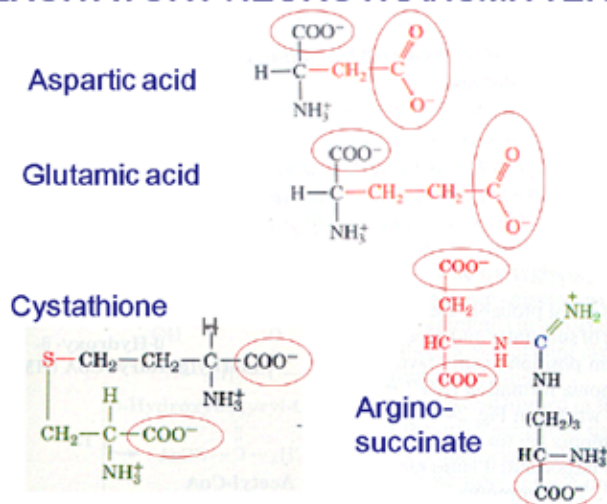
Sour is the taste of acid, i.e. protons (H^+).

In August 2006, Huang et al⁴ published a paper showing that mice in which cells expressing PKD2L1 (polycystic kidney disease-like channel) were ablated (knocked out) were completely unable to detect sour substances. PKD2L1 is a member of the TRP (transient receptor potential) superfamily of ion channels. They are non-selective cation channels. PKD2L1 is gated by pH (H^+ ion concentration), a decrease in pH (acidity) opening the channel and causing a depolarizing receptor potential. This activates voltage-dependent Ca^{2+} channels, elevating intracellular Ca^{2+} . This in turn causes the release of transmitter (now thought to be ATP).

Neurotransmitters

The sensory neurones of the 5 senses are all mediated by excitatory neurotransmitters. That is that they depolarise by permitting Ca^{++} ions to influx in addition to Na^{++} .

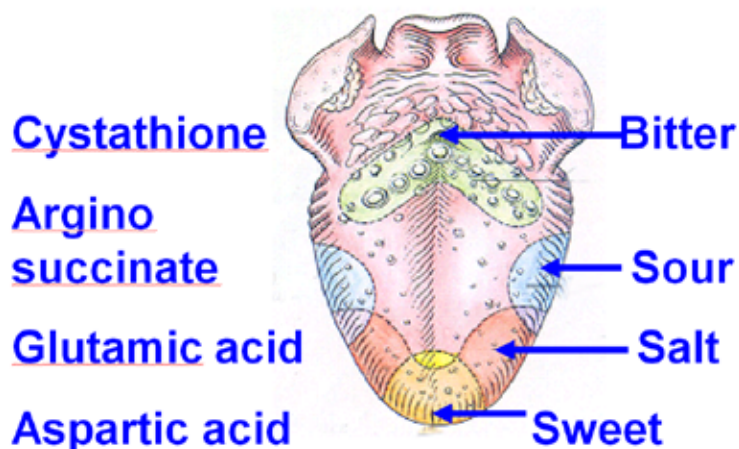
EXCITATORY NEUROTRANSMITTERS



The NMDA glutamate sensitive receptor activation and the induction of long-term potentiation are thought to be necessary substrates for learning.

Glutamate receptors are also thought to play a critical role in the hippocampal long-term potentiation and the memory processes.

Excitatory Neurotransmitters



Nutrients to consider for optimal GLUTAMATE synthesis:

Glutamine Mg⁺⁺ and Phosphorus NADPH (Vit B3)

Aspartic acid / Glycine / Mg⁺⁺ (N.Methyl D. Aspartate 1000x times more active than glutamate)

Nutrients to consider for optimal DOPAMINE synthesis

Tyrosine O₂, H₄Biopterin (P5P, Folate, NADPH (Vit B3), Fe⁺⁺) P5P (Vit B6) or Thiamine pyrophosphate (Vit B1), Mg⁺⁺, Zn⁺⁺

Nutrients to consider for optimal ACETYLCHOLINE synthesis

Choline Acetyl CoA (Vit B5 or pantethine) Thiamine triphosphate (Vit B1) Mn⁺⁺

Procedure

Confirm that the visceral map in the tongue has a relation to the organs and their related muscles.

- a. 100 patients in good health, were testing to discard a muscle weakness in the clear, of the visceral related muscles described in the tongue map.
- b. With a small dropper, a very small drop of local anesthesia (Lidocaine 1%) was placed in the area related to a viscera in the tongue (see Tongue map), and the muscles related to the organs described in the tongue map were retested.
- c. Several flavors were placed on the tongue in the areas that corresponded. Sour on sour, sweet on sweet, etc. Then the muscles of the organ that correspond to each area were tested.

Results

All patients with a tongue area anesthetized showed weakness of the muscles related to the organ (see tongue map on page 215).

When taste stimulus was applied to the various receptor zones the muscles related to the zones were at first facilitated and after a few seconds were then inhibited. There were variables noted related to the taste intensity. More intense or concentrated flavors inhibited faster than a blander stimulus.

Discussion

Motor Brain Homunculus



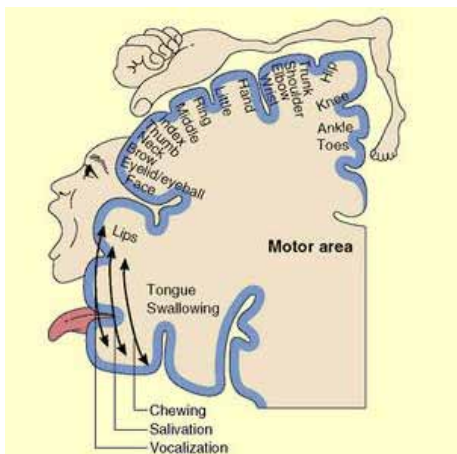
Motor Brain Homunculus

Motor homunculus: “This model shows what a man’s body would look like if each part grew in proportion to the area of the cortex of the brain concerned with its movement.”



Sensory Brain Homunculus

Sensory homunculus: “This model shows what a man’s body would look like if each part grew in proportion to the area of the cortex of the brain concerned with its sensory percept

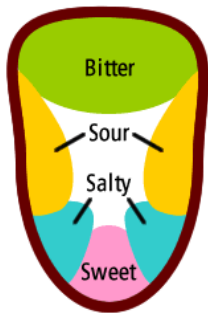


As we can see in this paper, the tongue has many and complex relationships:

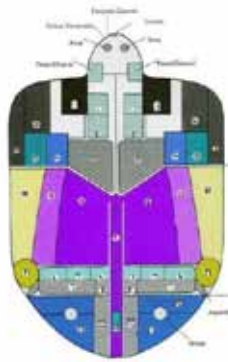
1. Tongue muscles are the other half of the Hyoid muscles.
2. Tongue is innervated by many nerves from many different cranial nerves.
3. Tongue sends a lot of sensations (taste) to primitive areas of the brain.
4. Tongue has a direct relationship with the organs, and the stimulation of those areas can inhibit or stimulate those related organs. Food can inhibit or stimulate organs through the flavors.
5. There are kinematic chains between tongue and viscera and can be used to treat visceral problems.

Since flavors directly affect organ related muscles it follows that taste modifies organ response according to the meal composition. Flavors and odors are at the beginning of digestion. For example, if you try to aspirate through a squeezed closed nose all muscles related to digestion will inhibit.

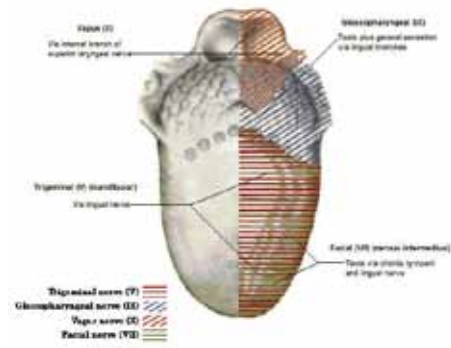
Viewing the many tongue representations as if they were a mosaic of functions and the way each layer of function could influence the other layers promises to give us many other strategies to improve health.



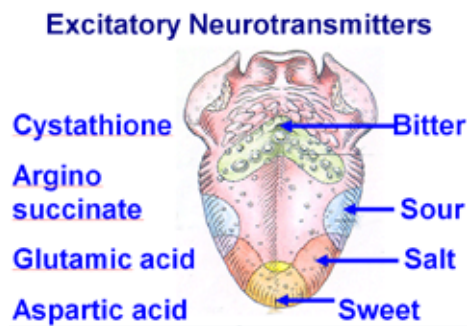
Flavors



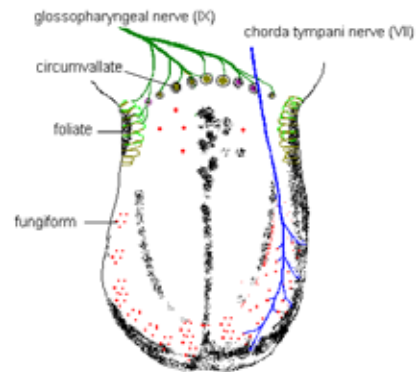
Organ Map



Cranial Innervation



Neurotransmitters



Taste Buds

Conclusion

Once we begin to treat the tongue as another muscle with all the dysfunction we observe in any other muscle plus taking into account its roll in Stomatognathic function and integration the benefits promise to be profound. The dramatic results of injury resolution in other body areas should also pay dividends here. Tongue representation in the sensory/motor strips is larger than most any other body parts and taking into account its multiple cranial nerve supply speak to the implications for brain based therapies as well. We are only initiating the study of how to use this untapped vector to treat digestive and absorption disorders.

Tongue neurotransmitter balance and general body health and its impact on tongue function are other considerations.

Now we have another tool to treat visceral related problems, but we need to make more research about the neurology and chemical influence over the gland function.

The relationships between the tongue, their muscles and the Hyoid, with cranial nerves, and now their kinematic chains with the organs, open a very broad scope of their importance.

We can now know more about the physiology of the flavors, and tongue stimulation over the gastro enteric system and the body.

References

1. Kandel Eric R., Schwartz, James H., Jessell, Thomas M. Principles of Neural Science; Fourth edition.
2. Arthur C., M.D. Guyton, John E. Hall. Textbook of Medical Physiology, 2006.
3. Walther, David S., Applied Kinesiology Synopsis, 2nd Ed. Shawnee Mission, KS: ICAK-U.S.A. (2009).
4. Burt, Alvin M.; Textbook of Neuroanatomy. Philadelphia: W.B. Saunders, 1993.
5. Henry L. Bockus, J. Edward Berk. Bockus Gastroenterology, W B Saunders Co; 5th edition, 1995.
6. Palomar, Jose.- VPP Visceral Parietal Pain, ICAK-U.S.A. Proceedings 2006/07.
6. Human Anatomy by L.Testut and A. Latarjet, 2004.

References for taste receptors

1. Mammalian Sweet Taste Receptors. Nelson, G. et al (2001) Cell, 106, 381-390.
2. An Amino-Acid Taste Receptor. Nelson, G. et al (2002) Nature 416 (14 March), 199-204.
3. A Plethora of Taste Receptors. Kinnamon, S.C. (2000) Neuron, 25, 507-510.
4. The Cells and Logic for Mammalian Sour Taste Detection. Huang et al., (2006) Nature 442, 934-8.
5. Liao, J.; Schultz, P. G. Three Sweet Receptor Genes are Clustered in Human Chromosome 1. Mammalian Genome 14: 291-301, 2003.
6. Finger et al., (2005) ATP Signaling is Crucial for Communication from Taste Buds to Gustatory Nerves. Science 310, 1495-1499.
7. Romanov, R.A. et al. (2007) Afferent Transmission Mediated by Hemi Channels in Mammalian Taste Cells. EMBO J 26(3), 657-667.
8. Huang, Y.J. et al. (2007) The Role of Pannexin 1 Hemi Channels in ATP Release and Cell-Cell Communication in Mouse Taste Buds. PNAS (USA) 104(15), 6431-6441.
9. The Cells and Logic for Mammalian Sour Taste Detection. Huang et al., (2006) Nature 442, 934-8.
10. Chaudhari et al, (1996) The Taste of Monosodium Glutamate: Membrane Receptors in Taste Buds. J. Neurosci. 16, 3817-3826.
11. Kurihara & Kashiwayanagi (1998) Introductory Remarks on Umami Taste. Annals NY Acad Sci 855, 393-397.
12. Nelson, G. et al (2002) An Amino-Acid Taste Receptor. Nature 416, 199-204.
13. Chandrashekar, J., Hoon, M.A., Ryba, N.J.P. and Zuker, C.S. (2006) The Receptors and Cells for Mammalian Taste. Nature 444 288-294.
14. Zhang, Y, Hoon, M.A., Chandrashekar, J., Mueller, K.L., Cook, B., Wu, D., Zuker, C.S. and Ryba, N.J.P. (2003) Coding of Sweet, Bitter, and Umami Tastes Different Receptor Cells Sharing Similar Signaling Pathways Cell 112, 293-301.

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Blinded Investigation of “On the body” Toxin Screening Using Manual Muscle Testing

Barton A. Stark, D.C., DIBAK, D.I.A.M.A.

Abstract

This is an initial investigation to gather blinded data regarding reliability of screening a toxic substance by placing it over the small intestine of the patient. In this study data was collected in a double-blind and controlled method. Manual muscle testing (MMT) was performed by multiple, experienced, AK practitioners and BCT members in three different locations with one hundred and ten participants.

Key Indexing Terms

Applied Kinesiology (AK), Oral Nutrient Testing, Manual Muscle Testing (MMT)

Introduction

There are a variety of manual muscle testing methods utilized by professional and non-professional practitioners to discern reactions to either therapeutic and/or toxic substances. Only oral nutrient testing is condoned by the ICAK.¹ Objective evidence is needed to assess other methods such as on-the-body (OTB) testing.

Materials and Methods

Muscle testing subjects were chosen from three separate AK Certification courses. Testing materials included four sets of four paper bags. Each bag contained a sealed glass vial. Three bags in each set contained vials with only organic cotton inside. The fourth vial in each set contained a sample of D-con mouse poison. All vials were of equal weight. All bags were labeled only on the bottom with a number and a letter (ex: 1A-D, 2A-D, 3A-D, 4A-D). Only the author was aware of the bag numbers which contained the poison. At no time were testers or subjects allowed to observe bag numbers during testing. Each subject was tested for normal function of the quadriceps and a deltoid muscle. Subjects were then evaluated for muscle testing response to four bags from one of the four sets. An assistant placed each of the bags, one at a time, over the patients' small intestine area. The assistant would then record a normal or inhibited entry for each bag as directed by the tester.

The test subjects were not allowed to inadvertently make hand contact with any potential reflex area on their body during testing. No other equipment, such as a flat bar magnet over the bags, was used during the data collection.

Results

A positive identification (ID) of the toxin was considered to be an inhibition of the previously intact indicator muscle only with exposure to the bag containing the toxin. Out of a cohort of one hundred and ten subjects **only ten positive ID's (9%) were observed** for this particular toxin.

Discussion

The most important aspect of this study is that this type of blinded, controlled data regarding OTB testing has previously not been discovered by the author in any publication. The limitations of this data are that any relevant conclusions can only be drawn for this toxin. It is within the realm of possibility that some subjects could even insalivate mouse poison of this type (an anti-coagulant) and not display muscle inhibition. Future studies of OTB testing should include testing with bar magnets over the test substance, and/or therapy-localization to organ/meridian points (alarm points, Chapman reflexes) during exposure to test samples.² Also, a test substance that is more universally toxic would be preferable. Fortunately, it is difficult to obtain adequate samples of such a toxin.

Conclusion

The percentage of positive toxin ID's was very low (9%). The principal conclusion of this study is that no assumptions should be made regarding the accuracy of OTB testing for toxins or possibly therapeutic substances. Muscle facilitation responses to nutrients, for example, were not part of the study.

Acknowledgments

The author gratefully acknowledges the participation of David Leaf, D.C., DIBAK, Robert Rakowski, D.C., C.C.N., D.A.C.B.N., DIBAK, and their respective seminar attendees for serving as testers and test subjects.

References

1. Walther D. Applied Kinesiology Synopsis, 2nd Ed. Shawnee Mission, KS: ICAK-U.S.A.; 2009.
2. Mid-America Marketing Corp., Eaton, Ohio. (800) 922-1744.
3. ICAK Status Statement

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Division III

Constructive Review

Fat and Feet

Jim Bartley, D.C.

Abstract

I have found that many foot or ankle problems may be caused by a deficiency of a good balanced blend of essential fatty acids. This can easily be tested in a number of ways.

Key Indexing Terms

Essential Fatty Acids, EFA, Foot, Feet, Ankle, Gait

Indications

Anyone who has foot, ankle or gait problems may need EFA. Other foot problems may also be present and can contribute to the over all health.

Procedure

First, to test for the need, find weak ankle muscles or a failed “shock absorber test.” Place a good, fresh source of a blend of essential fatty acids (EFA) that have a one to one ratio of Omega 3 to Omega 6 fatty acids. (I use a product called Essential Balance from Omega Nutrition.) Put some of the EFA in the patient’s mouth and look for strengthening of the ankle muscles or a passing of the “shock absorber test.”

Some patients may have a congested gall bladder and may need nutrients to help with the gall bladder so that they can absorb fats.

Other ways to demonstrate to the patient is to do a before and after passive range of motion test after the patient walks with the EFA in their mouth.

Occasionally, if someone is getting sufficient EFA in their diet and they are not getting the benefits, check the gall bladder.

Also, you can check for the palpatory pain pattern change with EFA in their mouth:

Lateral Calcaneous

Medial Knee

Greater Trochanter

Rhomboids

Scalenes

Conclusion

While this paper only addresses the effect that EFA have on feet and gait health, EFA deficiency can have implications on the entire body.

Jose Palomar Lever's P-DTR Technique Corrects Spinal Lateral Flexion Patterns Associated with Adrenal Stress Including Chemical and Mental Imbalances Related to Glutamic Acid and Gaba

Walter H. Schmitt, D.C., DIBAK, D.A.B.C.N.

Abstract

Proprioceptive-deep tendon reflex technique (P-DTR) can be used to correct lateral flexion imbalances and impact structural, chemical, and mental functions. P-DTR is associated with muscle imbalances including some that arise from a need for injury recall technique (IRT). Lateral flexion can be associated with ipsilateral chemical stress in the brain as seen via supraspinatus muscle response to various excitatory neurotransmitter challenges (glutamic acid, aspartic acid, homocysteic acid, and GABA). It can also be associated with endocrine patterns, in particular over or under adrenal activity associated with stress. Correction of lateral flexion patterns by P-DTR efficiently corrects other clinical findings that would otherwise have to be addressed individually.

Key Indexing Terms

Applied Kinesiology, Manual Muscle Testing, Stress, Physiological, Glutamic Acid, Gamma-Aminobutyric Acid, Spine

Introduction

Two seemingly unrelated presentations at the June, 2008 Annual ICAK Meeting have been shown to have a clinically valuable intersection that increases both procedural efficiency and patient response. The ramifications of combining elements from both presentations has significant structural, chemical, and mental effects on patients and allows for correction of components from all three sides of the triad of health simultaneously. These patterns are all clearly manifested in manual muscle testing (MMT) findings.

Jay Lombard, DO in his presentation "The Depression Pandemic – Functional Medicine Strategies and Protocols to Manage Depression and Anxiety"¹ discussed the relationship of glutamic acid (GLU) conversion into gamma-aminobutyric acid (GABA) in stress related illness. He proposed that a lack of nutrients for this conversion causes an increase of the excitatory neurotransmitter (NT) GLU and a decrease of the inhibitory NT GABA in the brain. This GLU/GABA imbalance can contribute to increased stress response in the central nervous system.

Jose Palomar Lever in his paper "Proprioceptive DTR Recalibration: Proprioceptive Synchronization" demonstrated dramatic neuromusculoskeletal responses by identifying two ends of a kinematic chain problem and correcting the tissue response towards normal by activating the deep tendon reflex (DTR).² P-DTR technique can be used to normalize muscle patterns including ipsilateral hypertonicities with consequent improvements in MMT response, muscle tone, and range of motion.

Combining aspects of these two presentations with long established concepts of centering the spine³ has elicited a clinical entity of seeming importance.

The following tenets are important in tying these clinical entities together:

- The supraspinatus has a viscerosomatic relationship with the brain. This relationship appears to be ipsilateral in nature.
- Unilateral brain stress may affect the MMT response of the ipsilateral supraspinatus. This may be due to ambient brain function or may be elicited by specific challenges.
- Spinal lateral flexion patterns can reflect thyroid – steroid balance.³ Left lateral flexion (head and feet to the left, concavity on the left) is associated with increased thyroid activity. Right lateral flexion (head and feet to the right, concavity on the right) is associated with increased steroid (including cortisol) activity.
- Activating cortical function causes a generalized increased muscle tone on the ipsilateral side of the body. (There are other cortical muscle tone patterns, but these are not pertinent to this paper and will not be addressed here.)
- GLU, aspartic acid (ASP) and homocysteic acid are excitatory NTs that can cause damage to overly excited neurons. (Homocysteic acid is a product of homocysteine (Hcy) and is related to neurological damage / disease associated with homocysteinemia.⁴)

Excess excitatory GLU (and/or ASP and/or Hcy activity) activity is very stressful to brain cells, and, in the extreme, can lead to death by apoptosis. In addition, the end organs of the pathways that receive excess excitation from these unbridled excitatory NTs may become over stimulated.

It is interesting to note that GABA will often negate an adrenal challenge technique (ACT) positive challenge (QA 17)⁵ and that this will be accompanied by a GLU, ASP, and/or Hcy induced supraspinatus weakness. This is an apparent representation of Dr. Lombard's premise regarding the relative GLU / GABA imbalance observed in chronic stress. However, many of these patients have adequate nutrition (B-6, niacinamide, taurine) for the conversion of GLU to GABA, yet still demonstrate this aberrant pattern.

The observations contained in this paper suggest a structural / neurological pattern that creates the MMT responses and clinical findings indicating an apparent increased GLU and lowered GABA. It is proposed here that a structural pattern causes sensory feedback into the CNS that results in increased firing of GLU neuron pools and decreased firing of GABA neuron pools mimicking the chemistry of increased GLU and decreased GABA, yet in the absence of any biochemical problem with the synthesis of these two NTs. In other words sources of excitation and inhibition of GLU and GABA pathways arising from peripheral sensory activity create responses that look like a GLU / GABA chemical imbalance. However the imbalances of GLU / GABA neuron firing are actually originating from peripheral structural sensory sources.

This is a representation of the structural side of the triad of health adversely effecting body chemistry. And further, structural correction in this case will resolve the apparent chemical imbalance, clinically observed by both AK evaluation and patient symptom response.

P-DTR technique has been shown to change lateral flexion patterns, especially when large sections of the body are involved. For example, a P-DTR pattern originating in the right occiput and ending at the right sacroiliac joint will be associated with increased right muscle tone resulting in a concave on the right lateral flexion CTS pattern. Correcting this P-DTR pattern will normalize the lateral flexion pattern as can be noted by changes in range of motion (ROM) and sometimes decreased pain.

Challenging with oral GLU, ASP, and/or Hcy will elicit a weakening of a strong supraspinatus when there is evidence of ipsilateral brain stress such as the so-called “brain on fire” syndrome. Brain on fire is associated with over active neuron pools and excess free radical activity in some brain area(s). It is felt that the central integrative state (CIS) of these neurons is closer to firing threshold than optimal resulting in over activity and metabolic fatigue.

In these patients, ipsilateral supraspinatus weakening response is often, but not always, elicited by activating ipsilateral olfactory function with some odor or fragrance. (The olfactory nerve is the only sensory nerve that sends axons to the ipsilateral cortex, particularly the middle cortical areas such as the limbic system. All other sensory activity is registered primarily in the contralateral cortex.) The supraspinatus weakness evoked by this unilateral olfactory challenge is thought to represent fatigue of already over stimulated neurons.

Dr. Lombard’s presentation discussed supplying nutrients to aid the conversion of GLU to GABA and hence relieve brain stress. It appears that much brain stress, particularly hemispherically dominated brain patterns, may be associated with asymmetries in functional afferentation and deafferentation that drives one side of the brain to greater and the other to lesser activity. This is called hemisphericity by chiropractic neurologists, the side of hemisphericity being the side of lowered cortical function.

Hemisphericity patterns can be complicated by the observations that a neuron, neuron pool, or presumably an entire side of the cortex can be over firing due to either over stimulation / over excitation, or due to exhaustion arising from transneuronal degeneration (TND).⁶ Similarly, a neuron or group of neurons can be under firing due to lack of afferentation, excess inhibition, or chronic over stimulation to the point of exhaustion, not unlike a tired horse that is exhausted from running too far and too hard. Clinically, this confusion can often be cleared up by the use of MMT and AK challenges and procedures.

AK techniques and MMT responses will allow for observation of lateral flexion patterns associated with at least three challenge procedures:

1. Steroid (adrenal) – thyroid activity lateral flexion patterns as discussed above.
2. Brain stress – a weak supraspinatus following a challenge procedure such as oral GLU, ASP, Hcy and or ipsilateral olfactory challenge that will often be negated by one lateral flexion position.
3. Other mechanical challenge such as an injury recall technique (IRT), cranial fault, or other structural challenge that is negated by a lateral flexion position.

These various challenges correlate structural, chemical, and mental factors as described in CTS principles. But further, each and all may be corrected by the P-DTR technique. It appears that the P-DTR technique has potential for global normalizations at many neurological levels including those that influence structural, chemical, and mental aspects of the physiology.

The following explanation will summarize Dr. Palomar’s technique from this author’s perspective.

It seems that the P-DTR can be used for mechanical problems present in three types of anatomical patterns:

- 1) a single muscle
- 2) an area of a fascial “anatomy train” – complete or partial
- 3) an area of muscle continuity or kinematic chain (this could be any anatomical pattern associated with a series of muscles firing to create any movement pattern – short or long, front or back or both, right or left or both)

The beginning and end of the anatomical problem area will show a positive muscle testing response when any one of the three following “two-point” procedures is performed. They will all be present – so use the one that is the easiest on the doctor and the patient. (Note: A good starting point for identifying the need for P-DTR is the origin and insertion of a single muscle, or at the two ends of any area of complaint.)

- 1) Patient TLs to both ends of the problem area
- 2) Doctor taps both ends of the problem area
- 3) Patient TLs one end of the problem area and the doctor taps the other end

Once you find a positive two-point response (i.e., causing weakening of an indicator muscle) to one of the above, maintain contact (TL or tapping) at one point, and then move the other contact point (TL or tapping) farther and farther away until the two-point no longer weakens a strong muscle.

Once this pattern is identified, move the second contact point back to where it was last positive and maintain that. Now move the other contact point (TL or tapping) farther and farther away from the second contact point until the two-point is no longer positive. Finally, move backwards again to the last positive contact point.

With both of the two end points activated by TL and/or tapping (at this time, any indicator muscle will be weak) – perform a deep tendon reflex anywhere in the body (e.g., patella, biceps, jaw - tap symphysis menti, Achilles, any deep tendon reflex). The DTR reflex response must cause noticeable muscle contraction for the outcome to be most effective. You only need to create one DTR response, anywhere in the body, to achieve correction.

Following correction, the two point response previously identified will be negative to muscle testing. ROMs, pain, etc., will also be improved.

A patient who has a strengthening in MMT response in a lateral flexion position will usually demonstrate the presence of a need for a P-DTR correction somewhere on the side of lateral flexion concavity. This would appear to be the side of the body that was “too tight.” Lateral flexion concavity reduces proprioception arising from the tightness and negates the challenge.

If all identified muscle weakness patterns are negated by the same lateral flexion position, this suggests that there is a need for releasing muscle tension on the side of concavity with a P-DTR correction. Said another way, shortening (by lateral flexion) the side of P-DTR problem will negate a positive challenge and stretching (by lateral flexion) the side of P-DTR problem will aggravate a positive challenge.

Correcting the P-DTR on the side of lateral flexion concavity that negates the challenge will negate any structural, chemical, and/or mental findings identified prior to the challenge and treatment procedure.

One important note must be made before going any farther with this discussion. All of the above mentioned findings will hold true as long as the patient is not “switched” or neurologically disorganized. (See possible switching phenomenon possibilities outlined below.) Failure to “unswitch” the patient will often distort the findings presented and cause less than optimal clinical outcomes. In the presence of switching, there will often be two or more weaknesses that will be negated by different (i.e., opposite) lateral flexion patterns.

These pitfalls will be avoided if the Quintessential Applications (QA) Clinical Protocol is followed. ⁵ The following factors will create a switching type of neurological disorganization. The steps in the QA Protocol where these factors are most appropriately addressed are listed after each item below.

Types of switching:

- 1) Any IRT injury must be corrected since these patterns often result in some type of switching. (QA 4a)
- 2) Small intestine involvement – both sympathetic (SYM) and parasympathetic (PS) patterns. (QA 5, 6, 22, 23a, 23b, 23d)
- 3) K-27 patterns (QA 9a, 9b, 9c)
- 4) Hyoid patterns (QA 9d)

Other than the IRT effects on switching, each of the other patterns has sub categories:

Small intestine

Roger Callahan first described psychological reversal (PR) patterns being associated with small intestine involvement. ⁷ He employed tapping SI-3 to correct these PR patterns. We have observed that there is a physiological reversal pattern (i.e., switching) in the presence of PR. It can be corrected by treating the small intestine (quadriceps and/or abdominals) Chapman's reflexes (CRs) in one of two ways:

1. IRT with an offender (QA 5 and 6 or QA 22, 23a, and 23b) or
2. Rubbing the CRs in QA 22, 23a, 23b, and 23d (23d is the open ICV with sugar challenge pattern.)

K-27 (QA 9a, 9b, 9c)

There are three separate therapy localization (TL) patterns of K-27 switching outlined in QA 9: straight TL, crossed TL, and dorsal crossed TL. Each of these has different clinical significances that will not be discussed here.

Hyoid switching patterns (QA 9d) A positive hyoid challenge, most often right to left or left to right, can represent a local hyoid muscle imbalance, but more often is associated with a switching pattern the is secondary to a TMJ problem, a need for folic acid including 5-methyltetrahydrofolate, and/or a thymus involvement.

Correction of these switching patterns, when present, allows for a clear observation of the lateral flexion pattern that will respond to the P-DTR.

Procedure

1. Identify one or more of the following clinical sources of a muscle weakness:
 - a. A positive IRT challenge
 - i. especially iliolumbar ligament (IL lig) or
 - ii. the sacrotuberous / sacrospinous ligaments (ST / SS lig)
 - b. Adrenal challenge technique (QA 16)
 - c. A weak supraspinatus following oral challenge with GLU, ASP, and/or Hcy

- d. A weak supraspinatus (or other muscle weakness) following a unilateral olfactory challenge with an odor or fragrance
 - e. A weak muscle “in the clear”
2. Place the patient in a right lateral flexion position (head and feet to the right, concave to the right) and retest the muscle weaknesses identified above (1.)
 3. Place the patient in a left lateral flexion position (head and feet to the left, concave to the left) and retest the muscle weaknesses identified above (1.)
 4. If all muscle weakness patterns identified above (1.) are negated by the same lateral flexion position, this suggests that there is a need for releasing muscle tension on the side of concavity with a P-DTR correction.
 - a. If there is not a consistent pattern of one lateral flexion position negating all challenges that are present above (1.), the patient is switched.
 - b. Switching must be corrected prior to continuing.
 5. On the side of lateral flexion concavity, identify a section of the body that results in indicator muscle weakness by doctor two-hand tapping (or two-hand patient TL, or one hand patient TL and one hand doctor tapping.) Increase the anatomical area of tapping / TL to identify the ends of the area that needs to be treated with P-DTR.
 6. Perform P-DTR technique on the area identified above (5) using any convenient DTR.
 7. Recheck 1. to ascertain correction.

Discussion

The stress response is commonly described in terms of the general adaptation syndrome (GAS) as first presented by Selye.⁸ The GAS is a biochemical, endocrine, clinical phenomenon that has for decades been the model for our understanding of man’s physiological stress response. Dr. Lombard’s presentation of the GLU / GABA patterns in stress builds on this model. However, the GAS model leaves out critical aspects that are essential to our understanding of the physiology of stress, and in particular AK MMT findings in stress-related illness patients. These are the neurological manifestations of the biochemical / endocrine GAS response.

It is the hypothalamus-pituitary-adrenal (HPA) axis that is integral to the entire stress response. In particular, the hypothalamic paraventricular nucleus (PVN) is the neuroendocrine transducer for endocrine homeostasis and adrenal function in particular. The firing rate of PVN cells dictates HPA pathway response. The firing rate of the PVN is dependent on the CIS of these neurons which is further dependent not only on hormone levels passing by in the blood, but also on all afferent neurological pathways synapsing on the PVN cells.

The PVN cells are normally inhibited by cortisol and this regulates the intensity of the stress response. However, other neurological inputs to the PVN that also impact the HPA axis activity include emotional activity and nociceptor inputs (e.g., pain increases cortisol output) via the spinothalamic tract projections to the hypothalamus. Mechanoreceptors certainly block nociceptor inputs in the spinal cord which affects nociceptor effects on the PVN. Presumably, they also impact the hypothalamus PVN directly. These peripheral receptor effects on the PVN impact the HPA axis and the stress response and serve as the basis for our understanding of how therapies that affect mechanoreceptor activity can influence endocrine function at a fundamental level.

The neurological inputs of the P-DTR technique appear to be widespread, and certainly more far-reaching than described in this paper. However, if one considers only the changes in range of motion and AK MMT responses to various challenges as described above, some of the neurological implications of P-DTR correction can be appreciated. P-DTR increases mechanoreceptor firing by improving ranges of motion and decreasing nociceptive activity as is observed in decreased pain reported by patients immediately following P-DTR treatment.

The normalizing effects of P-DTR in patients with lateral flexion patterns include normalization of AK MMT findings of adrenal stress as described above. Since adrenal related symptoms also seem to improve from this treatment, it appears that the P-DTR treatments to normalize lateral flexion patterns may affect the PVN cells directly, causing them to return to more optimal CIS (resting potential) thus restoring homeostatic HPA axis stress response patterns that were, at least in part, being perpetuated by the altered nociceptor and mechanoreceptor afferentation. This dramatically illustrates the importance of the structural side of the triad of health.

In fact, the P-DTR technique often replaces the need for rubbing CRs for the adrenals (when there is a need to increase hypoadrenal function) or IRT to the adrenal CRs with an offender (when there is a need to decrease hyperadrenal activity). Eliminating the need to treat the adrenal CRs is a time saver in practice while achieving a clinical outcome that is just as good, if not better.

In spite of the utility of P-DTR technique for changing adrenal function and other structural, chemical and mental indicators, it must be correlated with other AK treatments that address chemical and emotional stress factors if one wishes to avoid recidivism. Nutrition for adrenal function, including nutrients for the conversion of GLU to GABA must be considered. Likewise, emotional stress factors must be addressed when present for optimal patient response.

Conclusion

The triad of health is a fundamental model used in AK. It is elegantly displayed in the structural, chemical, and mental relationships described in this paper. Clinical responses from one therapeutic procedure simultaneously cause changes toward normal in MMT findings in all sides of the triad. Further, clinical outcomes reflect similar improvements. One of the great values of the ICAK has always been the sharing of ideas. The intersection of the work of Dr. Palomar Lever and Dr. Lombard presented in 2008 correlated with long standing centering the spine concepts has yielded a clinical approach that is both effective and efficient, and is supported by substantive explanation in neurological and biochemical pathways.

When we start to think about adrenal function as a neurologically mediated phenomenon implicating the PVN, our eyes are opened and we are dragged, often kicking and screaming, to the future of natural healthcare, built on past concepts, but amplified with new knowledge. AK MMT challenges and responses bring to life these interactions of the triad of health, and AK MMT challenges, responses, and treatment procedures provide the clinician with comprehensive tools to achieve predictable and remarkably favorable outcomes.

References

1. Lombard, J, “The Depression Pandemic – Functional Medicine Strategies and Protocols to Manage Depression and Anxiety” Presentation at the June, 2008 ICAK-U.S.A. Annual Meeting, Los Angeles, CA.
2. Palomar Lever, J, Proprioceptive DTR Recalibration: Proprioceptive Synchronization. In: Experimental Observations of the Members of the ICAK, Volume 1, 2008–2009, 191–196.
3. Schmitt, WH., Jr. Centering the Spine Functional Neurological and Biochemical Considerations. In: Collected Papers of ICAK – Summer 1987. Shawnee Mission, KS: International College of Applied Kinesiology, 1987.
4. Schmitt, WH., Neurotoxicity and Elevated Homocysteine: The Roles Played by Homocysteic Acid, Aspartate and Glutamate and Activated Forms of Folic Acid, Vitamin B-12, and Vitamin B-6. In: Proceedings of the ICAK-U.S.A. Volume 1, 2003–2004. p. 211–215.
5. McCord, KM, and Schmitt, WH, Quintessential Applications: A(K) Clinical Protocol 2nd Edition. St. Petersburg, Florida: Privately Published, 2009.
6. Schmitt, WH., Jr. Transneuronal Degeneration and the Links Between the Nervous System and the Body Chemistry. In: Proceedings of the ICAK-U.S.A. Volume 1, 1999–2000. p. 149–156.
7. Callahan, R.J. How Executives Overcome Their Fear of Public Speaking and Other Phobias. Wilmington, De: Enterprise pub., inc., 1987.
8. Selye, H, The General Adaptation Syndrome and the Diseases of Adaptation. Journal of Clinical Endocrinology 1946;6:117-230.

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Papers from Members of the ICAK



Directions of Absorption Spectra Differences Between Homeopathic Nosodes and Placebo

Tatiana N. Chernysheva, M.D. and Vladimir I. Korenbaum

Abstract

Homeopathic nosodes received a certain acceptance in Applied Kinesiology. The objective is to determine differences in homeopathic nosodes and placebo by means of absorption spectroscopy. During double blind randomized procedure 7 names of homeopathic nosodes and blank placebo were copied on ampoules with saline solution by means of «Simulator» (Metabolics Ltd, GB). There were 63 ampoules of nosodes (9 of each name) and 27 ampoules of the placebo. The absorption spectra were determined by UV – 2101 PC (Shimadzu, Japan) double-beam spectrometer in the band of 800 – 600 nm (increment of 0.5 nm). Absorption spectra of five nosodes names had the regions marked by statistically-efficient ($p < 0.05$ for two adjacent wavelengths) differences from placebo, in the band of 800 – 700 nm. Spectral differences of all nosodes were represented by increase of absorption in the band of 702 – 743 nm, and decrease of absorption in the band of 779.5 – 790 nm re placebo.

Key Indexing Terms

Homeopathic Nosodes, Absorption Spectra, Double Blind Trial, Statistics, Significant Differences

Introduction

Apart from traditional homeopathic copies prepared by the dilution/potentiation of parent substances, the nosodes – preparations made by “imprinting” the parent substance onto water (or other carriers) with the help of M. Rae’s devices (M. Rae’s ‘magneto-geometric preparation’)¹ – have received a certain acceptance in some fields of alternative medicine such as Electropunctural diagnostics (e.g. see²), Applied Kinesiology (e.g., see³). Authors⁴ have revealed in the band of 700 – 800 nm essential spectral differences in 3 names of saline nosodes of 7 studied re placebo by means of absorption spectroscopy. The objective of this study is to estimate directions (signs) of these differences re placebo on the basis of experimental data.⁴

Materials And Methods

For experimental purposes seven names of nosodes were used:

1. DNA-tox (DNA) – indicator of DNA affection caused by exposure of organism to toxic agents (Manus, RF);
2. Bacteria (B) – superposition of 27 pathogenic bacteria (Metabolics Ltd, GB);
3. Manus (MAN) – harmonizing nosodes (Manus, RF);
4. Fungus (FUN) – superposition of 17 pathogenic fungus (Metabolics Ltd, GB);
5. Toxic metal (TM) – superposition of 27 salts of heavy metals and toxic metals (Metabolics Ltd, GB);

6. Virus (VIR) – superposition of 25 pathogenic viruses (Metabolics Ltd, GB);
7. Vanilmandelic acid (VMA) – product of noradrenaline and epinephrine metabolism (Metabolics Ltd, GB).

It was prepared 9 nosodes each denomination (a total of 63 ampoules), 27 placebo ampoules and 5 control ampoules. The carrier is a sterile saline solution (NaCl 9%) in 5-mm hermetic ampoules. All 95 ampoules (10 packages) were taken from one factory-made lot and mixed thoroughly. 90 arbitrarily chosen ampoules were numbered from 1 to 90. While preparing each EHC, 9 ampoules were selected by chance to be copied. Thereafter they were put away 3 pieces in each of three separate packed series. Analogously, 27 ampoules of placebo arbitrarily selected) were divided into three series 9 ampoules in each. Every nosodes series was packed up together with one of the placebo series. So then, three series of preparations to be investigated (21 ampoules of nosodes and 9 ampoules of the placebo in each series) were in hand. As soon as copying was performed the correspondence of the ampoule numbers with the homoeopathic remedies or the placebo was recorded in the protocol that had not been given away until the completion of spectral analysis and the record of spectral files. Five ampoules remained unnumbered were used for preparing the control, being labeled with “C.”

«Simulator» apparatus (Metabolics Ltd, GB), referring to a variant of M. Rae’s device,¹ accomplished electronic-homoeopathic copying. The apparatus contains two copper tubular containers in the right of which the ampoule to be prepared was placed, whereas in the left one was the parent substance. At first, the operation of “deleting” electronic homoeopathic information was carried out (also in the right container) over all the ampoules by pressing “AC” button. No other manipulations were performed with the placebo and the control ampoules for a “blank” carrier to be obtained. To prepare the nosodes samples, buttons “7” and “=” were pressed. Since for M. Rae’s devices the copying process quality depends on operator’s personality and his ability,¹ all the investigated remedies were prepared by one and the same person not participating in subsequent runs.

The absorption spectra of the preparations under study were determined during two days by UV – 2101 PC (Shimadzu, Japan) double-beam spectrometer in the wave band 800 – 600 nm at an interval of 0.5 nm. The values of optical density – $\log(1/\text{transmission coefficient})$ – were written to the hard disk as a file of spectral readings, the number of which was appropriate to that of an ampoule. Every ampoule of sample was opened just before measurement, and the specimen were poured with expendable syringe in metering cuvettes made of quartz glass. The last is a rectangular parallelepiped 4.5 cm in height, 1 mm wall thickness and working volume of 3 ml. The control cuvette was filled once for every series with a species from one arbitrarily taken ampoule marked “C” and allowed to be constantly in the spectrometer’s luminous flux throughout the whole measurement of the series. The samples of the investigated species were poured in turn in the cuvette that was placed into the apparatus alongside the control one. Each species, upon recording the next difference absorption spectrum, was poured out; the cuvette was flushed out with distilled water, dried a little, and wiped with an optical blanket.

When viewing the written spectral files, the data obtained for five samples were rejected due to abrupt outliers in the short-wave spectral region and eliminated from further analysis. Once the envelope had been broken, the files were sorting for the samples left (85 ampoules) on belonging to associated preparations. The nosodes files of each name from all series were integrated into one group. The placebo files were arbitrarily sorted into three stand-alone groups (with, say, an equal representation from each series of measurements): Placebo 1, Placebo 2, and Placebo 3.

All the spectra were centered by subtraction the mean optical density in the band of 800 – 600 nm from every spectral reading to remove possible bias. During statistical processing, the spectrum determined for all

noted wavelengths in the band of 800 – 700 nm for nine samples (8 samples in 3 cases) of each nosode were compared with spectrum of every group of the placebo (8 or 9 samples) using Mann-Whitney non-parametric U-test (Statistica, StatSoft Inc.). The wavelengths with the differences being significant ($p < 0.05$) were registered. Thereupon we selected those spectral regions in which the significant differences were observed at least on two adjoining wavelengths. Directions (signs) of differences were determined by Rank Sums of Mann-Whitney non-parametric U-test.

Results

Data obtained for selected spectral regions, where the differences re placebo being significant on at least 2 adjacent wavelengths, are represented in Table 1.

Table 1: The number of spectral regions with significant differences re placebo / wavelengths (nm), and direction of differences (1/2)

	Placebo 1	Placebo 2	Placebo 3
Placebo 1 (n=8)		0	0
Placebo 2 (n=8)	0		0
Placebo 3 (n=9)	0	0	
DNA (n=9)	3 783, 727, 702	2 790, 707.5	0
B (n=9)	0	1 724.5	0
MAN (n=8)	2 780, 740	1 740.5	1 779.5
FUN (n=8)	0	0	0
TM (n=9)	1 726.5	2 734.5, 732	0
VIR (n=9)	0	0	0
VMA (n=9)	1 742.5	0	0

The spectra of each placebo group have no essential distinctions from those of two other groups of the placebo. While the spectrum of MAN differs significantly from all three placebo groups. The spectra of DNA and TM

differ significantly from Placebo 1 and Placebo 2. The spectra of B and VMA differ significantly from only one of the placebo groups. The spectra of FUN and VIR have no essential distinctions from any groups of the placebo.

The wavelengths where nosodes spectra have essential distinctions from spectra of various placebo groups are quite close. They are in the range from 5.5 to 7.5 nm for TM and DNA. For MAN they are in the range within 0.5 nm.

Directions (signs) of differences of spectral amplitudes have very steady behavior too. Spectral amplitudes of nosodes are higher than spectral amplitudes of all Placebo groups in the range from 702 to 742.5 nm. While spectral amplitudes of nosodes are less than spectral amplitudes of all Placebo groups in the range from 779.5 to 790 nm.

Discussion

Every preparation under study is defined as 0.9% solution of NaCl in chemical structure. Then the significant distinctions of the individual regions of the nosodes and placebo spectra, revealed by application of Mann-Whitney U-test, become more curious (Table 1).

The areas of essential difference in spectra are discrete in their effect. Note that there are both increments being different for all preparations and those being close for a few nosodes (779.5–783 nm – DNA, MAN; 740–742.5 nm – MAN, VMA; 724.5–727 nm – B, TM, and DNA). Furthermore directions of differences are identical in these areas.

In the area of 702 – 742.5 nm increase of absorption is observed in spectra of nosodes re placebo, while in the area of 779.5 – 790 nm decrease of absorption re placebo. It seems that this observation may be interpreted as a bias of spectral analyzer readouts. However differences observed must be applied not to a control preparations (C), placed into separate location of spectral analyzer, but to tested preparations placed in random sequence into the same spectral analyzer location. A part of these tested preparations were nosodes, others were placebo. Thus differences found in short wave and long wave part of spectrum must be applied not to measuring instrumentation but to common properties of preparations tested.

This steady interrelation enlarges significance of obtained results in essentiality of differences between spectra of nosodes and placebo.⁴ Interestingly enough the first area of the wavelengths characterized by statistically efficient increase of absorption (702–742.5 nm) lies closely to the domain of overtones and 4-order combination frequencies of the water absorption band (740 – 750 $1/2$ ⁵). Demonstrated for this band, among other domains of overtones and combination frequencies, is the effect of fast absorption response due to temperature, associated supposedly⁶ with a change of the number of hydrogen (intermolecular) bridges.

Conclusion

Thus, there are statistically essential (steady in significances and direction on two adjacent wavelengths) spectral distinctions between five of seven nosodes names and at least one placebo group in the field of 800 – 700 nm, while each placebo group has not such distinctions re other 2 placebo groups. Spectral distinctions

are commonly related to increase of absorption in nosodes re placebo for short wave area of the 800 – 700 nm band, and decrease of absorption in nosodes re placebo for long wave area of the band. This result obtained in the double blind randomized experiment provides in our view is a serious argument in support of the usage of homeopathic nosodes in practical medicine.

Acknowledgements

Dr. Ursula Wolf (Institute of Complementary Medicine KIKOM, University of Bern, Switzerland) is acknowledged for her request on spectral differences directions obtained in work,⁴ which stimulated authors to make this study.

References

1. Towsey MW, Hasan MY. Homoeopathy – A Biophysical Point of View. *Br Hom J* 1995;84: 218-28.
2. Vasilenko A.M., Gotovskii Yu.V., Meizerov E.E., et al. Electropunctur Vegetative Resonant Test: Methodical Instructions 99/96. Scientific and Practical Center of Traditional Medicine and Homeopathy of Russian Ministry of Health. 2000. p. 2–28.
3. Pothmann R, von Frankenberg S, Hoicke C, Weingarten H, Ludtke R. Evaluation of Applied Kinesiology in Nutritional Intolerance of Childhood. *Forsch Komplementarmed* 2001;8:336-44.
4. Korenbaum VI, Chernysheva TN, Apukhtina TP, Sovetnikova LN. Absorption Spectra of Electronic-Homoeopathic Copies of Homeopathic Nosodes and Placebo Have Essential Differences. *Forsch Komplementarmed* 2006;13:294-7.
5. Martin Chaplin's website: <http://www.sbu.ac.uk/water/>.
6. Yakovenko AA, Yashin VA, Kovalev AE, Fesenko EE. Structure of the Vibrational Absorption Spectra of Water in the Visible Region. *Biophysics* 2002;47:891-5.

Standard Process for the Application of Dental Appliances

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The Education Committees and the Boards of both DÄGAK and IMAK have compiled the following protocol for indication and handling of therapies with dental appliances (splints). This will be considered the standard for application and will be the basis for statements towards the medical public and in case of legal disputes in Germany and Austria. This guideline is based on the current state of knowledge and will be updated on a regular basis.

Indication for Dental Appliances (COPA)

A patient showing any of the following four main criteria is due to receive treatment with Craniomandibular Orthopedic Positioning Appliance (COPA). A combination of several minor criteria out of the main criteria may also lead to the indication of such a treatment.

1. Criteria Based on Anamnesis

The following symptoms may be indicative for an existing craniomandibular dysfunction as long as they cannot be cured by manual therapy or any other non-dental (NDT) procedure:

- a. Pain located in the area of the temporomandibular joint in the morning, painful tensions mostly in the cervical area but also along the rest of the spine and the entire cranosacral system.
- b. Tension in the masticatory muscles (directly after waking up, through centric bruxism during stressful situations like computer work, driving long distances, etc.) also with restriction of jaw opening.
- c. Functional problems of the ear (tinnitus, non-inflammatory otitis, dizziness, etc.)
- d. Headaches, tension of the eye muscles

2. Criteria Based on the Functional Status

Provided that a sufficient NDT has taken place:

- a. Painful palpation of the masticatory muscles
- b. Deviation during jaw opening with or without significant restriction
- c. Initial or intermediate temporomandibular joint click with dysfunction, confirmed by manual functional diagnosis^{1,2}
- d. Prostheses in a patient with decompensated maladjusted bite

3. Criteria Based on Manual and Orthopedic Examination and Treatment

Provided that a sufficient NDT has taken place:

- a. Alteration of SIJ-mobility tests (Spine-Test, Derbolowsky-Test, Leg-turn-in, Patrick-Kubis Test/Prien-Abduction Test) and Thorax-Rotation-Test on firm bite.
- b. Negative influence of firm bite on posture (head, shoulders, arms, leg and gait)
- c. Considerable posturographic changes on firm bite.

4. Criteria Based on Applied Kinesiology Test

Dysfunctions which, despite of previous sufficient therapy (NDT) of the spine and the skull, have been recidivating by firm bite or other challenges of the masticatory system, if they can be eliminated or considerably improved by adaptation of the position of the mandible.

Diagnostic and Therapeutic Concept in Suspected Craniomandibular Dysfunctions (CMD)

1. Anamnesis

Consider a questionnaire with general medical, dental, and holistic bias.

2. Postural and Orthopedic Examination

- a. Examination of the body planes (patient standing upright with anterior, lateral and posterior view, sacroiliac joint, spine, abdominal profile, plumb-line)
- b. Sitting position: cervical spine, masticatory system, and functional diagnosis of the TMJ, including tests with Applied Kinesiology.
- c. Supine position (leg length, pelvis, abdomen, cervical spine, masticatory system)
- d. Functional tests (Derbolowsky-Test, Leg-turn-in, Patrick-Kubis Test, Abduction-Abduction Test and Thorax-Rotation Test)

4. Dental Examination

This consists of inspection and palpation of the TMJ and the associated muscles, examination of the palate and the maxilla, radio diagnostics, vitality tests etc.

4. Exclusion of Foci and Areas of Disturbance

(See Standard on Foci and Areas of Disturbance)

5. Screening of the Primary Dysfunction

- a. With the patient standing in an upright position the latissimus dorsi or any other appropriate muscles, which are normoreactive (normally facilitated) in physiological mandibular rest position are used. When these muscles become dysreactive on firm bite, primarily temporomandibular dysfunction is suspected.
- b. With the patient standing in an upright position the latissimus dorsi or any other appropriate muscles uni- or bilaterally may test dysreactive (hyperreactive or hyporeactive/weak). If these muscles in supine position become normoreactive, primarily extratemporomandibular dysfunction is suspected.

6. Manual and Reflex Therapy Treatment

The following structures may be corrected with non-dental therapy (NDT) including chiropractic, osteopathic, physical therapy, acupuncture, and neural therapy:

- a. Cranium including maxilla and palate, craniomandibular area, spine, pelvis, lower extremities (for screening: Shock Absorber Test³)
- b. Relevant visceral structures, e.g. cecum or sigmoid colon, with effect on the spine (appropriate training of the therapist provided)

7. Differential Diagnosis “Temporomandibular Cause” vs. “Extratemporomandibular Cause” of a Locomotor System Dysfunction

- a. Challenge of the ascending cause of the lesion: the patient walks while in non-occlusion:
When diagnostic findings reoccur after walking: improve these structures, possibly proprioceptive correction of the foot, (proprioceptive insoles, orthotics), physical therapy (posturing methods, like Spiraldynamik,⁴ Alexander Technique,⁵ exercise)
- b. If there is no recidivism on walking: challenge of the masticatory system by chewing in a sitting position:
also no relapse: structures are to be treated manually again or there is an indication for splint therapy.

8. Nutritional Support

The biochemical situation of the locomotor system should be tested and supported as needed.

9. Construction Bite

Alternatively:

- a. Analysis of the models in an arbitrary position. Construction bite in the mouth in one stage or two stages taking into consideration the occlusion in both front and molar teeth according to orthodontic criteria such as osseous midline, mandibular plane, Angle Class I jaw position, sublabial crease, division of the face into thirds etc. Verification of the bite after swallowing, walking, cross crawl exercises by means of Applied Kinesiology testing. Check whether this therapeutic position of the mandible improves muscular dysfunctions and/or orthopedic parameters.
- b. Analysis of the models according to Lieb und Gelb^{6,7} and construction bite in the Galetti-Articulator. Verification of the bite intraorally by AK-Test (check whether this therapeutic position of the mandible improves muscular dysfunctions and/or orthopedic parameters). As indicated above, the new position of the mandible should be integrated by movement in a cross crawl pattern (walking). All previous dysfunctions related to the bite (AK-Test, orthopedic diagnostic findings, pain during palpation, trigger points, etc.) should be eliminated by the optimal temporary therapeutic position of the mandible.
- c. After relaxation of the muscles (myocentric method^{8,9} etc.) centric bite registration without manipulation of the mandible by the therapist. Verify manually and with AK.

Challenge forms in the TMJ

Positive Challenge	Significance
Firm bite	Dysfunctional occlusion, also caused by muscular imbalance; compression of the TMJ Note: foci, neurological teeth may cause dysreaction of indicator muscle
Wide opening of jaws	Myogenic by stretching of the hypertonic elevator muscles, possibly orbicularis oris; stretching of the TMJ capsule; Possibly lymphatic (any allergic/toxic exposure will lead to lymphatic problems)
Protrusion	Activation of the protractors: lat. and med. pterygoid, masseter, ventral fibers of the temporalis; Minor stretching of the retractors, the bilaminar band, and the capsule
Retrusion	Activation of the retractors, posterior fibers of the temporalis, digastric; Minor stretching of the protractors and the TMJ capsule as well as compression of the bilaminar area
Laterotrusion (to left and right)	Contralateral activation of the lateral pterygoid; to a minor degree contralateral activation of both masseter and med. pterygoid, minor ipsilateral stretching of the med. and lat. pterygoid and the TMJ capsule

Further Types of Challenge of the TMJ

[10] and additions

Challenge	Significance
Quick opening and closing of the jaw at least 30 times or 10 sec. (without preceding positive challenge)	Anaerobic function
Slow opening and closing of the jaw at least 30 times or 60 sec. (without preceding positive challenge)	Aerobic function
Opening and closing of the jaw with extension/flexion of the cervical spine (provided that extension/flexion of the cervical spine is not a positive challenge by themselves)	Trigeminal/upper cervical interconnection
Swallowing and speaking	Orofacial and pharyngeal muscles
Hyoid challenge	Hyoid muscles
Phonation w/o articulation of words	Vocal chords, larynx

All types of challenges of the TMJ affect the craniosacral system via muscle activity!

Literature

1. Bumann, A. and Lotzmann, U. (2000) Farbatlant der Zahnmedizin, Bd. 12, Funktionsdiagnostik und Therapieprinzipien. Thieme, Stuttgart.
2. Bumann, A. and Lotzmann, U. (2002) TMJ Disorders and Orofacial Pain: The Role of Dentistry in a Multidisciplinary Diagnostic Approach (Color Atlas of Dental Medicine). Thieme, Stuttgart, New York.
3. Walther, D. S. (2000) Applied Kinesiology, Synopsis. ICAK-U.S.A., 6405 Metcalf Ave., Suite 503, Shawnee Mission, KS 66202.
4. Larsen, C. (2001) Dei Zwölf Grade der Freiheit: Spiraldynamik, Kunst und Wissenschaft Menschlicher Bewegungskoordination. Via Nova, Petersberg.
5. Knebelman, S. (1982) The Alexander Technique in Diagnosis & Treatment of Craniomandibular Disorders. Basal Facts 5, 19-22.
6. Gelb, H. (1991) Head, Neck and TMJ Pain and Dysfunction. Ishiyaku EuroAmerican, St. Louis.
7. Zwecker, M., Zeilig, G. and Ohry, A. (2004) Professor Heinrich Sebastian Frenkel: a Forgotten Founder of Rehabilitation Medicine. Spinal Cord 42, 55-56.
8. Monaco, A., Cattaneo, R., Spadaro, A. and Marzo, G. (2008) Neuromuscular Diagnosis in Orthodontics: Effects of TENS on the Sagittal Maxillo-Mandibular Relationship. Eur J Paediatr Dent 9, 163-169.
9. Jankelson, B. (1974) Letter: A Comparison of Articulator Mountings Made With Centric Relation and Myocentric Position Records. J Prosthet Dent 31, 104-105.
10. Walther, D. S. (1983) Applied Kinesiology, Vol II. ICAK-U.S.A., 6405 Metcalf Ave., Suite 503, Shawnee Mission, KS 66202.

Standard Process for Diagnostic Investigation of Intraoral Foci with Applied Kinesiology

H. Garten, MED; U. Angermaier, DDS; R. Meierhöfer, DDS; M. Riedl-Hohenberger, DDS

The Education Committees and the Boards of both DÄGAK and IMAK have compiled the following protocol for the diagnostics of intraoral foci. This will be considered the standard for application and will be the basis for statements towards the medical public and in case of legal disputes in Germany and Austria. This guideline is based on the current state of knowledge and will be updated on a regular basis.

Introduction

With standard clinical investigation methods (testing of dental vitality, X-ray, CT, MRI) it is not possible in all cases to detect all dental foci and areas of disturbance.

In cases of clinical suspicion the use of Applied Kinesiology techniques is necessary and Dekoder Dermography or imaging techniques to confirm the results^{1,2} if available.

Clinical investigation

This comprises the following:

- Detailed anamnesis (lymphatic swelling in the head and neck region, shoulder-arm-syndrome, back pain, pain in other areas etc.). Any ailment may be caused by foci and areas of disturbance.³
- Dental inspection
- Testing of dental vitality
- Dental percussion as well as oral palpation of the vestibular space and edentulous areas
- Palpation of the submandibular lymph nodes and the Adler-Langer points^{4,5}
- Radiodiagnostics

If it is not possible to get clear evidence of a dental focus or area of disturbance by the above mentioned methods, but according to the anamnesis there is a suspected focal process, it is necessary to use Applied Kinesiology (AK) techniques as a complementary medical diagnostic method.

AK additionally offers:

- Differential diagnostic investigation of a suspected focal process (e.g. by nosodes)
- Evaluation of correlation of a focal process and symptoms distant from the focal area before and after therapeutic trial (neural therapy⁶)
- Finding of the most efficient substance for neural therapy
- Finding of the most efficient homeopathic remedies for treatment.
- Finding of efficient additional medication (i.e. nutritional substances etc.)

Testing with Applied Kinesiology

Before starting the test functional neurological dysorganization has to be detected and treated if present. Unspecific magnetic effects on the patient, which could make the further AK-testing impossible have to be excluded. This can be done by placing the magnet, which is used in the process (see below) on other areas of the head and the body .

Step 1

For screening the magnet is placed on the areas over the front teeth, premolars and molars one after the other. The magnet is of doughnut shape, axial magnetization and has the strength of 3000 Gauss. The side, which does not inhibit a normoreactive muscle, is used for therapy localization. Positive therapy localization (TL) in this fashion indicates, that there may be a focal process in that area.

Alternatively TL to lymphatic points associated to the maxillary area can be used (Ly 2 as by EAV⁷), Adler-Langer points, submandibular lymph nodes). If these TLs cause a dysreaction of the indicator muscle, most likely there is a focal process or an area of disturbance in the associated lymphatic region. Then proceed to step 3.

If this screening is negative, the magnet is placed on the jaw as above and at the same time the patient holds a TL on Ly2 (EAV) ipsilaterally. The magnet is potentially able to intensify the TL on Ly2, which in case of important distant effects of the focus is positive without this enhancement by the magnet. On the other hand it is not legitimate to conclude, that the focal process is less relevant if the use of the magnet is necessary to find it.

This unspecific screening has to be further specified by specific therapy localization and challenges (CH). If this screening is negative, but there still exists a clinical suspicion of a focal process (radiograph, symptoms), step 2a (below) should be performed as a matter of safety.

In case of positive screening as above: proceed to step 2a or 2b.

Step 2a

Place the magnet over the patient's thumb (i.e. over the lymph vessel according to EAV) on the side of the suspected focal process. If this causes dysreaction, the magnet cannot be used for further testing.

Step 2b

An osteopathic lesion of the facial bones may also cause a positive screening result. These have to be diagnosed by challenge and corrected before any further investigation.

Step 3

If the magnet on the thumb does not cause any dysreaction it should stay there because it intensifies the specific TL's of the jaw region ipsilaterally.

Using a normoreactive indicator muscle the patient therapy localizes the suspected dental area on the side of the magnet, touching both tooth and adjacent periodontal tissue with index finger and thumb in order to TL the oral and the vestibular side at the same time. Additionally the patient puts pressure on the tooth along its vertical axis while the indicator muscle is tested. Another way is to TL the area point by point with a blunt dental instrument. The material of the dental instrument has to be tested for tolerance beforehand.

Step 4a

While holding the positive TL/CH a nosode challenge is performed. A nosode is a dilution of the original diseased tissue potentized according to the rules of the homeopathic remedy book [Homöopathisches Arzneibuch, HAB]) The patient holds an ampoule of a nosode of the suspected focal process in low potency (D4-D6) in the hand, which performs the TL/CH (not the magnet holding hand). The nosode (most often D6) or the potentized (toxic) substance (like metals, acrylics etc., most often D6-D30), when dental material is not tolerated, negates the positive TL/CH.

Step 4b

If there is no radiographic evidence of a dental focus (granuloma, otitis etc.), which would make this diagnostic process dispensable anyway, a “neurological tooth” is to be excluded by challenge. A neurological tooth is often found in cases of malocclusion and prematurities.

Step 5

If a nosode, which was chosen, based on anamnesis and radiograph (root canals, edentulous areas etc.) does not negate the TL/CH, another possible one is chosen (i.e. otitis D6- granuloma D6, gangrenous pulpa D6, root canal D6 etc.) until the one is found that negates the positive TL.

Step 6

If a specific nosode negates the positive TL/CH, temporal tap is used. If this causes the positive TL/CH to return, have the patient hold one more ampoule of the nosode and check, if the indicator muscle stays normoreactive after temporal tap. If not, continue adding ampoules of the same nosode until temporal tap no longer weakens the indicator muscle.

The number of ampoules is slightly indicative for the kind of treatment required: with up to 2 ampoules negating the focal TL consistently, an injection therapy with nosodes (neural therapy) may be attempted. With more than 4 ampoules a surgical treatment (endodontics, extraction, bone revision surgery) is necessary in most cases (provided that Dekoder dermatography or imaging confirms the AK test).

Alternative Step 6

The indication of surgical treatment can also be estimated by using the graduated sedation system of the antiques points⁸

This should be used if there is no radiographic evidence of the focal process: hypo-/hyperreaction grade 1 and 2⁸ may more likely be treated by neural therapy, higher grades are suggestive for surgical treatments (endodontics, extraction, surgery).

Step 7

Now all the dysreactive muscles and positive TL/CH's associated to the symptoms of the patient should be double checked against the positive TL/CH of the focal process. If TL of the detected focus negates the dysreactions associated to the symptoms, this is indicative that these symptoms are associated to the focal process.

Supportive Techniques to confirm the Diagnosis

Before indication of surgical measures, AK-diagnosis must be confirmed by at least one of the methods mentioned below. This is advisable especially in cases of planned

- Revision of edentulous jaw areas
- Extractions, when there is no radiographic confirmation of the indication
- Planned root canal treatments in cases of dubious vitality tests, especially in multiple root teeth.

Imaging Techniques

As far as available surface coil MRI with contrast should be used. Thereby many foci, yet no areas of disturbance can be detected.

3D-volume tomography and dental CT are additional techniques with lower resolution.

Decoder Dermography

After localization of the focus/area of disturbance a confirmation of the focal activity can be achieved by means of this technology. It consists essentially in registration of the skin resistance/conductivity between 6 electrodes on the head, wrists, and legs bilaterally applying 10-Hertz currents of very low intensity. A basic registration is done consisting of a basal measurement and a second consecutive one. The difference between the two indicates basic regulation characteristics of the autonomous nervous system. Procain 0,5% is injected at the suspected focal site and a third registration is done subsequently. If the regulation characteristics improve as a consequence of this temporary elimination of the focal area out of the autonomous regulation, the distant, systemic effect of the focus is confirmed.^{1,2}

Literature

1. Garten, H., Girthofer, S. and Klein, B. (2007) Herde und Störfelder im Trigemusbereich. *Man M* 45, 320-329
2. Garten, H. and Weiss, G. (2007) Systemische Störungen - Problemfälle lösen mit Applied Kinesiology. Urban und Fischer, München
3. Dosch, P. (1980) Neuraltherapie nach Huneke. Haug, Heidelberg
4. Adler, E. (2005) Störfeld und Herd im Trigemusbereich. GGM, Heidelberg
5. Meierhöfer, R. (2009) Die Adler-Langer Druckpunkte, Hinweise auf versteckte Störfelder
6. Badtke, G. and Mudra, I. (1994) Neuraltherapie, Lehrbuch und Atlas. Ullstein Mosby, Berlin
7. Leonhardt, H. (1972) [The Voll Electro-Acupuncture in Dentistry]. *Zahnarztl Prax* 23, 10-11
8. Burtscher, E., Eppler-Tschiedel, M., Gerz, W. and Suntiger, A. (2001) AK-Meridiantherapie (AKMT). AKSE, Wörthsee

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Standard Process for PAK-Testing of Intolerance of Dental Materials

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Intolerance of dental materials is caused by immunologic type I and type IV reactions defined by Coombs and Gell as well as pseudoallergic activation of inflammation and pain mediators.

Additionally, toxicological stress can also develop depending on the amount of used material. Allergies can be diagnosed by skin testing (patch-test, intracutaneous testing²) and blood testing (lymphocyte transformation test (LTT), if necessary effector cell typification (EFTYP) and basophil degranulation test (BDT especially for dental acrylics and materials for root-canal fillings).^{1,6,8} Toxicological stress can be tested through DMPS-testing¹). Skin tests are not recommended because of their danger of sensitization.^{6,8} Pseudoallergic stress is not measurable by laboratory techniques.

PAK - Testing of Intolerance of Dental Materials residing in the mouth:

The test muscle should be hyperreactive or hyporeactive (dysreactive, dysfunctional). It should be functionally associated to the symptomatic region or be dysreactive due to positive therapy localization (TL) at point lymph 2 according to Voll, at point lymph 1 (Waldeyer's lymphatic belt), the area of lymph drainage of the head, TL at thymus (among others mercury, tin, lead, aluminum), TL at the projection area of the pituitary (mainly mercury, tin, lead, aluminium), TL at the thyroid gland (among other things mercury, tin, gold and other metals) or TL at alarm point lung (Lu1).

The suspected pollutant, in D6 up to D30 (potentized form) has to be brought into contact with the skin of the patient. The suspicion is confirmed, when the a NC (normoreactive Challenge or normoreaction) of as many dysreactive muscles as possible occurs, or the positive therapy localizations are negated. Temporal Tap or Double-TL to the switching points should not change the normoreactive Challenge (NC).^{2,7}

Before removal of dental materials from the mouth is indicated, a LTT, effector cell typification (EFTYP) or basophil degranulation test (BDT see above) with native material should be carried out. This is done to confirm the allergy and the actual activity of the allergic or inflammatory or toxicological processes with standard methods of conventional medicine. If an intolerance of titanium is diagnosed a LTT for titanium (proof of sensitization to metal implants), as well as a titanium stimulation test (proof of hyperinflammatory cytokine response to titanium dioxide)¹⁰ should always be carried out.

If an intracutaneous test is carried out alternatively, the reaction has to be read after 48 hours and after 10 days.³

Skin tests are not recommended because of the danger of sensitization.^{6,8}

Should the testing for allergies and other lab tests be negative and other causes are excluded, the suspicion of an intolerance reaction based on pseudoallergic mechanism (see above) arises. The following list of symptoms² may support this suspicion after exclusion of other causes:

Major Symptoms (in the oral cavity)

- Edematous changes of the gums or recurrent inflammation of the gums, respectively
- Bleeding of the gums
- Burning sensation of the mucous membrane of the mouth or of the tongue
- Fissures in the corners of the mouth
- Metallic taste
- Aphthae in the the mouth
- Chronic dryness of the mouth (Sicca Syndrome)
- Lichen ruber planus
- Eczematous changes in the facial area
- Formation of edema in the facial area
- Bone loss in the jaws
- Urticaria
- Argyria (Discoloration of the gingiva)

Minor Symptoms (remote effect)

- Recurrent maxillary sinusitis
- Irritation of the respiratory tract
- Chronic rhinitis
- Headache
- Intensification of chronic illnesses, specially neurodermatitis, psoriasis, colitis
- Chronic conjunctivitis/edema of the eyelid, sight defects
- Facial pain
- Changes of the physical and/or mental capacity
- Stomach and bowel complaints
- Joint pains
- Feelings of fear, depression, sleep disturbances
- Problems with hair, skin, nails etc.

Before any possible necessary removal of a suspicious material is done, the following immunological and systemic stress factors must be clarified and removed:

- **Foci and areas of disturbance**
 - Dysbiosis
 - Chemical and toxicological stress (above all heavy metals and organic pollutants)
 - Marked structural stressors (atlanto-occipital joints, temporomandibular joints, renal ptosis among others)
- Subsequently, the PAK-test has to be repeated.

Before and after each testing of dental replacement materials functional neurological dysorganisation must be excluded.

Testing of removable dental prosthesis

The body adapts to incompatible materials and substances. Therefore there is not always a positive **TL** or a Challenge (dysreaction) without additional provocation. The dental prosthesis or denture will be taken out of the mouth for at least three hours, better for 24 hours. Re-exposure in the mouth causes a dysreaction of a normoreactive indicator muscle in case of intolerance to the material of the denture.

Through contact to different parts of the dental prosthesis like solder joints, dental acrylic or metal parts one can differentiate which components are not tolerated. This is best done with the tip of the tongue.

Method for testing of new materials which are to be brought into the mouth

The materials to be tested are manufactured in the shape in which they are brought into the mouth according to the product regulations [9] and tested. The test bodies should be manufactured according to DIN-Norm V 13930/test bodies for biological testing in cell cultures, with a diameter of 13mm and a thickness of 0,5 mm. Dental acrylics must be polymerized with all adhesive mediators and bonding systems appropriate and necessary. Metal alloys must be cast, highly polished and blinded with dental acrylic or ceramic if required.

Method for testing

Several normoreactive muscles, which are associated to several relevant organ systems have to be used.

The following muscles are suitable:

Infraspinatus (immune system), pectoralis major sternalis (liver), rectus femoris (small intestine), sartorius (adrenal gland), piriformis (hormone system) among others, (at least 2, preferably 3 muscles should be tested).

Exclusion of foci and areas of disturbance in the mouth and jaw area

The placement of a magnet of 3000 Gauss strength on the mouth of the patient, must not cause a change in the test reaction of the muscle. The patient has to simultaneously touch the EAV measure point Ly2, on the ipsilateral hand regarding the jaw tested. If there is a change in the muscle test reaction, the cause (foci, areas of disturbance including intolerances to materials⁴) has to be found.

Exclusion of other disturbing factors

- Dysbiosis
- Systemic chemical and toxic stress (especially heavy metals and organic pollutants), as well as marked structural stressors (atlanto-occipital joints, temporomandibular joints, renal ptosis among others) must be excluded before the testing of material.

Step 1

Preliminary testing in practitioner's office: individual tolerance of materials to be used

Using normoreactive muscles, the material to be tested has to be kept in the mouth for 60 seconds and the saliva has to be swallowed. There should not occur any dysreaction of the indicator muscles. Neurologic dysorganization has to be examined with each testing.

Step 2

The patient is supplied with the individually tolerated materials to take them home.

Patients who do not suffer from an allergy take the sample daily in their mouth during at least 14 days for 5–10 minutes and patients who do suffer from an allergy daily 2x 15 minutes and swallow the saliva. If the intake of the material leads to tongue burning, feeling of numbness or other symptoms, the patient must be informed to not take the material in the mouth anymore because of increased danger of sensitization

Step 3

Testing of material in practitioner's office

The material to be tested is put on the tongue of the patient for 60 seconds.

If the indicator muscle is still normoreactive after exposure time of 1 minute, Temporal Tap and Switching Control have to be performed.^{2,5,7}

Additionally, the magnet (3000 Gauss) has to be brought onto the mouth of the patient to more precisely register interaction with existing material. This too must not change the reaction of the indicator muscle. This result means that the material to be tested at the very time of the PAK-testing is individually tolerated by the patient.

Nevertheless, in cases of chemical sensitivity and/or hyperreactive immune system a special laboratory diagnosis (LTT, EFTYP or BDT) of native material to be potentially used is recommended.

Literature

1. Bieger, W. (1999) LTT-CITA. Laborinformation, Medizinisch -Immunologische-Laboratorien, Bayerstraße 53, 80335 München.
2. Garten, H. und Weiss, G. (2007) Systemische Störungen - Problemfälle lösen mit Applied Kinesiology. Urban und Fischer, München.
3. Molitor, S. J. und Leonhardt, L. (1993) Zahnärztliche Werkstoffe: Klinische Einordnung und Diagnostik aus Allergologischer Sicht. Nieders.Zahnärztl.Bl. 7.
4. Thomsen, J. (1985) Odontogene Herde und Störfaktoren. Medizinisch Literarische Verlagsanstalt, Uelzen.
5. Garten, H. (2004) Applied Kinesiology: Muskelfunktion, Dysfunktion, Therapie. Urban und Fischer, München.
6. Baehr v. V (2006) Welche Möglichkeiten Bietet die Moderne Labordiagnostik für die Umwelt - Zahnmedizin. GZM-Praxis und Wissenschaft 11. Jg. 1.
7. Gerz, W. (2001) Lehrbuch der Applied Kinesiology in der Naturheilkundlichen Praxis, AKSE Verlag (2. Auflage).
8. Bartram, F. (2006) Bedeutung von Epicutantest und Lymphozytentransformationstest für die Diagnostik von Typ IV- Sensibilisierungen. Stellungnahme des Deutschen Berufsverbandes der Umweltmediziner. J. Lab. Med. 30 (2), 101-106, Walter de Gruyter, Berlin, New York.
9. DIN V 13930 (1990) Biologische Prüfungen von Dentalwerkstoffen, Beuth Verlag GmbH, Berlin 9 1990.
10. Dörner, T., von Baehr, V. et al (2006) Implant-Related Inflammatory arthritis, Nature Clin Pract Rheumatol. 2: 53-56.

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Two Case Studies—Efficient AK Diagnostic of Dental Focus

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Two case reports, which should demonstrate how essential the manual muscle test helps to diagnose dental focus. The Ground System of Pischinger is the system which helps to understand why a dental focus could cause problems so far away from the original infected area.

First Case

A 28 year old woman came with swollen knee over more than six months. She was being a great racer in skiing and had therefore all diagnostic possibilities. The x-ray, CT and MRI showed no pathology. The puncture of the knee was also without any infection.

The AK investigation showed following: TL was positive to the right knee – the Rectus femoris becomes weak. TL was also positive to the only decayed tooth 46 – the Rectus femoris becomes weak. When she touched both – the tooth 46 and the right knee at the same time the Rectus femoris became strong and normoreactive. I decided to include the testing of the homeopathic remedy “Tooth Granuloma D4.” This remedy avoided the tooth 46-TL and also the knee-TL. At that time I was sure that the tooth 46 must be the underlying cause for the swollen knee. The woman went to the dentist, which made an x-ray of the tooth 46. He called me on phone to tell me that the x-ray is totally normal – he couldn't see any inflammation. I suggested to open the tooth and to refill the roots. He did it. Within four hours the pressure in the right knee ceased. After 48 hours the knee was normal.

I injected the homeopathic remedy two times to the gingiva of the 46 tooth. The roots of the 46 tooth were filled after two weeks and the swollen knee never came back. Now are 13 years gone since the first investigation.

Second Case

40 years old very fit man with a very painful sciatic. He was the current European champion in pool billiard. He brought with the MRI: massive protrusion of the S1 nerve.

In neurologic investigation I found Lasègue sign with 25°. The patella tendon reflex was increased on the right side. No paralysis.

The AK-investigation: TL positive to the spine process of L5. TL was positive to the lymphatic area below the right mandible. When he touches the teeth 37, 47 and the area 48 the Indicator-muscle became weak. But only when he touches at the same time the area 48 and the vertebra L5 the Indicator-muscle returned to strong and normoreactive.

On the x-ray you could see infected areas around 47 and 37 teeth. After extracting the 47 and 37 teeth the neurologic symptoms were just the same, but after operative excision of the wisdom tooth he felt at sudden a warm feeling in the back moving down to the little toe. When I controlled the neurologic situation two days

later the Lasegue sign was only about 70° – Pseudolasegue. After two weeks all symptoms were gone. One year later he had the last short period of low back pain and from there on never ever problems with the spine.

From there on I use to check all the roof filled teeth of my patients with AK, regardless why they are primarily coming. Solving the dental foci improves incredibly the health state of every human person. AK is definitively the best diagnostic tool to identify the dental foci!

When do you have to think about dental focus:

- 1.) The typical symptoms are going and coming without any possible reason! The symptoms are only on one side of the body.
- 2.) All muscles of one side of the body do not test normoreactive.

How do you examine the patient with AK for dental focus:

- 1.) Screen with one hand-TL to the region under the mandible arch!
- 2.) Look if a double TL – TL mandible arch and TL to the region of symptoms – returns the muscle test reaction to normal.
- 3.) Look with TL and slide pressure to the expecting tooth, if muscle test reaction changes.
- 4.) Look if the changed muscle test reaction returns to normal with contact to Nosode from ostitis or granuloma.

Literature

- I. “The system of groundregulation” author: Alfred Pischinger Haugh Verlag ISBN: 3-8304-7194-7
- II. Störfeld und Herd im Trigemiusgebiet Author: Ernesto Adler ISBN: 3-88463-135-7
- III. “Lehrbuch der Applied Kinesiology” Author: Wolfgang Gerz: ISBN: 3-00-000616-8
- IV. Systemische Störungen – Problemfälle lösen mit Applied Kinesiology authors: H. Garten, G. Weiss Urban und Fischer München, ISBN: 978-3-437-57030-8

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