

INTERNATIONAL COLLEGE OF APPLIED KINESIOLOGY U.S.A.

Experimental Observations of Members of the ICAK

Volume 1, 2016-2017

Fifty Eighth Collection of the Proceedings of the Annual Meeting

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

Experimental Observations of the Members of the ICAK

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Message from the Chairman

R. Thomas Roselle, D.C., P.Ac., PAK, D.C.C.N., D.C.B.C.N.

*F*or over 50 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. remains a consortium of academic and intellectual exceptionalism. It continues to thrive as forum of individual observations, clinical results and research. These published works document the first steps toward furthering the application of applied kinesiology in diagnosis and clinical skills ultimately becoming the part of the accepted body of knowledge we embrace.

We invite and encourage all members to participate in contributing to and expanding upon the basis of neuro-functional muscle testing we call applied kinesiology. Your clinic is your laboratory, your patients the source of unlimited observation and input, and whether a case or double blind study, they all add to the knowledge base. Past history shows that the observations of one doctor stimulate the minds of others and the end result can be, as Dr. Goodheart credits Dr. Deal as saying, “and now we have another piece of the puzzle.”

We are pleased to have the opportunity share with the members of ICAK-U.S.A. the advances and successes of this year. It is truly a gathering of academic eagles and clinical genius'.

Thank you and congratulations to all of you who have taken the time to contribute. A special thanks to Drs. Allan Zarkin, David Engel, and Janet Calhoon.

Dr. Scott Walker said that we must come together so we can take the fire of AK and spread it throughout the world. With excitement, we look forward to seeing you, our AK family, in Las Vegas, Nevada!

Introduction

This fifty eighth collection of papers from members of the International College of Applied Kinesiology®-U.S.A. contains 31 papers written by 17 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 dialogue, creative thinking and critical review among its members; thus, review in this instance is not blinded. These papers are distributed only to the members of the ICAK-U.S.A. for general comment and 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 more in-depth study and scientific investigations, as well as spawn new areas of research. Such is to inspire 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) and the editor(s). The ICAK-U.S.A. disclaims any responsibility or liability for such material.

The current ICAK-U.S.A. Status Statement appears in *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. Whenever possible, all papers should be supported by statistical analyses, literary references, and/or any other data supporting the procedure.

The *Proceedings of the ICAK-U.S.A.* is 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) Review comments on papers published in Division II. These particular submissions are intended for constructive review. Opinions or editorials with negative connotations only may be rejected.

Manuscripts are accepted by the ICAK-U.S.A. for publication with the understanding that they represent original unpublished work. Delivery of a manuscript to the ICAK-U.S.A. Central Office does not imply it will be published in the Proceedings. Manuscripts are reviewed by the Proceedings Review Committee and authors will be notified in a timely manner of their manuscripts acceptance or rejection. The author may appeal any paper rejected to a separate 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 any employer if the submission represents a “work for hire.” Upon such submission, it is to be understood 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 agreement may result in the cancellation of the ICAK-U.S.A.’s consideration to publish.

Continuing call for papers includes:

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

Hypotheses—projections from previous observations 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 identification of ambiguities, and the delineation of areas that may constitute hypotheses for further study. Meta-analyses are 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 i.e., the comparative evaluation of two or more case reports.

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 with documentation that such procedures have been fully understood. Photographs or artistic likenesses of subjects are publishable only with their written consent or the consent of a legal guardian; the signed consent form, specifying any special conditions (e.g. eyes blocked off), must accompany manuscript.

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; other identifying information about a patient's personal history and characteristics should be disguised.

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 prepared 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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from the publisher. In particular, this policy applies to the reprinting of an original article in another publication and the use of any illustrations or text to create a new work.

Manuscript Preparation

Authors are requested to submit final manuscripts via email to icak@dc-kansas-city.com or on computer disc (CD) to 6405 Metcalf Ave., Suite 503 Shawnee Mission, KS 66202. Each manuscript file should be titled with the author's last name and the manuscript title. All manuscripts must be submitted in Microsoft Word.

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 and key words, 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, 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; i.e., 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 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 galleys, 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 (i.e., position papers, historical treatises).

Please visit the following link online for helpful information on structured abstracts:
https://www.nlm.nih.gov/bsd/policy/structured_abstracts.html

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://soto-usa.com/wp-content/uploads/2016/02/case-report-checklist.pdf>

Reference: Green BN, Johnson CD. Writing A Better Case Report, *J Sports Chiropr & Rehabil.* 2000 Jun;14(2):46-47.

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, why it was done and what could be done to address shortcomings or gaps in what we have learned from what 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, 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 could 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 appendices.

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 the 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 alluded in this section; however, they are more formally presented in the section to follow.

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, as readers will 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 use the notation “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 more accurate since it is customarily peer-reviewed. 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 omitted: e.g., 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;16:24-5.

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 (e.g., 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 they are reproduced for publication all details will be clearly discernible; rough sketches with freehand or typed lettering are not encouraged. All illustrations should be submitted embedded in the manuscript document in the appropriate place.

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 a written permission letter from the copyright holder to reproduce the material. Permission is required, regardless of authorship or publisher, except for documents in the public domain*.

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Manuscript Submission Summary

Manuscript components

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

- Manuscript electronically via email of CD (The author should be sure to retain the

original file in case of loss of the submission copies in transit.)

- Release form (signed by all authors, and by employer if study was a work for hire).
- Permission 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.

Submission Instructions

The manuscript should be emailed to the Central Office at icak@dci-kansascity.com.
The Release Form should be completed and signed then fax to 913-384-5112 or mailed to:

The ICAK-U.S.A. Central Office
6405 Metcalf Ave., Suite 503
Shawnee Mission, KS 66202

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 J. 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 AK 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 (microavulsion 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 pre-conceived impressions regarding the test outcome
- Non-painful contacts -- non-painful 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 a 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 AK 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. Updated May, 2001.

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Division I



Informative Papers

Hydrotherapy as a Therapeutic Adjunct for the Applied Kinesiology Based Practice

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Abstract

Hydrotherapy or the use of water in any of its forms to maintain health or treat illness has been one of the oldest modalities around and has the potential of being a great adjunct tool for the applied kinesiology practitioner. Of all the modalities possible, I will focus on three specifically: 1) Hot Compresses/Fomentations, 2) Cold Compresses/Packs, and 3) Constitutional Hydrotherapy; the rest are beyond the scope of this paper as they require specific equipment and or constant attention by personnel making it less advantageous to the average practice.

Key Indexing Terms

Hydrotherapy, Applied Kinesiology, Water Therapy, Constitutional Hydrotherapy, Naturopathic

Introduction

Hydrotherapy is defined as the use of water, in any of its forms, for the maintenance of health or the treatment of disease. Water has the ability to affect a variety of physiological changes which can prove beneficial in addressing the structural, chemical, and mental/emotional roots of health.

Hot applications are typically more relaxing or sedating while cold has more of a stimulating or tonifying effect. One should note, however, that prolonged exposure to these modalities can in fact have the opposite effect whereas prolonged heat can be stimulating in some circumstances and vice versa.

Constitutional hydrotherapy is specific technique where there are applications of hot and cold in a certain order while also incorporating sine wave or interferential current utilized at certain steps to work towards the goal of reducing pain or dysfunction and improving physiology. Some say that constitutional hydrotherapy acts to “reset” the body’s natural functioning.

Through a variety of “effects” presented in the following pages, one will effectively be able to see how this therapy works on organs as well as muscles; One needs only to find a region that therapy localizes (weakens a previously strong indicator muscle) or find a weak muscle(s) in the clear and see if the application of hot and or cold water elicits a change in facilitation. The skin and nervous system both being derived from the ectoderm serves as the rationale for this powerful therapy and how it can be used to compliment the

other neural balancing work we as Applied Kinesiologists do every day. These techniques, however simple, are often underutilized in practice and can prove rather valuable in obtaining a desired clinical outcome.

Discussion

The origins of hydrotherapy date back as far as 1500 BC with evidentiary references in regions such as Egypt, Greece, Hindu, and China. There have been several contributors to the growth of hydrotherapy and some of these people include Sir John Floyer, Johann Schroth, Johann Hahn, and J. H. Rausse. Naturopathy in many ways owes its foundation to hydrotherapy or water cure. Two prominent people said to be responsible for a prominent movement for hydrotherapy include Vincent Priessnitz and Father Sebastian Kneipp. Priessnitz got the idea to heal his broken ribs with cold compresses after watching wounded animals bathe in cold water. Kneipp has the experience of healing his tuberculosis after reading Johann Hahn's lectures on the *Wonderful Healing Power of Fresh Water*. In the mid-nineteenth century the teachings of these two was brought back to the United States to begin helping people that medical doctors were having little to no luck.

Physiologically, water has the potential for initiating thermal, mechanical, and chemical effects. Its thermal effects are accomplished through the different temperatures applied to the body resulting in a physiological change. Chemical effects are accomplished through either drinking of water altering pH and other factors or through the irrigation of say a body cavity (colon hydrotherapy) for example. Mechanical effects are the result of an application of water in various forms such as sprays, friction rubs, full immersions, etc. In general, hot applications are for relaxation and sedation while cold is more stimulating and tonifying (Note that prolonged use of these therapies can have the opposite effect which may be useful depending on desired clinical effect).

Use of hydrotherapy can augment the amount of blood flow through an area which may also have use in the clinical setting and takes into account five physiological principles which are: 1) Revulsive Effect-increasing blood flow through an area/organ usually through contrast therapy. 2) Derivative Effect- altering congestion in an area through prolonged heat or cold applications. Heat draws blood to an area while cold reduces it. 3) Spinal Reflex Effect-Intense local heat or cold application affects not only the local skin but also effects remote physiological processes mediated through spinal reflex arcs. 4) Collateral Circulation Effect- heat applied to the thigh for example increases superficial blood flow while diminishing deep circulation- cold has the opposite effect. Lastly there is, 5) Arterial trunk reflex-Cold application prolonged over an artery trunk results in constriction of the vessel and all the distal branches while prolonged heat has the opposite effect.

General indications include but are not limited to the following: arthritis, edema, sprains, strains, bruises, fractures (status post 24 hours), URI, bronchitis, flu, IBS, UC, Crohn's, low immunity, dysmenorrhea, depression, obesity, and many more. During a hydrotherapy application patients' may experience adverse or undesired effects. If this occurs one should re-evaluate the chosen therapy for its appropriateness, its length, and

lastly the intensity. General contraindications for hydrotherapy include cancer, cardiovascular weakness or compromise, certain infections (UTI), loss of sensation, Diabetes Mellitus, hemorrhage, asthma, and extremely high or low temperatures. Exercise caution in pregnancy and adjust protocol as necessary, for example no sine wave with constitutional. Treat the old, young, and chronically ill as they may be less able to handle an intense abrupt change that comes with some of the applications. It's best to treat before meals not afterwards and at their "strong" time of the day. If after a meal the patient should wait about an hour to allow for clearance from the stomach.

Hot compresses or fomentations utilize moist heat applied to a local or more regional aspect of a patient. They have the ability to decrease pain if caused by muscle spasm. They cause increased blood flow to the periphery, away from the core. This application can alter blood flow to a specific area, used to stimulate or sedate a specific organ's functioning, or warm/relax tissues as mentioned previously. One should take note the fomentations are usually hotter than a compress and thus should only be applied when a towel is placed between it and the patient to prevent burning. Warming compresses are typically about 93°-97° F while hot is 98°-104° F. Typical application is 3-5 minutes for short term or 15-20 minutes for a longer effect.

Cold compresses or packs are usually made of cloth and wrung from cold to ice cold water. Temperatures range is 55°-65° F for cold or 66°-80° F for cool. The water may be infused with essential oils, herbs, or other solutes for enhancing effects. They may have to be re-placed every 2-5 minutes to maintain the "cold effect". The cold application should never be cold enough to cause shivering though the initial application may result in a shudder which is normal. The colder the compress or pack then the shorter the time it is in contact with the skin is appropriate. Primary effects of the cold application are to exude a vasoconstrictive action both locally and systemically. It can be used to prevent or reduce congestion in an area by altering the circulatory and lymphatic flow. Other benefits of cold applications include decreasing or prevention of edema, reduction in pain, and also the inflammatory response. One should take note that at times for proper healing to occur there must be some inflammation and thus high anti-inflammatory intervention should only be initiated after a period of a few days; this does not apply to pain reduction and preservation of limb function. Cold application time varies with region and rationale for use. For contrast baths it is about 30 seconds where in other applications it is about 10 min to accomplish the desired effect.

Constitutional hydrotherapy involves the use of both heat and cold applications in conjunction with a low volt electrical stimulation (IFC). The combination of heat and cold along with the current is said to strengthen vitality and stimulate overall organ functioning to re-establish normal digestive, immune, and detoxification functioning.

Protocol is as outlined below:

1. Prepare them (usually bathing suit or shorts/boxers; on a table with a wool blanket and sheet laid on it. Obtain vitals. Place two electrode pads on either side of T5*

2. Pt supine, place warm-hot application from clavicle to pubic symphysis and wrap in sheet/wool and allow 5 min.
3. Transition to cold and allow 10 min with IFC on to patient tolerance
4. Now to move electrode pads so that one is around T12 and the other is peri-umbilical** allow another 10 min with IFC only no hot or cold applications. May use a dry towel between patient and wet sheet. Afterwards remove pads as they are no longer needed.
5. Pt is prone. Apply Heat from top of shoulders down to iliac crests and wrap with sheet and wool and wait 5 min.
6. Transition to cold for 10 min.
7. Lastly remove the cold towels, dry patient with a towel, and reassess vitals. Make sure patient has a moment to normalize temp if needed especially if there is an extreme in temperatures from clinic to outside.

* I choose to place the pads on either side of T7 as opposed to T5 given proximity to heart and it being the associated point for the heart channel.

** I choose to use 4 pads- one on either side of T12 and one supeolateral to the umbilicus on each side. I have done this as I personally don't feel comfortable running a current straight through the cord.

*** IFC or sine wave use isn't necessary and may be omitted from the protocol if contraindications or patient preference calls for it.

One may experience a healing crisis after a constitutional hydrotherapy treatment. This detoxification is said to occur at the cellular level and may last anywhere from a few days to about a week. The stronger the patient or less serious the disease will result in a quicker healing crisis if one is to occur. Some symptoms include fever, loss of appetite, weakness, nausea/vomiting, diarrhea, tachycardia, headache, dizziness, insomnia, and some reoccurrence of old symptoms. Care must be taken to determine healing crisis from new symptom or adverse reaction. Steps to manage a healing crisis include rest, light meals or even soups, deep breathing, potentially even acute homeopathics.

Applied Kinesiology

Applied kinesiology is a system that evaluates structural, chemical, and mental/emotional aspects of health. These factors are collectively referred to as the Triad of Health. AK utilizes manual muscle testing in conjunction with other forms of diagnostics to make a holistic assessment of the individual and provide information for the formulation and execution of an effective therapeutic intervention. Structural health deals with joints both in the spine as well as the extremities, as well as muscles, ligaments, tendons, fascia, etc. Chemical health relates to the use of nutrition and herbs to have an effect on aberrant bodily functioning; this side is most dominated by the allopathic/osteopathic model and they attempt to use this side to effectively manage the other two. Mental/emotional

mainly dominated by psychologists and counselors though not exclusively. There needs to be a balance of the three sides and in AK we are always looking for ways to accomplish said goal. We have a variety of tools used to reestablish integrity to the three sides including but not limited by any means to fixation patterns, shearing/compaction protocols, dural torque, pituitary corrections, cranial fault corrections, encoded memory technique/emotional recall, and neurological disorganization corrections.

AK & Hydrotherapy Together

Everyone has either experienced or seen an injury of the shearing or compaction variety. In an acute shearing injury one usually finds a trifecta of findings which include a weak muscle, a hypertonic antagonist (responding to fascial flush protocol) and a hypertonic synergist (responding to the strain/counterstrain protocol). The one weak muscle will strengthen to either origin/insertion work (most common), GTO therapy (towards muscle belly) or spindle cell technique (separation). With a shearing typically the level of innervation must be evaluated and corrected as well. In compaction injuries, there is usually trauma more to the joint itself vs the surrounding structures (muscles, ligaments, tendons, and proprioceptors) as well as the joint in question which is more shearing. Typically in compaction injuries one finds all muscles around a joint except one or maybe two inhibited. The muscle(s) that are strong initially will weaken to repeated muscle activation patient induced (RMAPi) as the repetitive action is thought to strain the muscular attachments. Therapy is directed towards origin and insertion of the now weak or inhibited testing muscle(s). Check the spine, often an occiput lesion is found to be involved. With either injury there is cardinal signs of inflammation which include redness, heat, swelling, pain, and loss of function. Hydrotherapy can be an adjunct to applied kinesiology approaches for reduction in these signs before, during and after AK treatment protocols for a more rapid recovery.

One should note hydrotherapy approaches don't have to be limited to just injuries but may be used in non-traumatic inhibition of muscular activity. This is because the properties of the heat and or cold application have the potential to affect the five factors of the IVF (Nerve, NL, NV, CSF, and AMC). The applications of hot and cold can affect muscle facilitation resulting in decreased muscle spasm and may even allow for a restoration of articular motion reducing nerve encroachment. The effects on blood flow in and out of tissues affects the NL and NV reflexes. The effects on circulation and pain reduction are thought to normalize an area of chi stasis allowing for a balance in the meridians. Cranial faults and CSF are addressed as they change as a result of any one of the hydrotherapy applications and through secondary effect of using relaxing applications to cranial-connecting musculature such as sacropsinalis or semispinalis capitis. One can simply lay a hot and or cold towel over the area and look for a re-facilitation of the muscle or negation of a TL. Obviously, one should implore standard clinical rationale for example using cold on an acute injury vs heat which would be pro-inflammatory.

Hydrotherapy can be used to augment the pH of the body's surface or cavities and thus results in a physiological chemical change. It is also can be used to affect the rate of breathing and or renal function which can result in respiratory or metabolic changes respectively. The use of hydrotherapy applications over the stomach is known to improve digestion and can act as an acid secretagogue. Also through the optimization of our GI

tract results in faster acting nutritional or herbal prescriptions. A hot or cold towel placed over the skin either directly over the organ or one of its epidermal reflex areas results in improved or reestablished facilitation vs its inhibition initially.

Emotional/mental area of our being is no doubt one of the most prevalent imbalanced areas and often people are given prescription medications to control this side. Hydrotherapy, however, has been shown to decrease anxiety, depression, worry, fear, as well as many other transient emotional stressors. One of the best hydrotherapy applications for this specific purpose is constitutional hydrotherapy. As a modified challenge for this therapy I apply a hot towel followed by a cold towel over the abdomen and look for a constitutional strengthening of several muscles indicating an overall positive response of the patient's nervous system. Often patients will express how peaceful they feel after this therapy; in a very obvious way they have shifted to a parasympathetic state where they are more calm, quiet, and serene.

Conclusion

Hydrotherapy is one of the oldest modalities around and has the potential for being a great adjunct tool for the practitioner of Applied Kinesiology. This tool has the ability to demonstrate an impact on each of the sides of the triad and therefore only seem fitting to bring it into the armamentarium of AK practitioners in the quest to help each and every one of our patients. Of all the possible applications three have been singled out as readily being available for use in the average office. These three applications are 1) hot compresses/fomentations, 2) cold compresses/packs, and lastly 3) constitutional hydrotherapy. Any single one of these applications can have an effect on one side of the triad but the most significant part is that they have the potential for affecting all three sides in a single application. We all know that the entire being is connected and must be treated as an entirety. The triad, represented as an equilateral triangle for simplicity, is constantly in a state of flux and must incorporate ways of balancing all parts for true re-establishment of health and maintenance of a dis-ease free life. It requires few materials but can have a profound impact on the lives of our patients.

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Clinical Observation of Adjusting the Shoulder Differently

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Discussion

I treat a lot of shoulder injuries from baseball to volleyball and everything in between. There are some classic Applied Kinesiology techniques used everyday like “the Jones and Travel” techniques and basic muscle testing of the rotator cuff and stabilizing muscles. This paper will present how to correct specific shoulder injuries; and a simple manipulative technique that compliments.

I have found the simple “Anterior Inferior” or AI- acromioclavicular joint adjustment in chiropractic to be over used, and often inappropriate. As is in the case of “The AC separated type,” the basic 100 hour AK course teaches that it will usually present with a weak deltoid and coracobrachialis muscle. The technique is to squeeze, with clamped hands, to approximate the scapular and acromium/ clavicular joint and its soft tissue more posteriorly and together. I have found this to be a very valuable tool. However, over the years, I have witnessed a certain subset of patients in excess pain for an otherwise slightly painful treatment. Upon further investigation of these cases, I found when a coracobrachialis muscle and the posterior deltoid, along with a “bicipital tendon challenge” present, there is a better adjusting tool.

Since using this new adjusting method, I have found it to fix simple bicipital problems and AI shoulder problems even better, with the occasional need for the other adjusting techniques. I’ve been teaching this technique to students and doctors for a while now, and I am not aware of anyone else doing it. Whether or not it’s new or recycled, I would like to describe and recommend it.

1. Have the patient sit in the middle of the table so there is room for the doctor to put his foot next to the patient’s hips on the involved side.
 - a. I recommend tearing a shoe-size piece of paper (approximately 12” x12”) in order to put the doctor’s shoe on the clean table.
2. Put the patient arm over the adjacent doctor’s knee.
 - a. An example would be, right shoulder would be over the doctors left knee.
 - b. Aiming for Heart-1 meridian point, with the patient’s arm and body squared if not into more extension.
3. Carefully traction the patients arm over the knee and, if the patient or doctors body size needs adjusting leave a gap from foot to hips, then have patient lean towards the doctor maintaining heart-1 point contact.
4. The doctor then begins to traction and move the arm up and down and rolling back like the visual of an “old yarn winding machine.”
 - a. Often one hears multiple audibles that diminish.
5. The doctor is feeling for the proper joint set more than just an audible.

6. Re-test to see if finished.
7. Go back and evaluate for biceps and triceps muscle balance and elbow adjusting.
8. Decide the importance of kinesio-taping the shoulders for extension support.
9. Give strengthening of posterior muscles and stretching of the pectoralis muscles accordingly.

Conclusion

The beautiful thing about Applied Kinesiology is that the body, posture and every other medical observation we've been trained in actually tells us what the body needs in order to heal.

The biggest problem most doctors face is having only a few tools. "When all you have is a hammer, everything looks like a nail." Treating using Applied Kinesiology is like having "Home Depot" on speed dial!

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Clinical Observation of Adjusting the Shoulder Differently
John Erdmann, D.C., DIBAK, D.C.B.C.N.

How the Deltoid and the Gluteus Relate

John Erdmann, D.C., DIBAK, D.C.B.C.N.

Discussion

Adjusting the shoulder correctly can elude many chiropractors. The most common shoulder problem is probably the anterior and inferior type, or at least the most popular manipulated. The pain is located in one of two areas: One, along or near the bicipital groove and second, at the deltoid tubercle. Many doctors spend many frustrated sessions trying to reset and fix the deltoid muscle, if they can. So what do you do? “Origin and insertion technique” or “Goldgi tendon organ technique?” These techniques often make the deltoid pain worse or, at best, don’t help the insertion along the deltoid tubercle pain point. Have you ever had this problem? Obviously, I have, until I stepped back to look at the real function of the deltoid.

1. Abduction.
2. Prevents the humeral head from dislocation.
3. Other muscles assist; but the deltoid is the most superficial “Cap like muscle” holding the shoulder together.

Now the Gluteus maximus:

1. Extends the acetabulofemoral joint and brings the bent thigh into line with the body.
2. The gluteus maximus is a tensor of the tensor fascia lata, and by its connection with the iliotibial band and steadies the femur to the tibia during standing.
3. The Gluteus attaches to the “Sacral tuberos Ligament” Just like the biceps femoris or lateral hamstring does, Thereby creating a lateral sling for the femoral head. Combined with its attachment into the Lumbar fascia and the fascia covering the gluteus medius and gluteal fascia, *I would say* it makes a “Pretty good Cap” to the acetabulum joint.

We don’t think of the ball and socket joint of the acetabulum in the same dislocation of the shoulder joint way, but where is the most common Gluteus pain? Right at an acupuncture point

Gall bladder 30, close to the center of the gluteus maximus and minimus. with referral pain to either the inguinal ligament or back. Contemplate that, the inguinal ligament is different than the biceps tendon for sure, but both are over used flexors!

Technique

First, muscle test and correct all rotator and stabilizing shoulder muscles with basic five (5) factor AK. If it needs it, perform the special shoulder adjustment (as outlined in my paper, *Clinical Observation of Adjusting the Shoulder Differently*, referenced below). Then muscle test and correct all hip related muscles. I have found a similar style “Tuina technique” to work best as a hip maneuver. The Tuina technique starts with the patient face down, the doctor bends the knees sideways allowing the hip to rise off the table accordingly to the patient’s flexibility. Through doing a swimming and flexing/ extending motion of the leg and thigh, the acetabulum will often click or pop several times. Sometimes a traction is also indicated. Like the shoulder treatment is to the biceps, the lateral hamstring (biceps femoris) should be carefully scrutinized with muscle testing. Finally, ligament interlink between these two areas and their associated joints/ ligaments often reveal a hidden gem and the treatment is long lasting.

Conclusion

Dr. Goodheart told us “the body language does not lie” (when we know how to ask and interpret the results). The basics work with a good understanding of how the body moves, ie. kinesiology. Know your anatomy, know your kinesiology and the rest will become apparent.

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How the Deltoid and the Gluteus Relate
John Erdmann, D.C., DIBAK, D.C.B.C.N.

Dural Torque and Category III Pelvis (with Intervertebral Disc Compression)

Wayne A. Hogan, D.C.

Abstract

Clinical procedure to release Dural tension following trauma.

Key Indexing Terms

Dural Torque, Dural Tension, Whiplash, Disc Compression, Fight or Flight

Introduction

The longstanding complaint about chiropractic care is that, "You just keep having to go back!" This paper presents a technique to address the tension-setting mechanism of the spine.

When the mechanical and chemical factors that create Dural torque are released, all of the subsequent corrections/changes the doctor applies will be more effective and hold better. If we fail to release the Dural tension/torque, structural recidivism is guaranteed.

The protective response to every insult, mental-emotional-structural, involves the flight-or-fight (or freeze) reactive response. A scared dog tucks his tail between his legs. When he runs away, his whole body crunches up, and his legs move, in a funny way, underneath him. This is the close-packed protective position.

When we have a whiplash injury or sit-down fall, our tailbone muscles do just what every muscle does when it's overstretched to the point of injury; it rebounds into a contracted state and it gets stuck there.

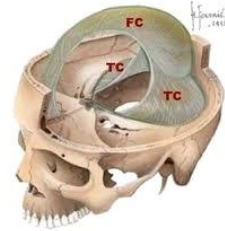
The tailbone (coccyx) is not just a useless vestigial organ that just hasn't fallen off through evolution. The coccyx is the final insertion of the Dura, at the Sacro-Coccygeal junction. It is the tension-setting mechanism for the whole spine. The Pubococcygeus Muscles and the Levator Ani Muscles are crucial in maintaining the flexibility of the entire spine. Fred Illi demonstrated the coordinated figure-of-eight motion of the bones where the Dura attaches¹. This is the core of the whole body. It simply must be addressed.

Discussion

Dr. Goodheart often said, "We (chiropractors) are a profession divided by the Dura!" I think he was right. There are a few chiropractic techniques, in addition to Applied Kinesiology, that focus on the importance of the Dura, such as SOT (Sacro-Occipital

Technique) and Network Chiropractic. In my opinion, in the myriad approaches a doctor has available to employ, the Dura is not generally regarded as importantly as I have found it to be after thirty-four years of practice.

The Dura (Mater) is the membrane (or tissue) that surrounds the brain and spinal cord. It begins on the bone that lies in the center of the skull, the Sphenoid bone. It attaches to the Cranial Suture Joints, to the opening in the skull and to the top two bones of the neck: the Atlas and the Axis. It ends at the junction of the Sacrum bone and the Coccyx (the tailbone).



The Dura (Mater) is essentially a big sack that contains the spinal fluid. The brain and nerves float around in it, bathed in spinal fluid constantly. The brain manufactures nutrients that are released into the spinal fluid and then circulated or pumped down and back up the length of the Spinal Canal with normal respiratory motion. This process is the basis of Cranio-Sacral Therapy.

A starting point to consider for every patient

Where other tissues rely on the circulatory (blood) system to deliver nutrients and oxygen to the body tissues, the nerves just float around in their nutrients all the time, absorbing the fuel they require, as needed. In conditions like Spinal Stenosis, the spinal fluid is unable to wash over a particular nerve root or area of the spinal nerves. This causes the same kind of problem in the nerves as failure of blood flow through a Coronary Artery causes in the heart (myocardial infarction... a heart attack). Not as immediately dramatic, perhaps, but nerves without food are not happy nerves. They cause symptoms!

The cranial suture joints move, like every other joint. When they stop moving properly, it is called a Cranial Fault. We apply specific forces in different phases of respiration to restore the motion, to correct the cranial fault.

The introduction of this particular step (the Dural Torque Sequence) in our treatment approach was derived from procedures developed by Dr. Carl Ferreri. He developed this logical step-by-step approach to restore all of the basic survival reflexes one needs to, "survive in the jungle." The overall technique is called, "Neural Organization Technique (NOT)." It remains the central part of our treatment approach.



Dr. Carl Ferreri

The employment of this step at the beginning of care is something I stumbled on so long ago (maybe 27 or 28 years) that I have forgotten just how it happened. I think I had a patient with acute low back pain, and he tested for a category III Pelvis (Sacro-Occipital Technique name for Disc Problem).

In a moment of inspiration, and out of the normal sequence of the classic "NOT" approach, I think I decided to begin treatment with the SOT Pelvic Blocks (Category III) while I continued to examine him. When I retested him for Ferreri's Dural Torque pattern, the test was now positive.

I treated the Dural Torque problem, and the acute Disc problem was gone. Not just a little better, "Come back every day for two weeks..." but better... Gone!!! This experience changed my priorities and resulted in a new order for my examination and treatment procedures.



Dr. Ferreri and Dr. Goodheart were both geniuses. They didn't necessarily agree all the time... I remember Dr. Ferreri's frustration that Dr. Goodheart did not fully embrace his "NOT" protocols...

Dr. Goodheart said, "Carl, I just don't FIND it that way!" To which Dr. Ferreri (told us he) replied, "George, that's just because you don't LOOK for it this way!" I don't remember now what aspect of Dr. Ferreri's procedures they were discussing...

I know that in my experience, this procedure has become the only logical first place to start. We test every single new patient. By the time they get to me, nearly everyone seems to have it, with very, very few exceptions. On return visits, every patient is asked about new falls and/or injuries. We screen for this Dural Torque anytime there has been a new injury. When it tests positive, we fix it first, otherwise, whatever we've corrected recurs as soon as they get off the table and start to walk!

Procedure

So, we place the SOT Pelvic Blocks for the Category III correction, and test. We correct the Dural Torque condition when necessary, correcting the coccyx and pelvic ligaments. This kind of levels the playing field!



The tailbone (coccyx) is a vital part of the spinal-tension, tension-setting mechanism. You were not likely taught this in school. Restoring the normal tone of the muscles that hold the tension on the tailbone (coccyx) is the beginning point of restoring the flexibility of the entire spine!

We use a left-hand middle-finger contact on the coccyx with a palmar contact on the Sacrum. Reinforcing that contact with the right hand, we apply a gentle but firm pressure following the contour of the coccyx on inspiration. We try to make sure to go straight anterior first, then check the freedom of motion slightly laterally in both directions. If motion seems restricted, it might take two or three breaths in any given vector. We finish with a final breath in a straight anterior vector.

The second part of the Dural Torque correction sequence involves the Sacrotuberous Ligament and the Pubo-Coccygeal Ligament; it is a Goodheart-modification of Logan Basic Technique. The region where the ligaments cross is challenged while stabilizing the opposite side of the Sacroiliac joint.

The side which tests positive is corrected by maintaining a medial-headward thumb pressure on the area, and palpating the ipsilateral paraspinal muscles. I use my right thumb. The correction vector is determined by noticing the tissue tensions while palpating (touching) the spinal muscles on the same side of the spine that are in spasm (hypertonic). When the correct vector is achieved, the paraspinal muscles will relax.

Dr. Logan started at the bottom of the spine and slowly worked his way to the Atlas. I tend to start in the Upper Thoracics and work my way down (ADIO). Blocking the Category III pelvis and releasing the coccyx may make the difference. Perhaps working up the spine might be proven to be a superior method. I start at the top and work my way down.

When I feel the releases at the Lumbosacral Junction (the bottom of the spine), I transition to a pressure on the top of the Sacrum Bone (Sacral Base) using a left pisiform contact, following the normal respiratory motion: slightly headward and forward (anteriorly). This is sometimes referred to as a “finishing move,” that locks in the correction.

I leave the DeJarnette Blocks in place. Although I might find a weak Hamstring or Piriformis, I most often find a weak buttock muscle (Gluteus Maximus). Releasing the Dural tension allows the decompression of the spine to begin. Before we release the Dural torque, the Gluteus muscle tests strong. “Hidden” problems (fixations/compensations) show up once the Dura is released. Successful release of the Dura allows the problems to be detected. Now, the Gluteus Muscle will test weak on the side of the ligament correction.

The side where the Gluteus Maximus tests weak will also show a disc compression, usually at L4/L5, or L5/S1. Rarely L3/L4 will be the first disc level that tests positively. I use a three or four finger contact (therapy localization - TL) on the bumps that stick out (the Spinous Processes), and test an indicator muscle. When the indicator muscle tests weak, I use one finger to TL the space between the vertebrae (the interspace) to find the involved disc area.

I do a respiratory correction technique to open up the disc space. Starting at the spine, on the space between the vertebrae, a separating traction force is applied parallel to the spine in the Paraspinal muscles, while breathing in (inspiration). On the next breath, the fingers are moved away from the spine (laterally) about a finger’s width, and separated again.

After about three parallel separations, I do about two separations in the same interspace in a perpendicular direction (laterally), followed by one more in the vertical direction. This is mostly done by feeling the tension of the tissues and developing a sense for when the area is opened up. There are many techniques that chiropractors use to make disc corrections. This is what I do.

Once the disc space is, “opened up”, the next step is to mobilize the fixated motor unit. Depending on the location and the anatomy, I may use a hand adjustment or an

instrument (Activator) adjustment to release the fixation pattern. Then, I challenge the vertebrae to determine the level and direction of subluxation correction. Nearly always, the lower vertebra needs to be adjusted inferiorly to open up the wedged disc space. We fix ‘em as we find ‘em.

The final piece of this correction is to challenge for Sacral Wobble and Atlanto-Occipital counter torque. My experience has generally found that the pelvic correction involves the Sacrum on the right and the Ilium on the left (Sacral Wobble), and the A/O counter torque on the left. I have seen other patterns, but this is the most common.

I challenge the Sacral Wobble first, then the A/O counter torque. I correct the A/O counter torque first, then the Sacral Wobble. I find a coccyx subluxation typically on the left, which I correct with an Activator adjustment. I find numerous trigger points on the Piriformis at the sacrum, then I release these using Steve Kaufman’s Pain Neutralization Technique. Your technique to do this will work just fine. Now, I feel the pelvis will be stable as the corrective process proceeds.

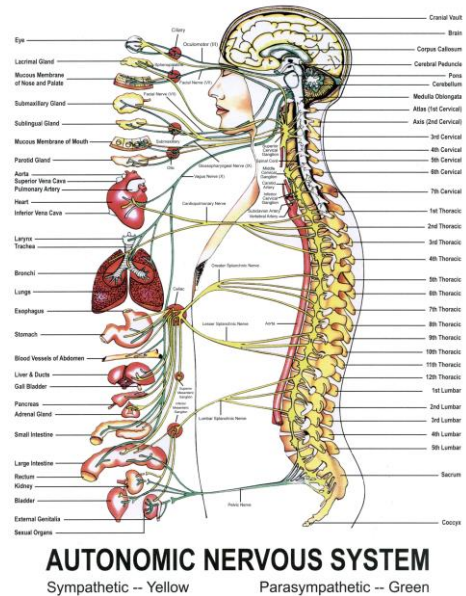
The pattern that emerged over time began to get clearer. One of the clinical indicators of whiplash injury is a reversal of the Cervical curve visible on a lateral X-Ray. Curious people like me are always asking the question, “Why is that??” We learned that from Dr. (Curious) George Goodheart! What causes the flattening of the backward curve in the upper back (Thoracic spine)? Why do we lose the normal forward curve in the low back (Lumbar spine)?

When we look at the spine from the side, it should have a double S-shaped curve. The neck curves forward, the upper back curves backward, the lower back curves forward again, and the sacrum curves backwards. This is our shock absorber mechanism.

When it doesn’t function properly, the impact force from heel strike during normal walking can reverberate all the way up to the teeth. Over time, “wear and tear arthritis” begins to develop: Degenerative Joint Disease.

In Applied Kinesiology, we tend to maintain a, “fix what you find” attitude. At the outset of a new approach like this, we don’t really know what to expect. After hundreds of patients, a pattern begins to emerge. Studying this allows us to refine our techniques and discover the nuances that make it more effective.

What I began to realize is that the areas that showed up were generally the transitions of the curve. Further, it seems like these



areas of mechanical stress also correlate with areas of Sympathetic nervous supply to the most common areas of physiological/systemic complaint/illness.

The transition from the anterior Lumbar curve to the posterior Sacral curve is the lowest. We associate the L4/5 area with the large intestine and eliminative problems. Occasionally, I see involvement at the middle of the Lumbar curve. Generally this area would be associated with the Iliocecal Valve or Ascending Colon. More typically we see the next level at T12/Li. We associate this with the Kidney.

Working up the spine, the next region that usually shows up is T8/T9 or T7/T8. Physiologically, we might find Adrenal/stress issues, Liver issues, or Pancreas involvement. Occasionally we will see involvement at T5/T6, nerve supply to the Stomach and upper Small Intestine (Duodenum). Less frequently we find indicators at T2/T3. The nerve supply from here goes to the Lungs.

I used to screen the Cervical spine, but I never found a cervical disc indicator during this part of the examination/correction, so over the years I have abandoned looking for problems there at this point in the care program.

Over the years, my experience has demonstrated that the corrections made subsequent to releasing the Dural Torque and clearing the disc compressions resulting from that procedure have a much greater chance of being a classic Gonstead correction: “Find it. Fix it. Leave it alone.”

Conclusion

Like a car that’s been in a demolition derby, over the course of a lifetime, we tend to accumulate a large number of problems. “Adjusting the Primary subluxation(s) over and over is not enough. We need to have a systematic way to correct foundational problems, and build on them as we restore the whole structure to optimum function.

Our first goal in putting the pieces of the puzzle together is to start getting the flexibility back to the spine. This means we can make corrections, restore normal motion, and anticipate that they will have a good chance to STAY THAT WAY! Restoring the flexibility of the tailbone (Coccyx) is the first key step!

Clearing the spinal compressions (functional disc involvements) that are created from being stuck in the, “Fight or Flight” mode is second. Once accomplished, we can get to work in a logical fashion and prioritize and correct the rest of the problems we identified!



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All images were found on the internet.

There were no listed restrictions on using any of the images.

The creator's signature is on the image of the intact dura.

Dr. Ferreri is deceased.

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Dural Torque and Category III Pelvis (with Intervertebral Disc Compression)

Wayne A. Hogan, D.C.

Dysphonia, Dyspnea, & Dysphagia Post Thyroidectomy Treated Mechanically Using Golgi Tendon Organ Challenge

Nicholai Sorochinsky, D.C.

Abstract

This case report records a remarkable recovery from near complete loss of voice, difficulty swallowing and difficulty breathing in a patient who underwent thyroidectomy surgery. The treatment consisted mainly of mechanical manipulation of the strap muscles of the neck using GTO challenge and resulted in a rapid restoration of the patient's quality of voice, breathing and swallowing.

Key Indexing Terms

Dyspnea, Dysphonia, Dysphagia, Thyroidectomy, Golgi Tendon Organ, Strap Muscles

Introduction

Vocal changes after thyroidectomy have been regarded by some patients as inevitable. Complications may be associated with recurrent or superior laryngeal nerve injury, infection, hemorrhage, endotracheal intubation, or mechanical malfunction. To address this research has been done to evaluate the prevalence of phonatory changes as well as the possible causes that can lead to vocal change post total or partial thyroidectomy. A E Kark et al reports that after assessing 325 patients that 25% incurred permanent (greater than 6 months) phonatory changes after subtotal thyroidectomy and that 19% experienced permanent changes after lobectomy¹. Another researcher in Italy looked at almost 15,000 patients over 5 years. This research showed much more conservative numbers for complication as follows: persistent hypothyroidism in 1.7% of patients, temporary hypoparathyroidism in 8.3% of patients, permanent palsy of the recurrent laryngeal nerve in 1.0% of patients, and transient palsy in 2.0% of patients. Further "the superior laryngeal nerve was damaged in 3.7%; dysphagia occurred in 1.4% of cases, hemorrhage in 1.2%, and wound infection in 0.3%." ².

G Neri et al believes that nerve damage is in reality underestimated. They believe it is often dismissed along with inevitable dysphonia and therefore is often underreported ³.

While there is debate around the prevalence of complications directly related to thyroidectomy what can be agreed upon is that phonatory changes, that is the broad category of vocal changes, after partial or complete thyroidectomy have been shown to be problematic even if only for a small percentage of patients. Complications may be associated with recurrent or superior laryngeal nerve injury, infection, hemorrhage, or

mechanical malfunction. Frequently the partial or complete lesions to the nerves are blamed for the change in voice, but some researchers are finding otherwise. G. Neri et al found in a retrospective study that in 15 thyroidectomy patients (7 of which had nerve lesions and 8 that did not) when comparing qualitative, quantitative and self-evaluations before and after their surgery vocal impact could still be measured post-surgery at the 12-month mark. G. Neri states “The present research confirms that the attempt to identify and protect the superior laryngeal nerve is essential to prevent post-thyroidectomy dysphonia, but this is not sufficient to obtain the best results because of the existence of muscular and psychogenic factors that reduce the still voice capacity of the patient.” Mechanical malfunction of the strap muscles of the neck can be directly responsible for dysphonia after thyroidectomy as a physical ramification of the surgical process³. Hong et al agrees. “These data allowed us to suggest that the cause of vocal dysfunction is not seen in neural lesions, but in a disturbance of the extralaryngeal skeleton.”⁴

The purpose of this case study is to highlight how applied kinesiology may hold the answer for those that are struggling with these issues post thyroidectomy or after similar trauma to the neck or throat and to present a case where mechanical treatment to the strap muscles of the neck and throat were successful in quickly restoring normal speech, breathing, and swallowing that were lost post thyroidectomy. The author hopes to demonstrate that there is a target population who could potentially benefit from care of an applied kinesiologist.

Method

A 47 year old female presented to the office with dysphonia and dysphagia post complete thyroidectomy 5 weeks prior. She also complained of fatigue, difficulty breathing at times, acid reflux, and headaches before her period. A strong family history of thyroid disease was present. She was taking Synthroid, Prozac, and Zegerid. She had contracted bacterial meningitis 20 years prior. The patient did not have any neck pain at the time of examination. Her dysphonia was severe enough that her voice was nothing more than a hoarse whisper when she really strained to speak, and needless to say taking a history was lengthy and very difficult. The patient report that she was unable to sleep on her side without choking. Further she noted swallowing was very difficult with liquids, but she was able to do so when she paused and was concentrating and remaining still.

Exam Findings

The patient showed a handful of typical kinesiology patterns: a tender diaphragm NL and a right psoas 4/5 that strengthened to origin and insertion therapy localization. She also presented with a valve of Houston problem, but my notes did not indicate whether it was open or closed. She also had a positive therapy localization to the pectoralis major clavicular NV which strengthened the inhibited psoas muscle. She exhibited tight and tender neck flexors on palpation and many of the muscles connecting to the hyoid bone palpated similarly. Her hyoid bone was visibly shifted superiorly and laterally to the left. Myotomes, reflexes, and ranges of motion were full and pain free for the cervical and thoracic spines, with the exception of midscapular intersegmental hypomobility. No paresthesia was noted. Cranial nerve screening was normal other than that previously stated related to her voice. Cervical compression, cervical distraction, and maximal rotary

compression was negative with a significant other finding of local pain at the posterior lateral neck toward the superior pole of the scapula as is common in many patients.

Treatment

The first treatment included respiratory adjustments to C1 & C2 and instrument assisted chiropractic manipulative therapy to T11/12, L1, & L2. For these manipulations I used the Erchonia Adjustor set to multiple pulses per second. Typically, I apply 7-10 cycles with the Adjustor before removing pressure. I found there to be a positive clockwise challenge of the hyoid bone (elevating the right side and lowering the left side of the hyoid simultaneously). Palpation and challenge were the primary tools for determining which muscles to address rather than the preset formula from the hyoid challenge. Palpation was for both muscles that felt they were either tighter or looser than they ought to feel. The left stylohyoid and both sternohyoid muscles were manipulated by challenging and correcting the GTO and muscle spindle cells, similar to the method outlined by Dr. John Corneal in 2009^Z. The only slight deviation was eliminating the pincer palpation and directly challenging the GTO or muscle spindle cells. Treatment was applied according to the challenge, which in this case was opposite to the positive challenge since it was off of the spine and a non-rebound challenge. Gentle pressure was applied and held until the muscle relaxed. It should be noted that another distinction between my approach and the approach by Dr. Corneal is that *gentle* pressure was used rather than firm pressure. In many cases I believe that the gentle application of pressure is just as if not more effective than using firm pressure. Sometimes firm pressure can cause the patient to involuntarily contract the muscle whether it is due to pain being elicited or simply by just raising the patient's awareness of the area. After her treatment the patient reported that she was able to breathe more easily, and she was shocked when she attempted to say "Thank You." at the end of the visit that she actually spoke in almost a full voice.

The second treatment included diversified and instrument assisted chiropractic manipulative therapy to the cervical and thoracolumbar spines. A positive challenge was found moving the hyoid laterally to the left hyoid and also in an inferior to superior direction. GTO manipulation to the stylohyoid, geniohyoid and sternohyoid was performed bilaterally and also to the right scalene muscles, again using palpation for increased or decreased tension to determine where to apply therapy.

Results

After the second visit her voice returned completely to normal by her standards, and her breathing and swallowing did the same. She was able to return to speaking and her hobby of singing in the church choir. Palpatory tenderness and differences in the tension of the strap muscles and the other muscles in the neck were balanced. The patient did not return for follow up visits, but a mutual acquaintance reported that she returned permanently to her church choir which held a very high standard of performance.

Discussion

Despite the several factors addressed in these treatments I believe the most critical piece was the direct challenge and correction of the hyoid muscles using the GTO and muscle

spindle cells as highlighted in Dr. Corneal's paper in 2009 regarding the GTO challenge⁵. I have recollection of a similar case with a woman who was told that post thyroidectomy her voice could be hoarse for 6 months. After hearing this from her surgeon for many months and still experiencing dysphonia beyond that six-month mark she sought me out desperate to return to singing. In similar fashion she responded to the manipulation of the hyoid muscles using direct challenge of the GTO and muscle spindle cells guided by palpation. Her voice also returned promptly.

As several authors are highlighting, the "extralaryngeal skeleton" may be more of a cause in these cases rather than or possibly in conjunction with damage or palsy of the laryngeal nerves as is regularly blamed for vocal changes after thyroidectomy. One of the researchers notes that the strap muscles are commonly retracted substantially or even divided and re-sutured together during surgery. They further detail that suturing muscles back in place or together again is not always possible, especially in the case of the sternohyoid muscle¹. As kinesiologists we know that all muscles large or small are necessary for optimal function, but this further outlines the great need to work with this population of patients. Beyond that it is the position of this author that kinesiologists hold a key that can uniquely offer an expedited recovery to thyroidectomy patients and should be investigated further as becoming part of the standard of care for these patients.

Conclusion

The tools we have in AK are well suited for patients who have gone through a thyroidectomy, and similar treatments should be considered for every patient who has undergone this surgery and struggles with resulting dysphonia, dysphagia, or dyspnea. Clearly larger scale studies are necessary, but this type of care could bring about more rapid recoveries and greatly decrease the negative effects of this surgery.

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**Dysphonia, Dyspnea, & Dysphagia Post Thyroidectomy Treated Mechanically Using Golgi
Tendon Organ Challenge
Nicolai Sorochinsky, D.C.**

GTO Manipulation a Gentle Option for Preparing the Pelvis for Delivery

Nicholai Sorochinsky, D.C.

Abstract

The purpose of this case report is to bring attention to the option of addressing the Golgi Tendon Organ (GTO) dysfunction in the pelvis, particularly in the abdominal and pelvic musculature as it relates to preparing a mother's pelvis for delivering a baby. It is for those who are approaching post term and also for decreasing pregnancy-related pain. A secondary purpose for this case study is to highlight GTO manipulation as an alternative therapy for patients who require or prefer gentler treatment, or who are unable to move well or perform manual muscle testing due to discomfort, low energy, etc.

Keywords

Chiropractic, Pregnancy, Pelvic Pain, Golgi Tendon Organ, Inducing Labor

Introduction

It is well established that it is medically acceptable to deliver a baby at full term (38-42 weeks of pregnancy). However, it has been my personal and professional experience that more and more mothers report receiving pressure from their doctors or midwives to undergo chemical or mechanical induction treatments if beyond 40 weeks of pregnancy. When faced with this pressure from medical providers, mothers should be made aware of the alternative methods that can encourage a timely and healthy delivery. While centuries of traditions and anecdotes suggest that nipple stimulation, intercourse, long walks, castor oil, enemas, and the like, are effective ways to encourage labor, little science surrounds these options.

While there is ample research on the topic on the timing of inducing labor, it is largely connected to the rupturing of membranes prior to the onset of labor. Peer reviewed literature is largely missing on the topic of alternative methods to safely and naturally encouraging the labor process to begin. While a handful of articles include the alternative yet frequently used methods, I was unable to find specifics on just how effective or ineffective any of them actually are, let alone with the backing of any statistical analysis. Chiropractic and kinesiology methods fall into the same category.

Clearly, the medical research will have a bias toward using medical methods, but in this case report I hope to outline a couple simple things to the reader. First, manipulation of the GTO's along with gentle chiropractic care should be considered as an option for effectively readying the pelvis for optimal delivery. Second, GTO manipulation is a very effective treatment and can be applied very gently with great results for the patient who

cannot tolerate much pressure due to discomfort. Third, even very late in the pregnancy these methods can be very helpful for quickly decreasing or even eliminating pregnancy related pain in the low back and pelvis.

Discussion

A slight-framed 29-year-old female presented to the office at 41 weeks pregnant with her first child. She had a healthy pregnancy thus far but was very concerned about the artificial induction process that her doctors were recommending. She had shown no signs of labor starting and had tried the traditional methods of long walks, warm baths, intercourse, etc. to encourage the baby to come but without any noticeable effects. Even more concerning was the fact that she had not “dropped.” In other words, she was still carrying the baby far above station and did not even visually appear close to delivery. She felt no internal pressure lower in the abdomen or pelvis at all. She had not experienced any contractions or false labor. Recently, she started to note moderate groin pain bilaterally, lumbosacral junction pain, and left or right sided hip pain depending on the side she was sleeping on. As her pregnancy progressed and her breasts increased in size she noted an increase in mid-backpain which typically only bothered her later in the day.

Since the patient was too uncomfortable and exhausted to do many manual muscle tests most of my treatment relied on palpation and challenge to direct where treatment was applied. The left pubis was palpated and challenged to be inferior, the sacrum to be posterior and superior on the right, L2/3 and L5/S1 to be counter rotated. The left gluteus medius and maximus were palpated and found to be mildly tender as were the bilateral rectus abdominis and pyramidalis muscles. All of these muscles were palpated and while not significantly painful or tight, they did stand out in relationship to the surrounding muscles.

Gentle pressure was applied according to their appropriate challenge for GTO correction. In other words, for all the muscles that left the axial skeleton and attached to the extremities the challenge was not a rebound. Corrective pressure was applied in the direction opposite of that which caused the strong indicator muscle to become inhibited. The muscle primarily used in this case was the flexor pollicis longus. This particular muscle test is ideal for those who are in pain or who have low energy and do not have the stamina to repeat longer lever manual muscle testing. This manual muscle test is also as easy on the doctor as it is on the patient.

Instrument assisted adjustments were gently applied to the listings noted in addition to the GTO challenge and correction. For these manipulations I used the Erchonia Adjustor set to multiple pulses per second with the pressure knob dialed back to make the impact less on the tender points of contact. Typically, I apply 7-10 cycles with the Adjustor before removing pressure. It should be noted that most of the pelvic and spinal challenges that were positive were negative after performing the GTO manipulation. The left round ligament was also treated in a Webster-like style in accordance to the right posterior and superior listing of the sacrum.

Results

In one treatment session the patient noted that her bilateral groin pain, lumbosacral junction pain, and hip pain were all completely resolved at the end of the visit. While she was grateful for the relief she received she was most grateful for what happened immediately after her treatment. Before she made it to her car she felt the baby drop significantly lower in the pelvis and shortly after making it home she began active labor. The patient did not need to use induction to start labor and was able to successfully deliver her daughter naturally.

While as a profession we are well aware of the close connection of chiropractic manipulation and pelvic alignment for the health of the mother and baby and also for delivery, I wanted to underscore that the GTO challenge and treatment option laid out by Dr. John Corneal¹ gives us powerful tools to enhance their effectiveness. It also gives us the ability to apply effective treatment with minimal pressure to the patient while taking the spinal correction to the next level by improving joint motion and stability by correcting the underlying muscle dysfunction.

In another similar scenario a mother with severe central pubic pain presented to my office at 39 ½ weeks pregnant. She had been dealing with this pain for several weeks, and it had been increasing to the point where she could no longer handle the pain. The only position she could tolerate was lying supine and the only therapy she would tolerate was manipulating the GTO of her abdominal and pelvic muscles. Her pain also instantly resolved in one treatment, and her labor began two days post treatment.

While learning this technique from Dr. Corneal in his office he stressed to me that palpation skills were probably the most important in determining where to apply this therapy. For doctors who rely heavily on their palpation or for those situations when palpation is practically the only option for detecting the need for treatment, this technique in my perspective is highly effective. It should be noted that manipulation of the muscle spindle cells is also an option. They respond in similar fashion to challenge and can be useful in avoiding contact in personal space especially about the pelvic attachments.

A clinical note for those not frequently using this technique: while correcting these muscles using the GTO method one should continue the pressure for correction not simply for a set period of time but until the muscle fully “releases” and assumes the appropriate tension of the neighboring muscles that do not feel aberrant. Furthermore, it should be noted that these treatments are great options for those needing gentle care. While the description in 2009 by John Corneal¹ cites the treatment to be “direct heavy pressure” it should be noted that gentle pressure can often be just as effective, if not more so. This comes in very handy when dealing with populations that cannot tolerate heavy pressure, who are in acute pain, or who have other trauma that contraindicates the use of deeper pressure as in fracture, skin lesions etc.

Conclusion

Manipulation of the GTO's in the pelvis, hips, and abdomen can be a powerful treatment option for mothers who are approaching post term and who are seeking alternative support for natural delivery. Even late in the pregnancy these options also offer the relief

of structural pain in relating areas. In this case, a thorough treatment of these muscles guided by palpation and challenge allowed a comfortable and effective treatment to balance the pelvis, which ultimately appears to have opened the door for this patient's baby to progress in station and for labor to begin.

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**GTO Manipulation a Gentle Option for Preparing the Pelvis for Delivery
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Therapy Localization Comparison Between Applied Kinesiology and Neuro Emotional Technique

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Abstract

I took on this project of specific areas of identification by the method of therapy localization (TL) and specific areas for treatment by way of these technique systems AK and NET too correlate their efficacy. I noted many similarities between how TL was used to identify the presence of Temporomandibular Joint Dysfunction (TMJD), Ileocecal Valve (ICV), Emotional Points, Hypoadrenals Points, and Category #1 Points. I also noted differences in points used to scan or identify areas of dysfunction.

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Temporomandibular Joint Dysfunction (TMJD), Ileocecal Valve (ICV), Emotional Points, Hypoadrenals Points, and Category #1 Points. I also noted differences in points used to scan or identify areas of dysfunction.

Introduction

In October 2014, I finally had the opportunity to take the Neuro Emotional Technique course in Newark, New Jersey. I have spent the past 14 months learning and implementing this system into practice.

What I noted was a difference in many areas of TL in identifying an area of involvement such as TMJD, and Category #1. I decided to use the NET system for these two conditions and then check them against the standard system used in AK. This was done with most patients whenever possible during the past 14 months, when these two conditions were present at the time of the patient's visit.

I had also conceived the idea that if the NET system of TL for a Category #1 could be done supine, it seemed quite reasonable that a Category #2 could also be done in this position by TL to Anterior Superior Iliac Spine (ASIS). This should also work.

Many other of the TL indicator points of NET system are the same as the AK indicator points, such as Ileocecal Valve, Emotional Center, Wrist Pulse Points, Lung & Kidney, Alarm Points. NET's other indicator point seem to be different.

Discussion

What I found interesting was the NET system Primary TMJ Scanning Protocol, which is different than the standard AK for the TMJ, however NET Individual Scan method were the same. The primary is known as the chin scan which used the finger tip on the msymphysis menti, instead of the actual articulation which is SI-19. If the TMJ is malfunctioning there will be an immediate weakness to the indicator muscle.¹ In the case of standard AK examination touching the condyle of the jaw will cause no weakness till the muscle of mastication are activated with the action of opening, closing (biting), protrusion, retraction and right or left lateralization.² In the case of NET scanning protocol with the finger contact to the symphysis menti these action if the muscle are reactive or out of balance will stop the weakness of the indicator muscle being used in one or more of these chewing motion described above.

In the standard AK diagnostic method of examination of the TMJ each side will be examined separately and one or more of the chewing action will produce weakness to the indicator muscle being used.³ Using the NET scan method the weakness is present when the patient TL the symphysis menti the weakness will be negated when the malfunction side of the TMJ condyle is contacted. If the TL shows only one side the chewing action will negate the weakness to the indicator muscle. If both side are involved than the standard AK examination will have to be done to determine what chewing action and therefore what muscle of mastication need to be treated.

Dr. Walker's Short-Cut Test for Category #1 is different than the standard AK examination method the doctor can make the contact as well as the patient. In the standard AK the patient is usually prone and both hand are placed over the sacroiliac joint and the Posterior Superior Iliac Spine or PSIS.⁴ In the NET Short-Cut Method states the practitioner's forearm can be placed across both of the SI (Sacroiliac) joints or in front of the body both ASIS (Anterior Superior Iliac Spines).⁵ Net did not seem to find the side of lesion, with AK the patient is asked to place both palms down to one side on top of the other the side that causes indicator muscle weakness is the side of lesion.

What I learned that using the supine position I could have the patient put both hands on the ASIS as NET did but I could also ask the patient to put both hands one on top of the other and would the side of lesion just as I would do with standard AK methods. I also thought if this would work in a Category 1, then it should also work in the same manner for the osseous lesion of Category 2, which it did. I did this on every patient I treated when time permitted for the past fourteen months making my sampling of over 350 times. I would first check the patient with the NET system supine, then following it up with standard AK method prone. Both system work perfectly, with 100% correlation.

Conclusion

Both systems work together allowing the doctor to be able to treat not only the structural and chemical side of the Health Triangle, but also to handle the psychological or emotional side of the patient condition. NET Short-Cut Testing for Pelvic Categories

allows the system to be applied supine which for my practice is the position I start my examination and this save me a lot of time. The Primary TMJ Screening Protocol seems to have greater advantage in treating patient with TMJ symptoms because it saves a great deal of time in finding the problem and rechecking my treatment outcome.

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**Therapy Localization Comparison Between Applied
Kinesiology and Neuro Emotional Technique
Paul T. Sprieser, D.C., DIBAK**

Muscle Imbalances Resulting From Allergies/Sensitivities

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Abstract

We have been taught in Applied Kinesiology that muscles move bones, bones do not move muscles. I do not recall being taught a comprehensive picture of what actually causes the initial muscle imbalances. It is my contention that at least some of the muscle imbalances and complaints that we see daily in our offices are the result of sensitivities to our environment, the things we ingest, breathe in, that contact our body, and the impact of electromotor forces we are exposed to, all of which impact our Energy Bodies and affect our Immune System, Nervous System, Gastrointestinal System, and Musculoskeletal System. The following is my attempt to describe some of the effects of these environmental sensitivities and their impact on our musculoskeletal system with a number of case histories to illustrate this point.

Key Indexing Terms

Muscle Imbalances, Allergy/Sensitivity, Desensitization

Discussion

Sensitivity/Allergy Muscle Patterns (S/AMP). It has been my observation that various types of sensitivities/allergies have consistent muscle patterns or imbalances which cause or affect many of the musculoskeletal problems that we see daily.

There are four unique and consistent muscle patterns for the four different types of sensitivities/allergies (S/A) that I have recognized:

- S/AMP-G for sensitivity/allergy muscle patterns for substances that are ingested into the body.
- S/AMP-H for inhalant S/A.
- S/AMP-C for contact S/A.
- S/AMP-E for electrical or EMF S/A.

The muscle imbalances may be hypotonic or hypertonic, most often they are hypotonic. There are primary muscles which always show up for the various types of S/AMPs and secondary muscles that show up less consistently, most likely as compensation for the primary muscles. The following are the primary muscles:

- S/AMP-G bilateral iliacus, serratus posterior, both superior and inferior divisions, sometimes ipsilateral and sometimes contralateral to each other, levator scapulae - ipsilateral to the serratus posterior superior and bilateral

popliteus. Pushing up on the ileocecal valve will cause an indicated muscle to weaken.

- S/AMP-H deltoid, coracobrachialis, anterior serratus – all ipsilateral, diaphragm and articularis genu.
- S/AMP-C temporalis, parietal division, bilateral gluteus max, subscapularis, semispinalis capitis bilaterally – one side hypertonic, one side hypotonic, iliocostalis cervicis and rectus capitis. Pushing down on the Houston valve will cause an intact muscle to weaken.
- S/AMP-E Supraspinatus.

It is my opinion that the significance of these patterns which cause so many of the chronic issues we see daily is under-appreciated. The correction of all the S/AMPs is surprisingly simple, but may be hard to explain simply as it is not all derived from Applied Kinesiology. I would like to give you a brief history of how I came to recognize and treat the S/AMPs and a number of case histories.

In the 1980s, I took the Basic 100-hour course from Walter Schmidt, D.C., DIBAK (great teacher). In the class he demonstrated food allergies using powdered foods placed on the tongue. As I recall, he mentioned there would be a bilateral iliacus weakness and a positive ileocecal valve sign if a person had a food sensitivity. During the course, Dr. Schmidt said some very complimentary things about John Bandy's (D.C., DIBAK) treatments and outcomes.

Dr. Schmidt also had a seminar with Michael Lebowitz D.C., DIBAK who demonstrated the use of a strong magnet for testing food sensitivities, which made testing faster and easier. In later classes from Lebowitz, other testing procedures for greater accuracy were described. Because of Schmidt's comments about Bandy's work, I took his seminars, which Bandy said were a speeded-up version of Dr. Alan Beardall's Clinical Kinesiology. I took a course from Rene Espy, D.C. called Body Integration which had 6 textbooks, all of which contained testing and treatment options for nearly all the muscles in the body, which were (as I understand) also an extension of Beardall's work. I qualified for acupuncture with classes from John A. Amaro D.C., F.I.A.M.A and Richard D. Yennie D.C., Dipl. Ac. I took Devi Nambudripad's (M.D., D.C., L.Ac., Ph.D.) Allergy Elimination Techniques (NAET). Dr. Nambudripad contends that various allergens cause disturbances to the meridians and that balancing the meridians while holding or being exposed to their energy field and maintaining this balance for 25 hours as the Chi cycles thru all of the meridians corrects or eliminates the allergy. *BioSet*, or *Bioenergetic Desensitization and Enzyme Therapy* (by Ellen Cutler D.C., a former student of Nambudripad's) stresses the importance and use of digestive enzymes and detoxification formulas, and presents (in my opinion) a more organized approach to finding allergens. I also took Quintessential Applications (tapes of seminars) by Dr. Walter Schmidt, classes from Jose Palomar D.C., DIBAK, and NET from Scott Walker D.C.

The assessments and treatments discussed below are related to and contain elements of techniques I've learned from all of the above. In Bandy's classes he taught hand modes and how to use them. Hand modes are a way to ask the body questions about what is

needed to correct a weak muscle (e.g. subluxation, fixation, fascia, reactive fascia, cranial, holographic cranial, tooth, muscle, reactive muscle, etc.). They are used much like Dr. Walker uses verbal questions to ask the body questions. Both use group muscles in their questioning for a response from the body. On the pages we got in Dr. Bandy's class, illustrating individual hand modes, there were three categories, structure, chemical, and electromotive. There were 18 pictures of hand modes in structure, 28 in chemical and 10 in electromagnetic. I had trouble remembering all of the hand modes and it took too much time to ask a question using a hand mode when they had to be looked up individually, so I reasoned that if Dr. Walker could verbally ask questions, then why couldn't I? As time went on I found that I did not like verbally asking the question so I tried thinking the question to the body and it worked for me. I still use hand modes for about 10 questions like subluxation, fixation, muscle, reactive fascia, etc., as I remember them without looking them up, and for scanning the body. When these don't show up I simply go through the charts thinking the modes to the body until the indicator muscle responds for a positive result and then use the hand mode to continue testing. Bandy taught to lock in a hand mode and scan the body for its location. If the hand mode was for subluxation, you would scan the body for its location. It could be in the spine, the ribs, shoulders, upper or lower extremities, etc. If the patient's indicator muscle (AK) or group muscle (CK) were in weakness when the location of the subluxation was found, it would strengthen and vice versa – strong would become weak.

Occasionally more than one mode is needed (subluxation, reactive muscle, etc.), where the muscle will usually test strong or stronger after the correction, but may not be as strong as could be (i.e. 50%+ but not full energy flow in the meridian) after the first procedure. After doing a temporal tap (my addition which I got from Dr. Lebowitz), if it becomes weak, you would look for another procedure and repeat it until it stayed strong after the temporal tap. Occasionally, a muscle is so weak (say the iliacus) that the patient has trouble lifting it or no ability to resist. In this case another muscle can be used as an indicator muscle by placing two consecutive fingers (positive and negative) on the hypotonic muscle and using the indicator muscle to find the mode of therapy needed and the location. In Espy's books, the muscle test is described and pictured for each muscle, but for the smaller muscles (e.g. multifidus, rotatores, intertransverii, etc.) which are difficult to test individually, she describes putting two fingers on the belly of the muscle and testing an intact muscle (on long muscles like the quadriceps, one occasionally will find a portion of the muscle will test strong at the belly and weaken near the origin or insertion, or vice versa). In the case of a very weak muscle you may have to treat multiple areas of the body to bring back full strength to the muscle. I use this two finger method to do a quick scan of the body to see if any of the S/AMPs are present in the initial procedure which takes less than a minute. If they come up, I tell the patient that there are certain muscles that become weak when they have a type of S/A (e.g. inhalant, ingestion, etc.), I then show them that these muscles are weak. The S/AMPs are relatively easy to strengthen, so I clear the S/AMP and show them that the muscles are now strong and talk about finding what it is that's causing the S/AMP. I explain to them that the S/AMP is part of the cause of their complaint. (Note: This is obviously not true in traumatic injuries such as whiplash, etc., but the S/AMP frequently causes or contributes to lifting, back, neck, shoulder, knee, fascia, and other types of injuries.) A distinction is made here of the difference between a sensitivity and an allergy. For the purposes of this discussion, a

sensitivity will weaken an intact indicator muscle but not when using an allergy hand mode. If the intact indicator muscle weakens to either the testing vial or the substance being tested with and without the allergy hand mode it is an allergy and is treated differently than a sensitivity as described below. For organism vials that test positive for allergy, the patient's intact muscle will weaken to their saliva.

S/AMP-G – Clearing the G pattern involves one of four vertebrae (challenge will indicate which), L1-T10 (very occasionally L2), and if T10 (association point for the liver meridian LV) is indicated, before you adjust, test the contralateral side of challenge for weakness of the liver meridian muscles (LV) (rhomboid, pec sternal). This is true of all association point subluxations: that some or all of the muscles we test for a meridian will be weak on the contralateral side of challenge. If the adjustment is successful, the LV muscles will strengthen (if present), the bilateral iliacus muscles will strengthen (occasionally one iliacus will not test as strong as the other and will require using hand modes and scanning to correct – this will vary), pushing up on the ICV will now no longer weaken an indicator muscle. Since the serratus posterior inferior attaches to these vertebrae, it may cause the subluxation, I am not sure. Put two fingers on the serratus posterior superior division – the side that caused the indicator muscle to weaken is the side treated with the inferior division which may test on either side. These muscles are reactive to each other and using Dr. Jose Palomar's P-DTR technique of tapping the muscles three times and eliciting a deep tendon reflex clears them. The serratus posterior superior division appears to cause a lower cervical fixation because when these two are balanced, the bilateral popliteus muscles now become strong. The levator scapulae requires hand modes and scanning. The above muscles frequently cause imbalance to other muscles to show up. A psoas imbalance which usually is located at either L3, L4, or L5 may be from the Lovett Brother effect from the levator scapulae. (Espy's books show three positions for testing different locations of weakness for the psoas muscle: lumbar, thoracic, diaphragmatic divisions which I have modified to test more specifically for the lumbar division). The iliacus will frequently cause a lower sacral subluxation - i.e. challenge and contact for correction made at the bladder (BL) association point (the piriformis may also be the cause of this subluxation but it is likely to be from a subluxation of the circulation sex/pericardium (CX/PC) association point, or T6 area and is not associated with the S/AMP-G). If a sacral subluxation did show with challenge after clearing these muscles, re-check with challenge as the sacral subluxation may now not show with challenge. In either case, check the Now point (the alarm point for the meridian at its peak at the time of your treatment). If the test is positive, then the patient will probably wake up between 1-3 a.m. and be tired from 1-3 p.m. (Then and Now). Usually the successful adjustment will stop this cycle of Then and Now, but if the Now point is still positive you must scan for an additional cause for the Now point. (The gluteus max weakness from the contact S/A frequently causes a sacral subluxation which requires the higher contact on the sacrum for challenge and correction, i.e. the small intestine (SI) association point, and the patient will wake up at 3-5 a.m. and be tired from 3-5 p.m. if the Now point is positive. When you have made the correction of Then and Now and the patient no longer wakes at the above hours, advise the patient to return if it returns as they probably have a new S/AMP-G or C or the piriformis weakness has returned. The levator scapulae may cause the patient to complain of neck pain or headaches. The sacral subluxation will frequently cause the patient to complain of low

back pain when lying in bed and if both the sacral and lumbar subluxations are positive, the patient will often complain of both low back pain and discomfort when lying in bed. The popliteus weakness from the lower C fixation is almost always present when the patient has the type of knee pain when his knee is bent and he does not have the full range of flexion due to pain. The intact popliteus muscle seems to help prevent the tibia from twisting under the femur when the individual turns with his leg straight. When weak this can allow the tibia to subluxate under the femur which causes it to no longer track perfectly with the femur when the knee is bent and rubs the cartilage the wrong way causing pain and limitation of flexion. By clearing the popliteus and adjusting the tibia according to challenge, the patient is able to flex the knee without pain unless the cartilage is too worn, in which case it will increase the ROM but full flexion will still cause some pain. With S/AMP-G you will also find a weak quadriceps and strong hamstring not infrequently which causes a tracking problem of the patella. The patient generally mentions that it is painful to go up and/or down stairs. By clearing the S/AMP-G and scanning for the two muscles to bring them back to normal tone you alleviate the tracking problem. Generally the two muscles are reactive to each other but with temporal tap one retests as imbalanced (the one that started the reactive cycle), and you must scan for its corrections. Sometimes there is swelling in the area and the pain is reduced but not fully gone. Frequently the pain goes away in a day or two when the swelling subsides as the patella is no longer rubbing the femur as it tracks.

Case History

55 y/o Caucasian female presented with difficulty talking without coughing. Every 2-4 words caused her to cough. She had a history of asthma and was on five medications. She was experiencing low back and chest pain. This was early in my allergy treatments and I only knew to test for the iliacus muscle and ICV and psoas, and the latter did not always show up. She had a history of allergies since childhood and had been diagnosed as having childhood allergies. At age 10, she went through a series of allergy shots (she remembered cats, dogs, feathers, dust mites). She related that she had first had a three year series of allergy shots (first weekly, then monthly). After a period without shots she again was started on another series of shots for one year. After another period without shots she was again started on a four year series of shots. Throughout this time she was on frequent antibiotics due to regular bouts of sinusitis and bronchitis. After the shots and antibiotics, she was told she had asthma and put on an inhaler and a preventative medication to help her sinusitis and she developed a cough. She tested for coptis, folocal, P5P, Omega Plus, (all Thorne products), Damiana Leaf and Dong Quai (Dr. Brent Davis' Forest Herbs). She tested for allergy to wheat, corn, eggs, soy, dairy & butter, and was told to avoid them. She also tested poorly for three of the five medications she was on. During the course of her treatment she elected to stop the use of most of her medications and with the above supplements and avoidance of the above indicated foods her breathing and cough got better. Over the years, although the number and severity of her exacerbations were markedly reduced, she had periodic exacerbations and various musculoskeletal problems and was a regular visitor for therapy. After several years of marked improvement she had a year of multiple exacerbations and her coughing came back...she had a new rug put in her house.

I had read about NAET and was skeptical, but had become frustrated with patients as above, coming back because they were unable to avoid the allergens. I took NAET and BioSet and became aware of many more allergens to test for with the many new vials I had obtained. I also read Ritchie C. Shoemaker's books "Desperation Medicine" and "Mold Warriors" which he co-authored with James Schaller who also had books on mold that I read. They described Human Leucocyte Antigens (HLA) and the genetic variant that some people have (approximately 30% of people, to varying degrees depending on whether the variant is hetro or homozygous) that does not allow their body to bind neurotoxins from Lyme, Pfiesteria, ciguatera, certain spider bites, mycotoxins or other neurotoxins. People with adequate HLA binding agents frequently have reduced symptoms that resolve with time without care and those who do not have them may continue with symptoms indefinitely. Shoemaker was using Cholestyramine, a cholesterol drug that works in the intestine to bind cholesterol. He used it to remove the various neurotoxins with good results, but it would take several weeks to months and had various side effects. As it was a drug, I was not able to use it, so I looked for alternatives such as charcoal, chitosan, etc. with only modest success. In a newsletter from Allergy Research Group, it was reported that a product they called NanoChitosan could bind neurotoxins for Lyme (the name was later changed to MicroChitosan). It is made from shellfish, so people who have shellfish allergies should not take it. It also is a strong binding agent, so should be taken three hours on either side of eating or taking a drug or supplement. It was reported to cross the blood/brain barrier which was something that Cholestyramine did not do.

With my new testing samples, and NanoChitosan the above patient tested for allergies to various mold testing vials and tested for mycotoxins (mycotoxins are neurotoxins from mold spores and an individual does not have to be allergic to have symptoms, but when they test for mycotoxin and an allergy to them, it takes much longer to get positive results without desensitization). My experience tells me that if you desensitize (if needed) and use a binding agent, the results are much faster – as long as they are not re-exposed to the mycotoxin. Please note, that in testing there is a hand mode for allergy that distinguishes allergy from an indicator muscle weakening with a sample and a positional muscle test used in NAET and BioSet. However, NAET teaches to treat all indicator muscle weakness as an allergy and in my opinion often desensitize when not needed. This is not my experience and as mentioned above the intact indicator muscle must weaken to both the substance with and without the allergy hand mode to be an allergy. Patients with allergies frequently take much longer to respond to therapies unless desensitized, while patients with sensitivities generally respond more rapidly.

The patient was desensitized to various foods, mold and treated for mycotoxins with NanoChitosan. She has continued to be a patient but, at times, a year or as many as three years have gone by without a visit as she has not had frequent issues. (She invites my wife and I to a local dinner/dance function each year so I know she is doing well). Of particular note - she seldom visits for musculoskeletal problems, but more frequently her visits are for a virus or GI tract issue. The point being that her musculoskeletal complaints have been markedly reduced after the relatively successful treatment for her S/As.

Case History

A 32 y/o Hispanic female presented complaining of pain all over her body. It was painful to be touched and was destroying her marriage. I was unable to test her due to pain and told her if I could not test her or touch her I could not help her. I gave her a bottle of NanoChitosan as an afterthought and did not expect to see her again. Eleven days later she called to come in again and much of her pain was gone. She was able to be tested and treated and an indicator muscle weakened to a mycotoxin vial. She was able to be helped but never reached more than a 60 to 70% reduction of her pain since she lived in a mold environment. This was before Morinda Supreme (Supreme Nutrition) became available and since then one or the other tests, or sometimes both, but one tests better than the other for the mycotoxin vial.

Case History

A 45 y/o Caucasian male complaining of knee pain and all-over body aches which had started in the past year. His knee pain was worse when he squatted. His knee did not test positive for any of the five things I normally checked for knee complaints. This is where I added articularis genu in my screening and started testing for this muscle in all S/AMP-H patients. Rubbing the tendon of this muscle weakens an indicator muscle on all patients exhibiting S/AMP-H. It is generally reactive to the coracobrachialis m. and its correction (return to strength) responds to P-DTR (on one occasion it was reactive to the deltoid m.). He tested positive for mold sensitivity and for S/AMP-H. I asked him to wet a paper towel and put it on a plate by the register where the A/C and heat blew in and leave it there until it dried. When dry, he was told to put it in a baggie, mark the baggie with the room it was in at work and at home. He was tested for all and the only positive test was from work. His desk was under the vent that blew in heat and A/C. He told his boss and his boss did not believe it and refused to do anything about it. He went and had a test for mold in his body at Bio Trek Laboratories and tested positive for mycotoxins (Aflatoxin: G1, G2, B1, B2, Ochratoxin A, T-2 Toxin Trichothecene, and Citrinin). He took it to his boss and his boss again did not believe it. He was given a binding agent and advised that he could not be mycotoxin free if he was continually exposed to mold spores. He arranged to be out of the office for one week and started feeling better, but when he returned to work his symptoms began to return. He told his boss that if he didn't do anything he would have to find another job. His boss had a firm come test for mold. Their heating and A/C vents were full of mold. The office was remediated for mold and he brought in new samples which were negative. Following this, he took the binding agent Micro Chitosan (NanoChitosan before the name change) and became symptom-free. There are many forms of inhalant antigens – pollen, mold, perfumes and other scented products, viruses, various volatile chemicals, essential oils, animal dander, feathers, etc. I have treated people with all of the above mentioned inhalant antigens, many who came in with the major complaint of a musculoskeletal nature.

Case History

The following is a composite of S/AMP-H histories that first helped me recognize the beginning of a muscle pattern for inhalants. A dentist whose wife I had treated earlier came in with a shoulder issue that was making it difficult to work. I balanced the muscles of the shoulder and he had reduced pain and increased ROM. He came in a few days later and all of his symptoms had returned. I combined the muscle balancing with

trigger point therapy and later combined ultrasound and electrical stimulation with the same result. At each office visit he was pain free or near pain free but his symptoms had returned by his next visit. After several visits like this I finally told him I was stumped and did not know if I could help him. Near the end of his treatment with me, a female who had been a former patient came in with shoulder pain and I had the same result. After several attempts she went to a physical therapist for therapy. Shortly after that a woman whose family I had treated brought her two young children in as they both had a cold and sinusitis. After they both tested for the same virus vial and were given the herb that negated the indicator weakness, the mother asked me to check her for her shoulder pain. She had no symptoms of the virus but when checked, tested for the same vial. She had a similar muscle pattern to the earlier mentioned patients and was treated, but this time she was also given the herb that negated the muscle weakness of the vial she had weakened on. She returned for the shoulder pain several days later and had held the muscle balancing from the previous visit. Her symptoms were resolved after the second visit and she was advised to call if they returned. I have seen her since for other complaints or when she brings her children in, but the shoulder problem has not returned. About a month later the first woman with the shoulder complaint returned after six weeks of physical therapy. It had been eleven weeks with little or no change in her symptoms since her complaint had first started. This time she was tested for the virus vial and she also tested positive for an A to the vial and to her sputum. She was desensitized to them and given the herb that negated the weakened indicator muscle. Her shoulder pain and limited range of motion due to pain resolved with the form of therapy used at her earlier visits in three more visits. It was after this that I started to check for inhalation muscle S/AMPs in addition to the ingestion muscle S/AMPs on the initial visit.

Case History

EMF – this was a 33 y/o white Caucasian male who had been a patient for a musculoskeletal issue earlier. He wanted help to go to his doctor's office and/or dentist. He could not be near a television (had to be 10 feet or more away) or a computer without his heart going into tachycardia. The doctors had TV in the waiting room and he could not go in. He tested for an A for EMF (tested near the computer which caused the indicator muscle to weaken with allergy hand mode). He was desensitized to my computer screen. In the next few days he was desensitized to a 32" TV in my office that I use to show patients videos of various subjects (not usually on). Each time he was less reactive and could be closer to a TV screen. Finally we went to Circuit City and he was desensitized to the TVs surrounding him. The floor manager came over and asked what we were doing and asked us to leave. He told the floor manager that he wasn't leaving. He gave him his name and told him to ask the store manager. He had been the top salesman at this store and knew the manager well. The floor manager left us alone so we could finish. It was funny at the time and I'm sure the customers wondered what we were doing.

After four sessions of NAET desensitization, he was able to be around TVs and a computer – I had not yet had BioSet which has vials for electricity, TV radiation, and a number of other EMF vials. Since taking the course, I have used the electricity vials on people who had the S/AMP-E muscle pattern, tested for allergy and had persistent symptoms. Before the vials were available I would show them how to strengthen the

supraspinatus, as it is easy to show the patient how to reset the pattern (spread the mandible for twenty seconds and/or spread the squamosal suture with exhalation ipsilateral to the supraspinatus weakness - while either will strengthen the S/AMP-E, I recommend they do both). Once desensitized, they no longer show the pattern. I have no idea how it affects the body's reaction to EMFs except for the muscle weakness it creates as it corrects it and it has not as yet come back in a patient since I started using the vials to desensitize. Before using this, Body Guard (Supreme Nutrition Products) was used alone but the results were not always successful in preventing the S/AMP-H from returning. As with all NAET and BioSet treatments, I combine them and add some things I have found to be helpful. This is originally why I wanted to learn them – to stop the muscle weaknesses from coming back. The supraspinatus weakness at times allows the shoulder joint to be subluxated or slightly out of joint, which can create a rotator cuff issue, particularly when combined with a inhalant S/A. Strengthening the SITS muscles, and any others involved with the shoulder, desensitizing and resetting the joint, if needed, frequently resolves the joint issue quickly.

Case History

A 47 y/o white female Caucasian presented with a complaint of high spikes in her blood pressure (BP) which required her to visit the ER on multiple occasions. She felt that she was allergic to something but didn't know what it was as there did not seem to be any particular food that she ate that caused the spike. She tested for multiple foods and each time she was desensitized she would not clear as the stomach (ST) meridian would not clear. She had a growth on her leg that she had had cut out, but it had returned. In trying to clear the meridian I would scan and this area would show up (which is how I found out about the growth - scanning took me to that point) – it was at ST 36. After needling with multiple needles (as was taught in acupuncture classes for scars that blocked the flow of the meridian), she would clear. This happened on several occasions for various allergens when treated for a food allergy. On one occasion the ST 5 area showed as the area blocking the ST meridian (located on the jaw). The patient had neglected to tell me when asked at intake that her jaw had been broken as a young girl and metal was used to hold the jaw together while the mandible mended. She tested for an S/A (allergy) to the metal (testing is done by having the patient hold the area of the metal and testing intact muscles for weakening) and was desensitized for it. This resolved her issue with the BP spikes.

Case History

My wife and I were on a cruise and the first morning out we were having breakfast. She left to get a book from the cabin. I was alone at the table and a couple approached. He was helping her walk to the table. She sat down and her husband went to get them breakfast. We began talking and I asked her what had happened that she needed help walking to the table. She had been in an automobile accident and her legs had been shattered and they had to use metal rods to hold the tibia and fibula bone pieces together while the bone mended. Since then when she walked she would lose her balance and fall to one side. She said she had seen five different neurologists and none could help her condition. Her husband had to stop work to help her walk to places, as she had fallen on several occasions and injured herself (long haul truck driver). I told her I might be able to help her and after breakfast we went on deck and I desensitized her to the metal in the leg, as holding her leg weakened all of the muscles tested. After the procedure I told her I

did not know how much it would help, but it was worth the try. We saw her at an elephant reserve about a week later with her husband. She was walking without help from her husband. When we talked, she said she had not had a balance issue since the desensitization. Two weeks later when the cruise ended, I saw them leaving the ship and she was walking unassisted. We were a distance away, and I did not get a chance to talk to her again.

Case History

A 42 y/o Caucasian female presented with right side chest pain, and swollen and inflamed vocal folds (her words on the intake forms). She had had a chest cold for two months and coughing caused her chest to hurt. She had a history of broken bones {L collar bone, L little finger and metatarsal (proximal phalange and metatarsal joint (MTJ) had been jammed and occasionally still bothered her), R ribs 7 and 8, and R large toe}. All had been broken years earlier as a child or younger adult. All tested positive for Schmitt's Injury Recall Technique (IRT). She tested for a bacteria vial (bac S-Z BioSet) which was negated by Artecina (Thorne), Alpha Solanine which also tested as an A, (first time I had seen that), A to all of the nightshade family vials I had (peppers, tomato, potato and eggplant) all negated by Thera Supreme (Supreme Nutrition Products), Methylcobalamin and P-5-P, (possible methylation fault as her two sons also tested for same when seen at later dates), which was negated by Basic B Complex (Thorne). When she was advised of the nightshade S/A testing, she informed me that she had had issues with peppers and tomatoes causing her throat to become inflamed and she had tried to avoid them. On her second visit she was treated again for the S/AMP-G, (said she may have had pepper in a sauce when eating out) and the IRT for the ribs and little finger had returned. She was desensitized to Alpha Solanine and during the procedure the area of GV 4 and 5 (L3, 4) blocked the clearing and then she advised me that during birth she had had an episiotomy which did not take and had to be redone twice more. She had pain in this area for some time afterwards. She also mentioned that it was some time after that that she began to have issues with her throat swelling and eventually she related it to eating peppers and tomatoes. She had seen several different types of specialists for the throat swelling without any lasting results. She had lived with this for thirteen years since the birth of her child. Prior to that she was unaware of any symptoms she had with nightshades and until the area that blocked the sensitivity clearing showed up (GV 4 and 5), she had not associated the two. (This is interesting as in NAET we had been taught that allergies could be triggered by chemical, physical, or emotional events.) She tested for an IRT to this area and each time she was desensitized for an individual nightshade, the area blocked clearing of the meridian. Stimulation of the area caused a general weakness of all muscles tested and IRT was used as well as acupuncture with a laser and micro current to stimulate for the IRT. Eventually the micro current was applied from GV4 and 5 to different areas on the abdomen so the current would penetrate more deeply and the IRT would hold. After seven visits her initial symptoms resolved. She has since returned for other musculoskeletal complaints and for her sons. She has continued the Thera Supreme on a maintenance dosage and has been able to eat nightshades occasionally without having the throat swelling but periodically when seen for other complains she retests for an IRT in the GV 4, 5 area and the three modes of stimulation are used with the IRT maneuvers.

Case History

A 26 y/o Caucasian male, who had been a patient before this particular visit, was a UPS driver and delivered packages to my office. This visit was in 1987, before I had a concept of contact S/As. His complaint was of neck and low back discomfort. He had previously responded well to therapy and frequently one visit would resolve his complaints. The weather had been extremely hot (100 degrees plus) and humid for the past two weeks and I asked how bad it was being outside delivering packages all day in this weather. He mentioned that he had been sweating a lot and that he had a new type of T-shirt that was supposed to help with sweating and not become drenched with sweat. I was having a very difficult time correcting his muscle imbalances as I would treat and test the muscle which would test strong and go on to another muscle but could not balance the area or relieve his symptoms as different muscles would show up and the muscles which had tested strong would again show weakness after correcting another. This was very unusual from my experience with treating him in the past. After an extensive amount of effort and some frustration I asked him to take off his new T-shirt and went back to balancing his musculature and this time it was relatively easy to bring back balance and relieve his symptoms.

Case History

This was a 58 y/o Caucasian female who had been referred by an alternative therapy Osteopath. She had G.I. complaints of long standing and on the intake form listed as her major complaints: low back pain, abdominal cramps, pins and needles throughout her body, muscle spasms/twitches and discomfort on the outer toes on her right foot. She had seen a number of medical doctors with many tests performed and diagnosed tentatively with leaky gut, IBS, food sensitivities, and inflammation. After little or no relief, she had finally given up on them and had been seeing alternative practitioners. She came in with a bag of 17 supplements she had been given and was taking. She had stopped some that she did not bring in as they had aggravated or caused new symptoms. She also complained of not being able to gain weight (5'9" 115lb). There were S/AMP- G, C and H, she tested for S to gluten and casein which was negated by Similase GFCF by Integrative Therapeutic (enzyme for gluten and casein, containing DPP IV which breaks up a 3 amino acid sequence in both proteins which is often involved in their S/A when both proteins test) and advised to avoid these foods, but to take the Similase GFCF (one twenty minutes before eating and one when eating) when eating out or when she is not sure if the food has them in it. A parasite vial also caused an intact muscle to weaken in S and A, which was negated by Artecina (at this point she told me that she had been treated for a parasite with antibiotics while in Brazil years earlier and sometime after that she began to have difficulty but did not relate the two as initially she was better with the antibiotics), S and A for a mold vial, and S for mycotoxins that were negated by Morinda Supreme. Four of her supplements weakened an intact muscle and three would not strengthen a weak muscle. She was given Artecina and Morinda Supreme, and the S/AMPs were corrected. When she returned for her next visit, the S/AMP-G had returned, it was corrected and she was asked to keep a record of the things she ingested. Over the course of nine weeks and eleven office visits with the mold vials and the parasite vials desensitized, treatment for her musculoskeletal complaints, treatment for a number of other vials that she tested for over the course of the nine weeks, she came in

feeling better than she had for some time. Her only remaining complaint was pain of the outer two toes of her right foot when walking. The area she indicated was at the distal metatarsal head and there was radiation to the two toes. Assuming it was a dropped metatarsal arch I placed a cushioned metatarsal arch pad that adheres to the foot, proximal to the metatarsal head to limit striking force to the head when walking without testing to see if she reacted poorly to it. Since she was feeling better and had no other symptoms, no other therapy was done and she was advised to call if her symptoms returned. She called to come in the next day and when she came in she said that as she walked to her car she started to feel badly again. She had rib, neck, thoracic, low back, and a general body discomfort as her complaint that day. I neglected to test for S/AMPs and treated her areas of complaint. She said she felt better and as she lay on the table, I noticed the pad and took it off her foot. Immediately a sense of well-being returned and within moments her symptoms were gone. She had an allergy to latex.

I have seen patients come in with migraine headaches, neck and upper back pain, low back pain, etc., who tested for a S/AMP-C. By checking for the S/AMP I have been alerted to ask about substances that are contacting their bodies, among which have been soaps, detergents for washing clothes, makeup, shampoo, hair sprays, toothpaste, essential oils (which also show up for S/AMP-H at times), perfumes, moisturizing lotions, skin lotion to remove dark spots on the face and body, and suntan lotions (ask the patient to name things they put on the body, have them hold their clothes for detergent or hair for shampoo or other products put on hair, jewelry etc., and test an intact muscle for weakening. If the allergen is not present for testing and the muscles weaken when they mention it, they are asked to bring it in at their next visit for testing and not to use it until tested). After treating the complaint and removing the offending substance, the patient complaints are more rapidly resolved and less likely to return unless another substance offends.

Conclusion

These are but several of the hundreds of case histories I could cite when patients have come in for primarily musculoskeletal complaints, testing for S/AMPs that were involved with their complaints. I had treated patients for years before becoming aware of the muscle imbalances caused by reaction to S/As in the environment and generally resolution of complaints took longer and were subject to recurrence. I hope you will consider and investigate these possibilities of causes for muscle imbalances and musculoskeletal complaints.

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Muscle Imbalances Resulting from Allergies/Sensitivities
Paul R. Thompson, B.S, B.A., D.C., F.I.A.M.A.

Division II



Critical Review Papers

Autonomic Nervous System Regulation

W. David Berglund, N.D., D.C., P.Ac.

Abstract

Objective: To introduce a screening test for optimal functioning of the Autonomic Nervous System.

Dr. George Goodhart introduced manual muscle testing to the “Healing Arts” in the 1960s. Dr. Alan Beardall introduced the concept of the Human-bio-computer in the 1980s. The manual muscle testing of Applied Kinesiology is a binary response, either being facilitated or inhibited. Homeostasis is maintained by the constant sensory input into the Autonomic Nervous System followed by the appropriate motor response. The hard drive of the Autonomic Nervous System is programmed for survival. It will take any action needed to keep the organism alive even robbing Peter to pay Paul both of energy and raw materials. It may rob from lesser body parts to supply areas of higher priorities such as the heart or brain. The Autonomic Nervous System is composed of the sympathetic, parasympathetic and enteric nervous systems.

Key Indexing Terms

Blocked Autonomic Regulation, Applied Kinesiology, Environmental and Food Sensitivities, Heavy Metals, Toxic Petroleum Solvents, Artificial Sweeteners, Scars, Focus Fields (Root Canals, Dental Cavitations, Infections, Burns, Toxic Nerve Ganglion, Tattoos), TMJ Dysfunction, Mental and Emotional Stress, Geopathic Stress, Neural Therapy

Introduction

The Autonomic Nervous System is like a vast computer network receiving sensory inputs from each individual cell and complex organ systems in order to maintain homeostasis. Just like an electronic computer monitoring system, it can acquire interferences to its optimal functioning. Dr. Louisa Williams and Dr. Dietrich Klinghardt developed a screening test for Autonomic Nervous System Regulation. The test involves placing the center of the palm over the umbilicus. It is theorized that the energetic field created by the circumflex artery, nerve and vein of the palm of the hand should negate the energetic field created by the nervous system ganglion of the underlying umbilicus area.

Discussion

Dr. Alan Beardall introduced the concept of the living computer. He said, “The tabernacle that houses our spiritual essence is enveloped in our physical body which acts as a transmitter of external stimuli to bring the Soul in touch with the physical body and the external environment. Through our sensory system, we become aware of the raw data that is around us.”

The Autonomic Nervous System is a biological computer network. The main program of that system is survival. Our bodies don't always get what they need, such as proper nutrition or adequate rest, causing the nervous system to compensate or makes an adaptation. Adaptations are made by the system constantly in order to keep the organism in homeostasis and alive. Adaptations often happen with physical injuries and even with emotional injuries. At times an injured tissue will placed in a holding pattern, until the organism has the time, the energy, the raw materials and the information needed to complete the necessary repairs. An unresolved ankle injury can result in a pelvic distortion and further advanced to a shoulder problem. The person may go to their doctor seeking care for their injured shoulder. X-rays and a MRI may be ordered, but if the results are negative, next comes the suggestion of exploratory surgery. The ankle may no longer hurt, although it is origin of the current symptoms.

The Autonomic Nervous System can be screened for possible blockages by having the patient place the palm of their hand over their umbilicus noting that a strong indicator muscle should be inhibited.(Note the indicator muscle should be prescreened for autogenic inhibition). The strong indicator muscle should display inhibition from the short circuit caused by the palm TL to the umbilicus. If it does not, this is an indication of dysfunction of the Autonomic Nervous System.

Factors that may cause dysfunction of the Autonomic Nervous System:

1. Food and Environmental Sensitivities
2. Heavy Metal Toxicity
3. Toxic Petroleum Solvents
4. Artificial Sweeteners
5. Scars/ Dysfunctional Nerve Ganglia
6. Root Canals
7. TMJ
8. Emotional and Mental Stress
9. Geopathic stress

Methods and Materials

Food and Environmental test kits, Heavy Metal test kit, Solvents such as isopropyl alcohol, Aspartame and Splenda packets

If a palm TL to the umbilicus does not inhibit a strong indicator, then dysfunction of the autonomic nervous system is present. Then each factor is challenged in turn looking for inhibition of the strong indicator muscle which signifies a positive challenge. Each positive factor can then be entered into the bio-computer by tapping on the glabella three times with the eyes open and three times with the eyes closed. This procedure should return the inhibited indicator muscle back to the facilitated state, which indicates this information is now stored in the bio-computer. After all the factors have been tested and all positive challenges entered for display in the bio computer, the clinician can once again tap the glabella three times eyes open three times eyes closed and retest the positive

factors. The body will now display only one factor, if there were multiple positive challenges. The wisdom of the body directs the clinician in its restoration of health in a priority manner. The positive challenge can now be addressed using one's clinical expertise to resolve the challenged issue.

1. Food and Environmental Sensitivities are challenged under the south pole of the magnet
2. Heavy Metal Toxicity are challenged under south pole of the magnet
3. Toxic Petroleum Solvents are challenged under south pole of a magnet
4. Artificial Sweeteners are challenged under south pole of the magnet.
This factor often displays and is very important to check on every patient. It is known that these artificial sweeteners are neurotoxic and that they affect the human microbiome. They are known to cause over 160 different symptoms. They are in diet sodas, chewing gums and many other products.
5. Scars are challenged with a direct TL
6. Root Canals are challenged with a direct TL
7. TMJ is challenged with a direct TL
8. Emotional and Mental Stress are challenged with the palm on the forehead.
9. Geopathic stress can be challenged with a cell phone to the body.

Case Reports

Four-year-old male presented with complaints of eczema and was not responding to traditional care. His autonomic regulation was blocked by food and environmental sensitivities. The offender was citrus fruit. Desensitizing procedures were used and his parents were told to eliminate citrus fruit from his diet and his skin return to normal after a few days.

39-year-old male who stated he was going need a liver transplant. He said that he was cold to the bone. His autonomic regulation blocked by emotional and mental stress. Neuro-Emotional-Technique was used finding paralyzed will at 19 years of age related to the kidney meridian. Patient did not need a liver transplant. Kidney meridian rules bone tissue, interesting in that he was cold to the bone (his own words).

55-year-old female diagnosed with anxiety disorder. Autonomic regulation blocked by emotional and mental stress. Neuro-Emotional-Technique was used finding fear and impending doom in-utero. Her mother was pregnant during WWII. "The deer in the headlight look" was gone and the patient looked 10 years younger immediately after the treatment. The anxiety disorder was resolved.

24-year-old female with migraine-like headaches for previous two-years. Autonomic regulation blocked by TMJ dysfunction. Both TMJ and neurological truth were found and treated. Later the patient acknowledged that her headaches began after a dental procedure that she had had approximately two years prior.

60-year-old female presents with low back pain. Autonomic regulation blocked by TMJ dysfunction. Patient then acknowledges that she wears a night guard to prevent grinding.

TMJ dysfunction treated, patient states she no longer was grinding her teeth at night which she had done for over 25 years.

55-year-old female presented with low back pain. Autonomic regulation blocked by hysterectomy scar. Hysterectomy scar appeared swollen and red even though it was more than five years old. Scar treated several times with Tom Charters Electro-block and the scar became a mere thin white line. Her back pain was resolved and a side effect, her bowel movements, restored to normal.

30-year-old female presented with fibromyalgia pains of three-year duration. Autonomic regulation blocked by aspartame. Patient initially denied use of aspartame, however on further questioning she realized that she had exchanged her smoking habit three years ago for a gum chewing habit. Most chewing gums contain aspartame.(I recommend Spry). Symptoms began to resolve after several weeks of abstaining from aspartame.

Conclusion

Symptoms are only symptoms and names for symptoms are simply names, true healing comes from diagnosing the cause and providing the body with the necessary ingredients to begin the healing process. Restoring optimal autonomic regulation allows the body to heal itself. Once this master system is fixed then you can concentrate on the little things. I believe in Dr. Walter Schmitt's and Dr. Kerry McCord's book, "Quintessential Applications," that local is last on the list and Sheldon Deal said that 85% of what we see in our clinical practice is an adaptation, so put out the fire and do not worry about the smoke.

A patient whose Autonomic Nervous System is regulating properly will experience the continuous flow of Chi from meridian to meridian during its proper time of 24-hour clock. Allowing each meridian and each organ system to heal and function normally. The practitioner will now have a patient capable of healing and no longer a victim of a major adaptation that could cost them their life.

Some holistic practices focus on clearing food and environmental sensitivities, some on detoxification and some on clearing emotional stresses. The use of Applied Kinesiology allows the practitioner to treat the priority has the body intended. *Thank you, Dr. George Goodheart.*

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Autonomic Nervous System Regulation
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“Got Chi” Recharging the Human Body by Nature’s Design

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Abstract

To revisit ancient wisdom and introduce a simple technology into the clinical practice of the Applied Kinesiologist. This technology will enhance clinical outcomes and ensure the practitioners own well-being. Recent scientific research is validating a design factor of the human body. Homeostasis requires the need for direct physical contact with the vast supply of electrons on the surface of the Earth.

Key Indexing Terms

Earthing, Grounding, Kidney 1 Connectors

Introduction

The correlation between the acupuncture meridian system and muscle function was introduced to the Applied Kinesiology world by Dr. George Goodheart. 5:00 PM to 7:00 PM is when the Chi moves into the Kidney Meridian. The Kidney Meridian is the reservoir of the original Chi Essence that we receive from our parents. It is this Chi Essence that gives us life. The Kidney Meridian also gives rise to the Essence of the major organs. That is why the kidneys are valued greatly in Traditional Chinese Medicine. Protect your kidneys if you want a strong and healthy life. During this time of the day, the kidneys clear, fire and detoxifies the body. It also stores and renews the various essences of the organs. One should not exercise at this time, and also not drink too much water.

Emerging scientific research has revealed a surprisingly positive and overlooked environmental factor on health: direct physical contact with the vast supply of electrons on the surface of the Earth. Our modern lifestyle separates us humans from such contact. Recent research suggests that this disconnect may be a major contributor to physiological dysfunction and disease seen in modern societies. Reconnection with the Earth's electrons has been found to promote intriguing physiological changes and subjective reports of well-being. Earthing (or grounding) refers to the discovery of benefits, including better sleep and reduced pain, from walking barefoot outside or sitting, working, or sleeping indoors connected to conductive systems that transfer the Earth's electrons from the ground into the body. This paper reviews the earthing research and the potential of earthing as a simple and easily accessed global modality of significant clinical importance for the applied kinesiologist and their patients.

After suffering from a debilitating injury and noting several colleagues having health issues with a few actually dying prematurely, I began to wonder why? Was it due to an energetic drain from working on chronically ill patients? Becoming interested in the presumed benefits of walking on wet grass in the morning and designing a clinic where the practitioner could work with direct contact to the earth, it happened. I chanced upon a

book at Barnes & Noble called “Earthing.” While reading the book I recalled Dr. Scott Walker saying the Kidney Meridian was the store of Chi according to the Chinese but he did not know why. A major epiphany, so simple, Kidney 1 is located on the bottom of the foot. Eureka, like recharging a depleted cell phone, plugging our body into the replenishing energy of Mother Earth.

Discussion

Clinical Research.

Manual muscle testing is performed on all patients before and after using small orange body bands connected to Kidney 1. Muscle testing is performed on one muscle related to each acupuncture meridian noting the results, then Kidney 1 is connected bilaterally to a ground using small orange body bands and retesting those muscles, noting the results. This procedure has been performed on every patient for the last three years resulting in a minimum of 50% restoration of facilitation of previously inhibited muscles. All facilitated muscles remain so. Patient’s treatment sessions and clinical outcomes have been vastly improved.

Medical Research.

“Omnipresent throughout the environment is a surprisingly beneficial, yet overlooked global resource for health maintenance, disease prevention, and clinical therapy: the surface of the Earth itself. It is an established, though not widely appreciated fact, that the Earth's surface possesses a limitless and continuously renewed supply of free or mobile electrons. The surface of the planet is electrically conductive and its negative potential is maintained (i.e., its electron supply replenished) by the global atmospheric electrical circuit [1, 2].

Reduction of Primary Indicators of Osteoporosis, Improvement of Glucose Regulation, and Immune Response

K. Sokal and P. Sokal, cardiologist and neurosurgeon father and son on the medical staff of a military clinic in Poland, conducted a series of experiments to determine whether contact with the Earth via a copper conductor can affect physiological processes [3]. Their investigations were prompted by the question as to whether the natural electric charge on the surface of the Earth influences the regulation of human physiological processes.

Double-blind experiments were conducted on groups ranging from 12 to 84 subjects who followed similar physical activity, diet, and fluid intake during the trial periods. Grounding was achieved with a copper plate (30 mm × 80 mm) placed on the lower part of the leg, attached with a strip so that it would not come off during the night. The plate was connected by a conductive wire to a larger plate (60 mm × 250 mm) placed in contact with the Earth outside.

In one experiment with non-medicated subjects, grounding during a single night of sleep resulted in statistically significant changes in concentrations of minerals and electrolytes in the blood serum: iron, ionized calcium, inorganic phosphorus, sodium, potassium, and

magnesium. Renal excretion of both calcium and phosphorus was reduced significantly. The observed reductions in blood and urinary calcium and phosphorus directly relate to osteoporosis. The results suggest that Earthing for a single night reduces primary indicators of osteoporosis.

Earthing continually during rest and physical activity over a 72-hour period decreased fasting glucose among patients with non-insulin-dependent diabetes mellitus. Patients had been well controlled with glibenclamide, an anti-diabetic drug, for about 6 months, but at the time of study had unsatisfactory glycemic control despite dietary and exercise advice and glibenclamide doses of 10 mg/day.

K. Sokal and P. Sokal drew blood samples from 6 male and 6 female adults with no history of thyroid disease. A single night of grounding produced a significant decrease of free triiodothyronine and an increase of free thyroxin and thyroid-stimulating hormone. The meaning of these results is unclear but suggests an earthing influence on hepatic, hypothalamus, and pituitary relationships with thyroid function. Ober et al. [4] have observed that many individuals on thyroid medication reported symptoms of hyperthyroid, such as heart palpitations, after starting grounding. Such symptoms typically vanish after medication is adjusted downward under medical supervision. Through a series of feedback regulations, thyroid hormones affect almost every physiological process in the body, including growth and development, metabolism, body temperature, and heart rate. Clearly, further study of earthing effects on thyroid function is needed.

In another experiment, the effect of grounding on the classic immune response following vaccination was examined. Earthing accelerated the immune response, as demonstrated by increases in gamma globulin concentration. This result confirms an association between earthing and the immune response, as was suggested in the DOMS study [5].

K. Sokal and P. Sokal conclude that earthing the human body influences human physiological processes, including increasing the activity of catabolic processes and may be the primary factor regulating endocrine and nervous systems.

Altered Blood Electrodynamics. Since grounding produces changes in many electrical properties of the body [1, 6, 7, 8], a next logical step was to evaluate the electrical property of the blood. A suitable measure is the zeta potential of red blood cells (RBCs) and RBC aggregation. Zeta potential is a parameter closely related to the number of negative charges on the surface of an RBC. The higher the number, the greater the ability of the RBC to repel other RBCs. Thus, the greater the zeta potential the less coagulable is the blood.

Ten relatively healthy subjects participated in the study [9]. They were seated comfortably in a reclining chair and were grounded for two hours with electrode patches placed on their feet and hands, as in previous studies. Blood samples were taken before and after.

Grounding the body to the earth substantially increases the zeta potential and decreases RBC aggregation, thereby reducing blood viscosity. Subjects in pain reported reduction to the point that it was almost unnoticeable. The results strongly suggest that earthing is a

natural solution for patients with excessive blood viscosity, an option of great interest not just for cardiologists, but also for any physician concerned about the relationship of blood viscosity, clotting, and inflammation. In 2008, Adak and colleagues reported the presence of both hyper-coagulable blood and poor RBC zeta potential among diabetics. Zeta potential was particularly poor among diabetics with cardiovascular disease [10].

Conclusion

While there is nothing new under the sun, I believe that in our modern world we sometimes have lost sight of simple basic natural laws. The one natural law I'm referring to in this research project would be receiving energy from the earth through Kidney1, the only Meridian with its starting point on the bottom of the foot. Earthing provides many physiological benefits including reducing inflammation in the human body. And certainly "inflammation" is a big buzzword in the "Healing Arts Community" and in some parts of the traditional medical world. Earthing can be added to the list of Applied Kinesiology technologies that enhance muscle physiology. This simple technology is in complete alignment with "Applied Kinesiology-based procedures which are administered to achieve the following examination and therapeutic goals:

1. 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
2. Restore postural balance, correct gait impairment, improve range of motion
3. Restore normal afferentation to achieve proper neurologic control and/or organization of body function
4. Achieve homeostasis of endocrine, immune, digestive, and other visceral function
5. Intervene earlier in degenerative processes to prevent or delay the onset of frank pathologic processes." [11]

The use of grounding technology is highly recommended. Degenerative processes have reversed. Many patients have commented that their partner says they no longer snore at night. The list goes on.



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**“Got Chi” Recharging the Human Body by Nature’s Design
W. David Berglund, D.C., N.D., P.Ac.**

Polarity Posture & Joint Position

W. David Berglund, N.D., D.C., P.Ac.

Abstract

The objective is to introduce the Doctor of Applied Kinesiology to clinical enhancements and suggesting the importance of having a set “Checklist.” To demonstrate therapy localizations for polarity and body posture monitoring. Lastly to introduce the concept of therapy localization to joints in various stages of their range of motion. Often times a symptomatic joint will not display a therapy localization with a static challenge, but will in a certain range of motion. Mindful therapy localization can monitor the adaptations of the patient. All treatment modalities should be targeted to the priority of the Triad of Health, the first priority being to clear all interferences that will produce faulty manual muscle testing results.

Key Indexing Terms

Therapy Localization, Applied Kinesiology, Manual Muscle Testing, Functional Neurology, Adaptation, Switching, Psychological Reversal, Supine, Prone, Standing, Sitting, Right Side Down, Left Side Down, Inverted, Sympathetic, Autogenic Facilitation and Inhibition, Knife Edge Hand (hand held in a karate chop position)

Introduction

The human body displays a polarity, negative and positive. The ventral surface is negative while the dorsal surface is positive. Muscle physiology is that of facilitation or inhibition. The body’s polarity combined with this biphasic functioning of skeleton muscles creates a binary coding system, 0 and 1, or the circuit is open or closed.

Kinesiology is the study of movement. “ABCs Wide World of Sports, showed us the thrill of victory and the agony of defeat,” noting the vast array of intricate movements performed by athletes in such sports as gymnastics, figure skating and alpine skiing.

Applied Kinesiology goes beyond the simple physiology of muscle movement. It explores the functional neurology of the complex facilitation and inhibition of muscles from the various factors of the IVF that allow those magical movements of the world class athlete to the muscle dysfunctions that bring patients into our clinics, allowing them to experience the miracles of our healing technologies.

Legendary UCLA basketball coach John Wooden was a stickler for drilling the basics into his players. Atul Gawande in “The Checklist Manifesto: How To Get Things Right,” teaches the medical professional how avoid mistakes and create positive outcomes in lieu of the increasing complexity of their responsibilities. Experts need checklists, written guides that walk them through the key steps of any complex procedure. Applied Kinesiology is the Art and Science of the Complexities of Functional Neurology as it relates to manual muscle testing.

Dr. Alan Beardall noted that in the early stages of a disease there is a clear relationship that exists between muscles and the corresponding organs. A thyroid dysfunction would demonstrate a weak Teres Minor and a kidney dysfunction would demonstrate a weak Psoas muscle. However, if the elements necessary for the healing of the kidney are not available, the stress to the kidney may become overwhelming to the organism and a threat thus exists in its survival which forces the organism into an adaptation. Adaptation means that the weight or burden is switched to another organ or tissue. In a successful adaptation, frequently the pain or discomfort leaves and the patient may feel better even though the kidney problems still exist. In Applied Kinesiology one may say the problem has been switched. Switching indicates that a successful adaptation has occurred and the organism survives to live another day. Over time while the disease process continues the musculoskeletal system may show many muscle imbalances. These are just effects of the adaptation rather than the original cause which is now hidden by the adaptation. Upon manual muscle testing some muscles may display inhibition, some facilitation and some over facilitation. Over facilitated muscles are unable to be inhibited by a muscle spindle challenge. This is often overlooked in Applied Kinesiology.

Discussion

After a thorough case history, neurological and vascular examinations the Applied Kinesiology exam begins with the patient sitting. The doctor should test both right and left anterior deltoid and middle deltoid muscles in order to establish indicator muscles. A facilitated muscle response is followed by an autogenic spindle cell inhibition test while an inhibited muscle response is followed by spindle cell facilitation test to determine the quality of the indicator muscle that will be used and to screen for injuries that must be cleared. Often times in this preliminary testing a shoulder problem will be noted and the long head of the biceps tested. Many times a slipped bicep tendon is discovered and can be fixed at that time, something the patient never tells the doctor. Any discrepancies in the autogenic tests should be noted at this time. Armed with a reliable indicator muscle the checklist begins.

With a knife edge hand (A knife edge hand is when the practitioners hand is in a karate chop position) place the palm over the top of the head, test the indicator muscle. Note the results. Turn the knife edge hand over and test with the back of the hand, note the results. I believe it was John Diamond who taught this initial procedure to check for polarity. He said, "palm is power, back is slack." You can have one of three polarity presentations: 1) polarity, 2) a polarity or 3) reverse polarity, which may be referred to as psychological reversal. Dr. Scott Walker has developed a homeopathic remedy called "Polarity" which is used when NET clients do not display apolarity. Reversed polarity or psychological reversal and apolarity or no polarity need to be treated before any other Applied Kinesiology testing procedures otherwise faulty conclusions and faulty results will occur. It would be like weighing things on a scale that has not been correctly calibrated.

In 1979 Dr. Callahan made a curious discovery which he termed "Psychological Reversal." In this case the electrical polarity of the body's energy meridian system is reversed. The patients that displayed this condition had previously been very difficult to treat. In

1980 he invented a new treatment for psychological problems called, “Thought Field Therapy.” The doctor of Applied Kinesiology can use a strong indicator muscle and the Triad of Health to resolve any of these situations.

After polarity has been checked and corrected the neurological posture of the patient is next on the checklist. This is an extremely important screen for a neurological adaptation which offers insight into the body position and for applied kinesiology treatment options. The seven postures and their therapy localization:

1. supine - back of the knife edge hand over the forehead
2. prone - palm of the knife edge hand over forehead
3. right side down - palm of the knife edge hand over the right ear
4. left side down - palm of the knife edge hand over the left ear
5. standing - palm of the knife edge hand over the top of the head
6. inverted - palm of the knife edge hand under the chin
7. sitting - palm of the knife edge hand over the posterior cervical spine or back of the knife edge hand over the anterior of the cervical spine.

With the patient supine place the back of their knife edge hand over their forehead and test a strong indicator muscle, if the muscle becomes inhibited they are in the supine posture, however if the indicator muscle remains facilitated this indicates an adaptation. This finding shows body has adapted by staying in a single posture neurologically. Knowing and understanding this type adaptation important for every clinician. Using the knife edge therapy localization and an indicator muscle search to see what posture is on display. Finding the posture provides clinical clues to the patient's condition. Dr. John Diamond wrote a book called, “The Body Doesn’t Lie” and here the body is talking very loudly saying, “I will show you where you need to start your therapy.” Finding the patient inverted, ask them if they feel like they need to be put on a rack and stretched or hung upside down? The reply will often be yes and how did you know. Clinical considerations should include checking for lumbar and/or cervical imbrication. If they display on their stomach, right side down, or left side down ask if they sleep in those positions, again they will tend answer yes because their body’s tendency to that position of comfort. If they display standing or sitting, ask if they feel better when they stand or sit. Whatever posture the patient displays neurologically, the treatment area will be where the dust settles. This knowledge can save one time when looking for the area to treat. A right side down postures, means that you would look for a treatment area on the left side of the head, the left side of the cervical spine, the left side of the thoracic spine, the left side of the lumbar spine, the left side of the pelvis, medial side of the right lower extremity and the lateral side of the left lower extremity. This process is be followed in any posture the patient displays neurologically. Important things consider are never block a Category II unless the patient neurologically displays in the supine posture and never block a Category I or a Category III unless the patient displays in a prone posture. Once the patient displays the posture they are in, in each of the seven postures, the proper therapies have been applied to remove this neurological adaptation. The second most important thing on the checklist has now been accomplished. The patient’s neurological postural adaptations

have been cleared. The nervous system is able to freely operate in all seven postures and true healing can begin.

While this may not be the third item on the Apply Kinesiologist checklist it is an item that should be placed somewhere on the list and should be a part of every joint therapy protocol. Joints move and may not therapy localize in the neutral position. The problem may display only in a specific point in their range of motion. So it is important to therapy localize a joint in different aspects of its range of motion. An example comes from my days in Chiropractic College. A classmate who happened to be my ping-pong partner went from Professor to Professor complaining about his shoulder problem. Being a student of Applied Kinesiology I suggested to him that I could fix it. During the course of treatment I noticed the shoulder therapy localized only when his arm was directly over his head. Both bone and soft tissue corrections were made with the arm held over his head. The next day in class he stood up and gave me credit for fixing his shoulder and told a story of how he remembered injuring it years before playing football. He remembered extending his arm to catch a pass and the ball jerked his arm back. So therapy localizing and treating a joint in the area of its dysfunctional range of motion can have a big therapeutic impact. One can two point the joint in its' ROM to such techniques has Nociception Elimination, Set Point and IRT. Using therapy localization while changing the range of motion of a joint can be especially beneficial in treatment of the TMJ.

Conclusion

George Goodheart introduced therapy localization to Applied Kinesiology after being troubled by the failure to determine the nature of the patient problem. Using therapy localization to determine polarity should be number one on the doctor's checklist. Muscle testing depends on polarity since it's biphasic, being either facilitated or inhibited. Being apolar implies the patient is not muscle testable and a reversed polarity implies opposite muscle testing results. Roger Callahan realized that 40% of his patients were very difficult to treat and he linked their difficulty to having what he termed, "Psychological Reversal" or reversed polarity. It is not always a psychological problem and can be treated by any of the five factors of the IVF. All sides of the Triad of Health should be checked for resolution of the problem. It is important not only for the patient to have proper polarity, but the doctor too, must also have proper polarity. Muscle testing involves a touch connection between the doctor and the patient, thus setting up a circuit. This circuit can be demonstrated with the use of an energy ball or by a Rosie doll. Manual muscle testing involves both patient and doctor interaction and clear muscle testing can only result when both doctor and patient are in the correct polarity. Inconsistency of muscle testing between practitioners may be cleared up by using this number one check on the list. The importance of a checklist is displayed in Quintessential Applications developed by Dr. Walter Schmitt and Dr. Kerry McCord. Applied Kinesiology has developed a wealth of techniques in the last 52 years. The careful thought, innovation and research by its talented practitioners point to a hierarchy, a priority for therapeutic applications and the benefits of a checklist.

Often times the human organism lacks the information, time, energy and raw materials to heal, so in order to survive, it makes an adaptation and the dysfunctional tissue is put into a holding pattern. It is important to remember that the autonomic nervous system is programmed for survivor not optimal health. Start your Applied Kinesiology session with a polarity check, followed by a posture check. Using therapy localization and the knife edge hand the neurological posture of the patient can be determined. The neurological posture orientation can tell the doctor a lot about the patient's problem. It can also narrow the search for the location of therapy. Joints move and they can experience dysfunction in a certain part of their range of motion. So while a joint may not display a therapy localization in a static position one can be elicited by moving the joint throughout its range of motion. Therapy needs to be applied while the joint is in its dysfunctional position.

Appendix



SUPINE



PRONE



STANDING



SITTING



INVERTED



LEFT SIDE DOWN



RIGHT SIDE DOWN



SUPINE



PRONE



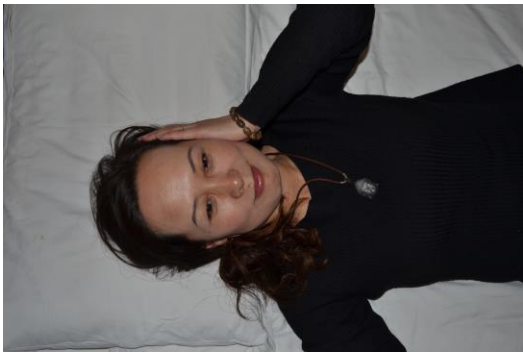
STANDING



SITTING



INVERTED



LEFT SIDE DOWN



RIGHT SIDE DOWN

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Polarity Posture & Joint Position
W. David Berglund, D.C., N.D., P.Ac.

Supplement Testing: A New Paradigm, Methylation, A Case History

W. David Berglund, D.C., N.D., P.Ac.

Abstract

A case history introducing a new paradigm in supplement testing. A male patient of 22 years who suffers from a deforming arthritis condition. A few years ago he had a very extensive spine surgery. In an attempt to clean up his severe osteoarthritis. The patient now in his 70s has been very faithful and very proactive. He had a complete dental restoration involving biological dental protocols with root canals and all metals removed. He has had many IV Chelation treatments with EDTA to help remove heavy metals. He is a member of the Longevity Institute and he uses many of their supplements. He has done Science Based Nutrition protocols. Over the years he has experienced the many Applied Kinesiology therapies.

Key Indexing Terms

Methylation, Folic Acid Cycle, Methionine Cycle, Tyrosine Metabolism, Tryptophan Metabolism, Urea Cycle, Citric Acid Cycle, Glutathione Synthesis, Nitric Oxide Pathway, Vitamin D Metabolism

Introduction

Using Applied Kinesiology manual muscle testing to custom design a supplement protocol using the patient's genetic SNiPS as a foundation. The methylation cycle is the backbone of cellular biochemistry and physiology. It contributes to a wide range of body functions including detoxification, immune function, DNA repair, energy production, neurotransmitter production and inflammation control. Defects or SNiPs in our DNA can cause dysfunctions in our methylation pathways. This can lead to a variety of illnesses including cardiovascular disease, cancer, diabetes, neurological conditions, autism, chronic fatigue syndrome, Alzheimer's disease, miscarriages, fertility problems, allergies, autoimmune disease, digestive problems, brain disorders, and premature aging. Epigenetics is the study of changes in organisms caused by modification of gene expression rather than alteration of the genetic code itself. By knowing and understanding the patient's SNiPs the practitioner can determine a nutritional protocol that will help restore methylation to normal levels. Genomic testing is available at relatively bargain prices. "23andme" is the testing company used for this case study. The test results from "23andme," were linked to genetic genie for the methylation snips on this case history.

Genetic testing and Epigenetics are emerging frontiers in Healing Arts. Dr. Chris Astill-Smith has been a pioneer in this field. Dr. Amy Yasko has extensive research in autism and her protocols are yielding excellent results. Cardiologists Roberts and Sinatra are

researching cardiovascular disease. Dr. William Walsh has been studying brain disorders with great breakthroughs over the last five years.

Materials and Methods

Methylation Byproducts Test Kit, Nutri-West Methylation Test Kit, Supreme Nutrition Test Kit, Genetic Genie, Methylation Results, Applied Kinesiology Manual Muscle Testing

Using manual muscle testing each methylation byproduct was systematically tested for balanced levels, on December 2, 2015.

The following items were tested: Toxic metal, parasite, homocysteine, dopamine, cadmium, fungus, aluminum, T-cells, folic acid, bacteria, nickel, choline, sulfur, biofilm, mercury, lyme disease, cholesterol, superoxide, estradiol, MSG, arginine, melatonin, ammonia, aluminum, sulfate oxidase, glutamate, virus, acetyl CoA, AMP, glucose-6-phosphate, lead, hydrogen peroxide, gluten, fibrin, insulin, phosphatidylcholine, taurine, serotonin, uric acid, SAM, copper, oxoacetate, Epstein-Barr, nitric oxide, cortisol, ACTH, methionine, acetylcholine, pyruvate, phenylalanine, glutathione, glycine, catalase, aspartame, serum amyloid protein, A-ketoglutarate, histamine, norepinephrine

Positives: parasite, choline, biofilm, mercury, arginine, hydrogen peroxide, copper, cystine, acetylcholine, glucose, Adrenaline, angiotensin II, homocysteine, sulfur, superoxide, acetyl-coA, lead, phosphatidylcholine, methionine, A-ketoglutarate, noradrenaline

Homozygous Snips: COMT(V158M), COMT(H62H) VDR, MAO-A
Heterozygous Snips: CBS, BMHT, MTRR(K350A), MTRR(A66G), MTR,
MTHFR(A1298C), MTHFR((03 P39P)

Nutritional supplements that balanced the positive findings: BFB-1, Takesumi, Total Chelate, Core Level Bone Matrix, Trace Minerals Plus, Total Alpha Lipoic, Niacin B6, 5-MTH Folate.

With the first round of methylation balancing supplements, the patient reported having days where he had felt better than he has in 30 years.

February 29, 2016, positive findings: adrenaline, angiotensin II, homocysteine, sulfur, biofilm, mercury, superoxide, acetyl-coA, lead, phosphatidylcholine, cystine, methionine, A-ketoglutarate, noradrenaline

Nutritional supplements that balanced the positive findings: BFB-1, Takesumi, Core Level Bone Matrix, Trace Minerals Plus, Total Alpha Lipoic, 5-MTH Folate, Dan Shen Supreme.

Conclusion

Several weeks after the second session of nutritional testing for the methylation protocol the patient wrote me this email:

Hi David,

I am feeling much better than I have been many years. Also, I am now going to sleep faster and sleeping much better than I have for several years.

A new paradigm in nutritional supplement testing for Applied Kinesiologist can be developed. Applied kinesiology is very good in the structural realm. Say we have an inhibited muscle and a strong indicator muscle on a patient. One knows that the inhibited muscle may become facilitated if the patient touches a lymphatic reflex point or that same point may make the facilitated indicator muscle inhibited. Sometimes with nutritional testing we assumed that strong indicates good or weak indicates bad, however a change is what one seeks. Two pointing should be considered with nutritional testing. A nutritional supplement needs to pass several criteria. Is the supplement is safe? Is it beneficial? Is it toxic? Does it cause an allergic reaction? Does it increase our energy? Does a lab confirm a need? Does a genetic test confirm a need? Does a genetic test confirm a toxicity?

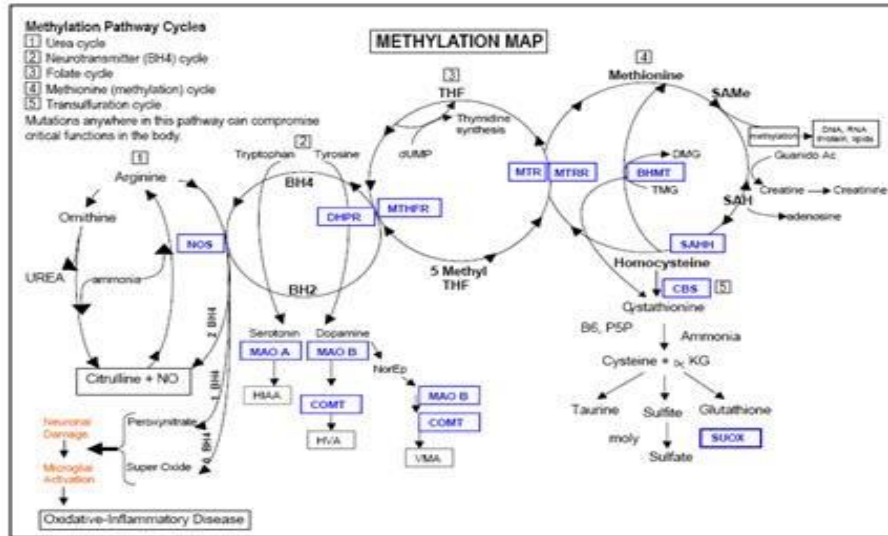
The Walsh Institute is having excellent results using methylation with brain disorders. Dr. Amy Yasko's protocols for autism are having great success. Cardiologists doctors Sinatra and Roberts are reversing heart disease. The positive clinical outcomes these doctors are having is without the benefit of manual muscle testing and functional neurology. With the laser like precision of functional muscle testing, the Applied Kinesiologist can build a custom designed methylation supplement program that is just right for the patient, also known as the Goldilocks phenomena.

Epigenetics is a relatively new science. DNA testing is advancing rapidly. Several methylation diagnostic websites are now available: Amy Yasko, NutraHacker, livewello, genetic genie and Promethease. The future is here.

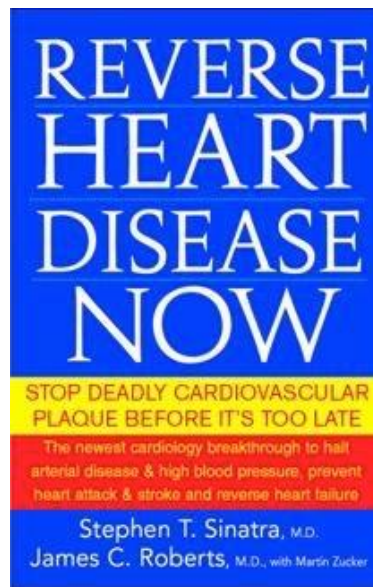
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Legend



VDR Taq	DHFR	ACE	SOD2	CYP1A1	GSTP1
VDR Bsm	SHMT	AGT	GPX1	CYP1A2	NAT2
MTHFD1	SLC19	SOD3	CAT	CYP1B1	CPOX4
MTHFS	FOLR2	ADIPOQ	PON1	GAD1	PENT



geneticgenie

Name:
Profile:
General

Gene & Variation	rsID	Alleles	Result
COMT V158M	rs4680	AA	+/+
COMT H62H	rs4633	TT	+/+
COMT P199P	rs769224	GG	-/-
VDR Bsm	rs1544410	CC	-/-
VDR Taq	rs731236	AA	+/+
MAO-A R297R	rs6323	TT	+/+
ACAT1-02	rs3741049	GG	-/-
MTHFR C677T	rs1801133	GG	-/-
MTHFR 03 P39P	rs2066470	AG	+/-
MTHFR A1298C	rs1801131	GT	+/-
MTR A2756G	rs1805087	AG	+/-
MTRR A66G	rs1801394	AG	+/-
MTRR H595Y	rs10380	—	no call
MTRR K350A	rs162036	AG	+/-
MTRR R415T	rs2287780	—	no call
MTRR A664A	rs1802059	GG	-/-
BHMT-02	rs567754	CC	-/-
BHMT-04	rs617219	—	no call
BHMT-08	rs651852	CT	+/-
AHCY-01	rs819147	TT	-/-
AHCY-02	rs819134	—	no call
AHCY-19	rs819171	TT	-/-
CBS C699T	rs234706	GG	-/-
CBS A360A	rs1801181	AG	+/-
CBS N212N	rs2298758	—	no call
SHMT1 C1420T	rs1979277	—	no call

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**Supplement Testing: A New Paradigm,
Methylation, A Case History
W. David Berglund, D.C., N.D., P.Ac**

The Triad of Health in the 21st Century: Nutrition from AK to iAK

W. David Berglund, D.C., N.D., P.Ac.

Abstract

The nutrition in Applied Kinesiology is one part of the Triad of Health. It is the chemical side of the triangle which is the symbol of Applied Kinesiology. It is an equilateral triangle with the other two sides being mental and structure. The discovery of the emotional neurovascular reflex points paved the way to treatment options on the mental side. The structure side is the realm of chiropractic and many wonderful techniques have evolved. Manual muscle testing is the cornerstone to the Art and Science of Applied Kinesiology. Muscle testing is rather straightforward in dealing with structural issues. With mental issues it has been observed that when a person thinks of a stressful situation a strong indicator muscle will tend to be inhibited. The chemical side of the triangle is still a frontier that needs to be further examined with its correlation to manual muscle testing.

Key Indexing Terms

Muscle Facilitation, Muscle Inhibition, Nutritional Supplements, Dysbiosis, Epigenetics, Methylation, Blood Testing, Hair Analysis, Urine Analysis

Introduction

What is the chemical side and of what does it consist? Chemicals are the answer. What we are dealing with is biochemistry. There is chemical toxicity and chemical deficiency. There are macronutrients: proteins, fats and carbohydrates and the micronutrients: vitamins and minerals. There are toxic metals, pathological microorganisms, bad fats and allergic reactions. The experts in the chemical side of the triangle are Dr. Michael Leibowitz and Dr. Walter Schmitt. Can we use manual muscle testing for the chemical side of the triangle? If we can, can we get better?

Discussion

The structural side of the triad of health has grown from the single technique of origin-insertion to a toolbox full of manual therapies pioneered by practitioners like David Leaf. A variety of nutritional supplements were correlated to individual muscles. The pioneers of the chemical side of the triad are practitioners like Dr. Michael Leibowitz and Dr. Walter Schmitt. The mental side therapeutics started with the discovery of the neurovascular emotional points and the use of the Bach Flower remedies. It continued with the work of Roger Callahan, John Diamond, and over the past 20 years by Dr. Scott and Dr. Deb Walker. With so many wonderful innovations to the Triad of Health, the chemistry side should to be a focus of research. An innovative working model for the Applied

Kinesiologist to use is needed. It is not to say that Applied Kinesiologists are not doing a good job with nutrition. The number of nutritional companies and vial companies that cater to Applied Kinesiologists is a testament to how good they are doing. But, it is the side of the triangle that has caused the most problems for practitioners. In last year's ICAK proceedings, Michael Lebowitz and his son, Noah, submitted a paper on supplement testing suggesting we may have been doing it wrong. That may just be an understatement.

A facilitated muscle becomes inhibited or in inhibited muscle becomes facilitated when a patient touches a certain part of their body, this is called a therapy localization. But as George said, "what does it mean?" In the case of a structural treatment it is often quite simple. However in the case of nutritional evaluation things can be very complicated. There are many practitioners in the field, who would think that a nutritional supplement that does not inhibit a strong indicator means good, while a strong indicator becoming inhibited means bad, believing the muscle tests is a yes or no. At nutritional seminars one may see the gurus of nutrition simply ask the body if it needs it and what the dosages should be while pulling on the person's arm as if having a conversation. But then I think, who is the best? Well, we all know, Dr. Scott Walker, emphatically teaches that the muscle response is only to that of semantics, not a yes or no.

So what exactly is the chemistry side of the triad? One might say nutrition and that would be correct. The nutritional protocols of Dr. Michael Lebowitz and Dr. Walter Schmitt would tell us that nutrition is more complicated. While one uses a magnet and, the other, a lingual testing, the questions that need to be asked of the muscle test will be the same. If a facilitated indicator muscle inhibits is that bad and if an inhibited indicator muscle is facilitated is that good. Chris Anstill-Smith uses colored glasses and always tests from muscle inhibition and this can be a distinct advantage.

Now in the second decade of the 21st Century the Applied Kinesiologist needs to understand the language of manual muscle testing as it relates to chemistry. What components make up the chemistry side of the triangle? It is nutrition? It is exploring deficiencies, toxicities and allergic reactions and metabolic pathways? Chemistry includes the microorganisms: bacteria, virus, fungus, yeast, parasites and biofilm. It includes toxic metals and toxic solvents. Also, allergies: ingested, inhaled, contacted, injected, bioelectrical, hormonal, autoimmune and metabolic. Chemistry is about the micro and macro nutrients: proteins, fats, carbohydrates, vitamins, and minerals. Chemistry encompasses the hormones of the endocrine system and neurotransmitters of the nervous system. It includes chemicals like cytokines and prostaglandins. The chemical side of the triangle is literally a universe within itself.

Supplement testing requires a two point of some kind. Whether one tests nutritional supplements like Michael Lebowitz or like Walter Schmitt, the practitioner is observing the change in the indicator muscle. If there is no change in the indicator, the body does not recognize that product. If there is a change in indicator muscle the practitioner needs a two point of some kind to determine if the patient will benefit from the product, if the product is toxic, if the product will elicit an allergic reaction and will the product increase the energy of the body. Without some kind of two point supplement testing is like a coin

toss 50-50. If nutrition is given by a strong indicator muscle staying strong the patient's money is being wasted because a change in the muscle response is needed. Using vial testing and finding the supplement the supplement that negates that challenge is a two point. This is the kind of two point that is on the right track, however all supplements should pass several other two points if they are to be recommended.

On my initial patient exam nutrition is not a priority however I do screen for two possible supplements. Blood pressure is always tested four ways: left arm, right arm, supine and standing. If the blood pressure drops upon standing that would be a clinical indicator of adrenal fatigue. The shock test or ligament stress tests are performed and the results are noted. Nutri-West DSF formula or Core Level Adrenal may be beneficial. A two-point challenge is done to make sure that the supplement will be beneficial for the patient and also to make sure it does not cause a toxicity or an allergic reaction. The second supplement challenge I do is taken from Scott Walker's NET Manual where a bilateral challenge to Bladder 1 can indicate the need for RNA. These supplements seem to always produced a win-win if the patient needs them.

Conclusion

Trying many different nutritional protocols throughout the years, oftentimes the clinical outcomes were a bit disappointing. More recently I have been using the laboratory testing of Science Based Nutrition. I like the Science Based Nutrition system of Dr. Merkel, the Co-Op lab prices and the comprehensive laboratory diagnostic reports.

In the paper, "Supplement Testing: Have We Been Doing It Wrong All These Years?" Michael and Noah Leibowitz have hit the Nutritional nail right on the head. In their conclusion the validity of MMT with a multi-ingredient supplement is discussed. The example in their paper showed the patient may benefit from Vitamin A and Vitamin C, but may be sensitivity to some of the other ingredients. Precisely, observation and research well done. MMT for nutritional supplementation involves several steps, checking for deficiency, toxicity, allergy and overall degree of benefit. MMT can provide laser like precision if the right screening process is undergone. The future of nutritional testing lies in understanding of the methylation cycle combined with proper laboratory diagnostics. The research and implementation of a meticulous MMT screening process lies in the hands of the leadership ICAK. And I hope supplement testing will be a discussion in the future.

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The Triad of Health in the 21st Century: Nutrition from AK to iAK
W. David Berglund, D.C., N.D., P.Ac.

Muscle Testing and Molecular Hydrogen Supplementation in the Resolution of Aerobic and Anaerobic Deficiencies among Competitive Athletes

Charles R. Fagenholz, D.C., PAK; Megan T. Garcia, MA; Nathaniel L. Darnell

Abstract

Objective: A brief review of the literature on molecular hydrogen reveals its ability to act as a powerful anti-oxidant and anti-inflammatory. This paper will focus on assessing athletic performance through aerobic and anaerobic applied kinesiological muscle testing during molecular hydrogen supplementation and further explore the use of hydrogen as a potential intervention for various health challenges.

Data Source: Over 300 studies report on the use of molecular hydrogen; this review draws on data from 1975 to present.

Study Selection: This review focuses on molecular hydrogen, its safety, efficacy, selectivity, and bioavailability, and its application to health protocols, in particular, to Applied Kinesiology based muscle testing.

Data Extraction: Peer-reviewed studies were used by three reviewers for abstracting data and assessing quality and validity.

Data Synthesis: The preponderance of studies show molecular hydrogen provides clinicians a powerful anti-oxidant and anti-inflammatory tool for ameliorating various health challenges.

Conclusion: Applied Kinesiology practitioners can achieve enhanced results for subjects by incorporating molecular hydrogen therapy in clinical practice.

Further studies are suggested in regard to optimal dosage, timing of dosage, and extent of applications in athletics and Applied Kinesiology.

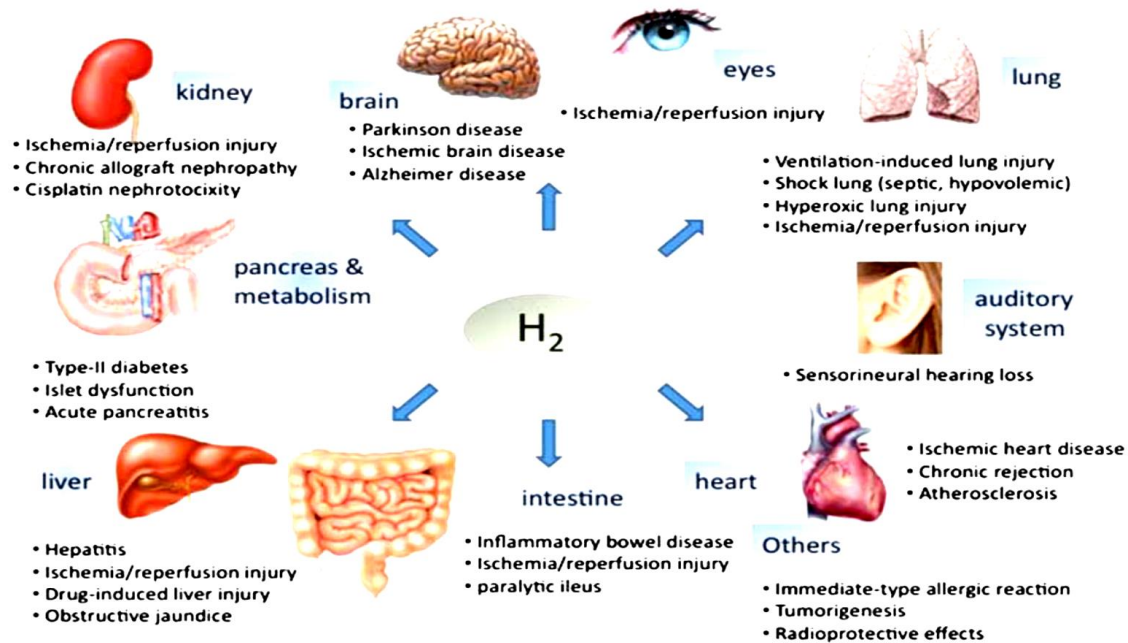
Key Terms

Adenosine Triphosphate (ATP), Anti-Inflammatory, Anti-Oxidant, Applied Kinesiology, Bicarbonate, Catalase, Glutathione, Molecular Hydrogen, NORP, NrF2, ORAC, ROS Signaling, Serum Lactate, Superoxide Dismutase (SOD)

Introduction

Because the use of molecular hydrogen to enhance health and physical fitness is not widely known, this paper provides a brief review of the scientific literature on molecular hydrogen, its safety, efficacy, selectivity, bioavailability, and its application to protocols in athletics and Applied Kinesiology. References will be made to a specific molecular hydrogen supplement, Recovery with HydroFX, available through SevenPoint2 LLC.

Use of molecular hydrogen can enhance patient outcomes in prevention of health challenges, treatment of soft tissue injuries, and increased energy through improved cellular function. Further research in areas that could constitute hypotheses for additional study include the use of molecular hydrogen in Applied Kinesiology, including the differences in recovery time between use and non-use in various populations.



Discussion

Hydrogen is the most abundant element in the universe and the sun's source of energy. Until recently, however, the important role that molecular hydrogen plays in human health and vitality was not recognized. It is now gaining attention as the most important and noteworthy antioxidant and anti-inflammatory of the 21st century. In 2007, research conducted by Ohsawa et al. and published in the journal *Nature*, clarified the biological value of molecular hydrogen [1]. This research garnered international recognition and gained the attention of the academic community. Since then, rapid progress in research has revealed the broad-spectrum health benefits of this vital molecule. To date, over three hundred peer-reviewed research articles have been published confirming the efficacy of molecular hydrogen against 166 different disease models [2].

Molecular hydrogen is superior to other antioxidants and anti-inflammatory agents due to its safety, efficacy, selectivity, bioavailability, and rapid speed with which it supports the body's protective and regenerative systems. In the 21st century, molecular hydrogen may well become one of the most important tools for treating energy imbalances and inflammation in the human body. It is a novel therapeutic agent that works synergistically with Applied Kinesiology protocols.

Molecular Hydrogen and Applications in Applied Kinesiology Procedures

According to our recent observations, Applied Kinesiology practitioners can demonstrate the powerful antioxidant and anti-inflammatory properties of molecular hydrogen and its ability to restore proper cellular function through aerobic and anaerobic muscle testing. Dr. George Goodheart developed this technique during the 1980 Olympic Games. He demonstrated that repeated muscle testing could be used to evaluate the nutritional needs of specific muscle fibers. Goodheart found that an effective method for assessing aerobic sufficiency was to test a muscle at one test per second and to test for anaerobic sufficiency at two to three times per second. If aerobic testing weakened a muscle, the patient was found to respond to iron supplementation and neuro-lymphatic therapy; if the patient weakened using anaerobic testing procedures, he/she responded well to pantothenic acid and neurovascular therapy. If the patient weakened to both, then essential fatty acids were assessed. All of these nutrients: iron, pantothenic acid, and essential fatty acids, assist the body in energy generation, mainly through the increased production of Adenosine triphosphate (ATP). With this in mind, other interventions that increase ATP production should conceivably negate aerobic and anaerobic muscle weaknesses. Research now suggests that molecular hydrogen improves ATP production at a much quicker rate than the above noted nutrients.

In our research we chose to utilize the novel molecular hydrogen supplement, Recovery with HydroFX, because it overcomes all of the limitations associated with previous molecular hydrogen delivery technologies. It is safe, cost-effective, standardized, and easy to administer. Additionally, it is laboratory tested and analytically verified. It passes all stimulant, narcotic, and anabolic assays necessary for safe and legal use by professional athletes.

Recovery with HydroFX contains elemental magnesium. When exposed to water or stomach acid it undergoes hydrolysis. The chemical reaction that ensues produces molecular hydrogen and magnesium oxide. The body rapidly absorbs both. Muscle and organ tissues reach peak hydrogen saturation within 10 to 15 minutes.

Here we outline a STEP BY STEP PROCEDURE we have followed for using Recovery with HydroFX with kinesiological muscle testing:

1. Find a strong indicator muscle for aerobic and anaerobic testing, preferably a postural muscle like the psoas for aerobic testing and a chest muscle like the pectoralis major sternum division for anaerobic testing
2. Test the psoas muscle at 1 test per second 10 times and the pectoralis major sternal muscle at 2 tests per second for 10 reps. The muscles will test weak after a few tests if there is an imbalance in the specific muscle fiber tested.
3. Put a tablet of Recovery with HydroFx on the patient's tongue and retest. The muscles will now allow 10 repeated tests without weakening.
4. Keep adding more Recovery with HydroFx until the patient re-weakens to ascertain the proper dosages for that specific patient.

Following these steps, we report several CASE STUDIES:

Mita, aged 42, is a very fit and active female patient. She came in with no complaints, just for a checkup. She trains 4 times weekly with a strength and conditioning coach. She demonstrated anaerobic deficiency using the AK protocol, which responded to pantothenic acid. However, she had been on a very good source of B5, which did test for her in the clear. However, it did not allow her to get to 10 repeated tests and only brought her to 8 before she weakened. Recovery with HydroFx allowed her to get to 10 repeated tests without weakening. Patient was to take Recovery with HydroFx only and discontinue the pantothenic acid. The patient came back one week later and told me that she had broken all of her sprint and stair run personal records with her trainer in that week span. Also, she tested strong in the clear on anaerobic testing demonstrating that molecular hydrogen helps the body recover from anaerobic/aerobic imbalances efficiently.

Mary, aged 35, with a long history of RA complications came in to get treated during a flare up. Patient's problematic areas were very tender to the touch. Patient graded pain a 10/10 on the pain scale. She demonstrated very stiff joints and trouble walking. Patient weakened to therapy localization to essentially all of her joints, which were all negated by Recovery with HydroFx. As the patient tasted the supplement, her pain started reducing immediately and stiffness started to dissipate. Patient tested for 5 recovery 3 times a day. Within 24 hours, her flare up was completely gone. The patient also tested strong to Cod Liver Oil; however, fish oil is not nearly as fast acting as molecular hydrogen is for inflammation and patients always are looking for immediate relief.

Existing athletic research has already demonstrated that molecular hydrogen bolsters the body's natural antioxidant defense system, lowers serum lactate, suppresses inflammation, and increases speed of recovery from soft tissue injuries [4-7]. Because oxidative stress plays a significant role in diminished cellular function and an increased length in time for recovery from sports-related injuries, molecular hydrogen appears to be an ideal performance enhancer and post-exercise nutritional support supplement for competitive athletes.

Emerging laboratory research now suggests that molecular hydrogen improves cellular energy and resiliency through increased ATP production. Since molecular hydrogen quickly diffuses through muscle and organ tissues and rapidly restores cellular function we hypothesize that muscle testing combined with molecular hydrogen supplementation could be a convenient and practical method for quickly identifying and resolving aerobic and anaerobic deficiencies in competitive athletes. Conceivably, muscle testing in combination with molecular hydrogen supplementation could yield near instantaneous improvements in athletic performance.

Several studies have validated the use of hydrogen, specifically Recovery with HydroFX, to aid athletic performance and enhance wellness.

Binns and Falomir conducted a case study to investigate if, and to what extent, Recovery with HydroFX could help athletes achieve better wellness with "all-natural, super high quality ingredients. . . ." They report, "We hypothesized that Recovery would assist . . .

athletes . . . by increasing recovery rate, decreasing fatigue, improving individual performance in the mile run, and [providing] overall cellular health and wellbeing. . . .” The study included “10 athletes from Vanguard University’s men’s baseball team, all between the ages of 18-24. . . . The participants were supplemented daily with Recovery with HydroFX while undergoing routine muscle testing. Use of the product demonstrated complete negation of all aerobic and anaerobic weakness. . . . Participants completed mile time trials, a total of three runs (initial, supplement/placebo crossover). All three runs were completed within a three week time span, one run per week. After the initial run, the experimental group (N=5) were given a daily dosage of 6 supplement tablets (2X3; +4 prior to run). The control group (N=5) were also given a daily dosage of 6 placebo tablets (2X3; + 4 prior to run). After the participants completed the second mile time trial, the experimental and control groups were crossed over and the participants were asked to continue the same regimen as the previous week. After all three runs, the participants were asked to take a fatigue level survey on a scale on 1-10 (low fatigue-high fatigue) along with a rating of overall feeling during run (strong-in pain).” The study showed that “the Recovery supplement in this study showed positive results in the athletes’ mile times, fatigue levels, and overall wellness. The athletes’ average time improved measurably by 15.3 s +/- 6.56 s.”

The results of this research and other recently published works suggest that molecular hydrogen is a suitable nutritional aid for athletes seeking improved performance and reduced risk of sports-related injuries. Other studies demonstrate the efficacy of Recovery with HydroFX.

The ability of molecular hydrogen to improve recovery from sports-related injuries was demonstrated in a recent clinical trial. In 2014, a single-blind, placebo-controlled study was conducted with (36) elite athletes over a two-week period of time. Athletes were divided into three groups: the control group received no molecular hydrogen, either topically or orally but did receive traditional treatment via the RICE (Rest, Ice, Compression, and Elevation) protocol. In the first experimental group, athletes received the RICE protocol in addition to molecular hydrogen supplementation via Recovery with HydroFX tablets administered orally. In the second experimental group, athletes received the RICE protocol, Recovery with HydroFX administered orally, and were given hydrogen applied topically through permeable packs containing pulverized Recovery with HydroFX tablets activated by water. These packs were applied and taped above the injured areas. All three groups demonstrated significant decreases in pain post-injury; the molecular hydrogen groups performed measurably better than the control group [7].

In addition, another double-blind, randomized placebo-controlled study conducted on 11 physically healthy runners, 2 females and 9 males in 2011 compared the use of two liquids, taken before, during and after exercise. A common drink used by athletes, Gatorade, was compared to an alkaline NORP (Negative Oxidation Reduction Potential) drink created by dissolving pulverized Recovery with HydroFX tablets in water. The results revealed that the use of molecular hydrogen supplementation for one week during exercise reduced serum lactate accumulation and increased time to exhaustion. In

addition to decreased serum lactate and increased stamina, heart rate was also measurably lower during extreme exertion [5].

Results of the use of Recovery with HydroFX is seen in yet another study. A double-blind, placebo-controlled, randomized study on 52 healthy young males conducted in 2012 also tested the effects of a NORP drink produced from pulverized Recovery with HydroFX tablets. The drink characteristically contained low dissolved oxygen, a high level of dissolved molecular hydrogen and an alkaline pH. The study focused on two goals: to determine if molecular hydrogen could improve blood alkalinity; and to determine if the athletes had negative effects from molecular hydrogen supplementation. Exercise-induced metabolic acidosis results when cells need to boost energy stores, normally available through the mitochondria. Exercise induced stress forces rapid utilization of ATP. The resulting proton release and decrease in blood pH can negatively affect physical performance [8]. This study showed that supplementing with molecular for two weeks appeared to increase arterial blood pH during fasting and post-exercise. In addition, there were no notable adverse effects [6].

A growing body of research now demonstrates that molecular hydrogen supplementation improves muscle strength, stamina, and recovery time in athletes by suppressing serum lactate, oxidative stress, and inflammation. Emerging research now suggests that it also improves ATP production.

Our research sought to confirm the potential of molecular hydrogen supplementation to quickly improve cellular energy and resiliency presumably through increased ATP production. Since molecular hydrogen quickly diffuses through muscle and organ tissues and rapidly restores cellular function we hypothesized that muscle testing combined with molecular hydrogen supplementation could be a convenient and practical method for rapidly identifying and resolving aerobic and anaerobic deficiencies in competitive athletes. Our findings appear to confirm this hypothesis through the research that we conducted with Vanguard University's baseball players. Our technique could find future application in both athletic and clinical environments. Since Fibromyalgia and chronic fatigue syndrome (CFS) are correlated with mitochondrial dysfunction, and since mitochondrial dysfunction is correlated with low ATP production, it is conceivable that these clinical populations could also benefit from the combination of muscle testing and molecular hydrogen supplementation.

For muscle testing, it is crucial that the molecular hydrogen supplement be tested following ingestion and not merely placed on the body; the hydrogen must be activated by moisture from the patient's saliva or stomach acid. Molecular hydrogen, produced from the Recovery with HydroFX following activation, is immediately absorbed by the body and begins rapidly diffusing through muscle, organ, circulatory, and neurological systems.

Safety

The safety of molecular hydrogen has been verified through multiple decades of use on human subjects. It was first utilized as a deep-sea diving gas in the 1940s; researchers at

that time demonstrated that it presented no risk of toxicity even at extremely high concentrations. To date, no research has demonstrated any significant adverse effects. Hydrogen that is utilized by the body is converted directly into water. Any hydrogen that is not utilized by the body is simply exhaled. Compared to other antioxidants, molecular hydrogen poses no risk of becoming a pro-oxidant, even at extremely high concentrations.

In addition to being tested for adverse effects in multiple double-blind, placebo-controlled, randomized studies, the supplement Recovery with HydroFX has been chemically assayed by an accredited third-party laboratory. Results demonstrate that Recovery with HydroFX is free of anabolic agents, stimulants and narcotics. Therefore, Recovery with HydroFX may be used by professional athletes, including Olympic level athletes, as a nutritional aid.

Efficacy

Molecular hydrogen has the potential to function as a unique and effective clinical tool for holistic healthcare professionals working with patients who suffer from a variety of health challenges and injuries. Molecular hydrogen measurably suppresses chronic inflammation and reduces risk factors associated with up to 80% of illnesses related to the Western lifestyle [9].

Mathematically speaking, when calculated by molecular weight, 1 mg of molecular hydrogen contains more than 3 billion times the free radical scavenging potential of 100 mg of vitamin C. Supplementing with molecular hydrogen daily appears to be a sensible strategy for increasing longevity and maintaining optimal health.

In addition to its direct free radical scavenging ability, molecular hydrogen also strengthens the body's natural antioxidant defense system. New research demonstrates that molecular hydrogen increases NrF2 expression and the body's production of glutathione, catalase, and superoxide dismutase [10-11].

In retrospect, research, done as far back as the 1970s by the United States Navy, demonstrated that molecular hydrogen has cancer suppressive qualities due to its anti-oxidative properties [12-13]. In the 1990s, a study of the medically documented "Nordenau Phenomenon" revealed that molecular hydrogen improves insulin sensitivity and lipid profiles, thereby reducing risks associated with type 2 diabetes, even at low concentrations [14-15]. Currently, increasing health challenges from radiation, fast food consumption and chemical pollution lend themselves to a heightened need for antioxidant and anti-inflammatory properties of molecular hydrogen [16-18].

Selectivity

Unlike other antioxidants, molecular hydrogen is selective. It neutralizes the most damaging free radicals in the human body, the hydroxyl radical, superoxide anion, and peroxynitrite without disrupting Reactive Oxygen Species (ROS) signaling molecules.

Bioavailability

Molecular hydrogen outperforms other antioxidants, even those with high ORAC scores. Although ORAC is a measurement of antioxidant potential, it does not measure bioavailability. Despite potential, many antioxidants are simply too large on a molecular scale to easily diffuse through tissue and cellular membranes. Comparatively speaking, molecular hydrogen is completely bioavailable. Due to its minute molecular size, it fills all interstitial spaces, diffuses through all cellular membranes, and passes directly through the blood-brain barrier. A more accurate measurement of molecular hydrogen's potential is NORP (Negative Oxidation Reduction Potential).

Speed

Molecular hydrogen is fast acting; it is considered by some researchers to be the ideal antioxidant. Organ and body tissue reach peak saturation within minutes following consumption.

Conclusion

Intense physical exercise places stress on muscle, circulatory, and antioxidant defense systems as well as on bio-energetic pathways. A person's level of physical fitness can be gauged by the ability of his or her body to cope with these stresses. Under intense physical exertion, the body increases production of serum lactate and reactive oxygen species (ROS) and may exhaust existing stores of ATP. The ability of the patient's body to buffer increased serum lactate, neutralize excess free radicals, and replenish or increase ATP has a direct impact on physical endurance, power, and recovery. A dysfunction in any one of these systems increases the speed at which fatigue occurs.

A growing body of research demonstrates that molecular hydrogen supplementation improves muscle strength, stamina, and recovery time in athletes by suppressing serum lactate, oxidative stress, and inflammation. Further research now suggests that it also improves ATP production.

Molecular hydrogen is proving to be a unique and effective molecule for many different health challenges. Its potent anti-inflammatory and selective antioxidant properties can produce observable and measurable effects in health and fitness. In addition to improvements in athletic performance healthcare professionals may find molecular hydrogen helps mitigate fibromyalgia, chronic fatigue syndrome, and other mitochondrial-based myopathies. In the 21st century, molecular hydrogen may well become one of the most important tools for treating energy imbalances and inflammation in the human body. It is a novel therapeutic agent that works synergistically with Applied Kinesiology protocols.

Aerobic and anaerobic muscle fibers benefit from molecular hydrogen supplementation. This effect can be demonstrated through aerobic and anaerobic muscle testing, first demonstrated by Dr. George Goodheart in 1980.

Based on our research, molecular hydrogen appears to negate aerobic and anaerobic muscle weaknesses. Muscle testing with molecular hydrogen, specifically of Recovery

with HydroFX, is suggested in regard to optimal dosage, timing of dosage, and extent of applications in athletic performance and Applied Kinesiology protocols.

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Muscle Testing and Molecular Hydrogen Supplementation in the Resolution of Aerobic and Anaerobic Deficiencies among Competitive Athletes
Charles R. Fagenholz, D.C., PAK; Megan T. Garcia, MA; Nathaniel L. Darnell

Muscle Rehabilitation

David W. Leaf, D.C., DIBAK

Abstract

One of the common overlooked problems in applied kinesiology has been the failure to adequately address rehabilitation techniques. Many times, we are confronted with patients with poor results in physical therapy in regards to rehabilitation of major muscles. This paper will discuss possible causes and ways to improve it in our practices.

Key Indexing Terms

Rehabilitation, Physical Therapy, Manual Muscle Testing, Applied Kinesiology

Introduction

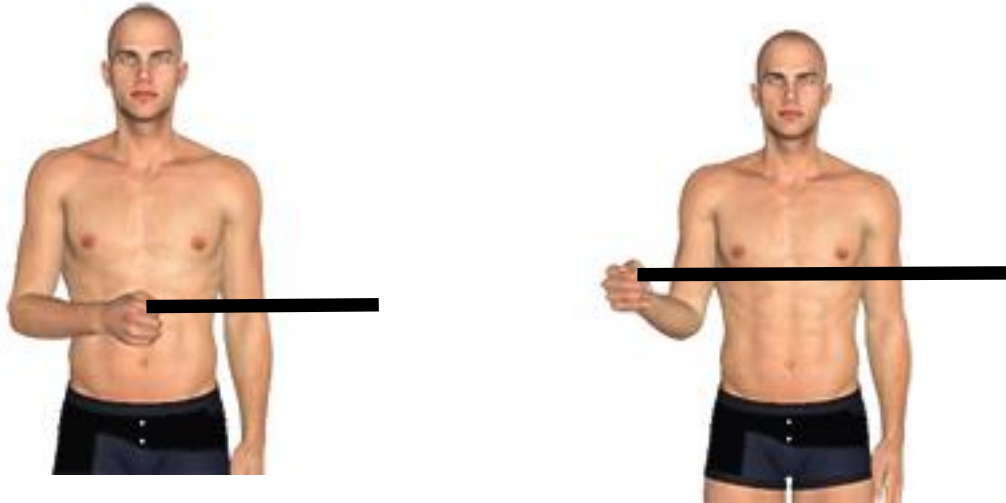
It is very common for us to encounter a patient who is had a shoulder injury and has been in physical therapy for a number of weeks or months with poor resolution. There are a few common findings that you will find in these cases. First, in order to adequately exercise or rehabilitate a muscle it must be totally functional. If a muscle fails to contract properly, it will be impossible to exercise the muscle optimally.

Discussion

Using manual muscle testing it is extremely easy to isolate improperly functioning muscles. Once isolating the inhibited muscle the cause of the inhibition must be addressed and corrected. When questioning patients that had been in physical therapy, you generally find that standard muscle testing has not been employed to isolate what the patient's individual problem is. The most common muscle tests utilized are general joint strength tests like the infamous arm pull down.

The patient is then given a standard set of exercises that have been in common use since the 1950's to the mid-1970s. It is common to see the same pictures and diagrams that were first generated back in the early 70's being used today and just having the copyright updated.

In shoulder problems, the following exercise is given to strengthen the external rotators. It can be done standing or lying on the non-involved side.

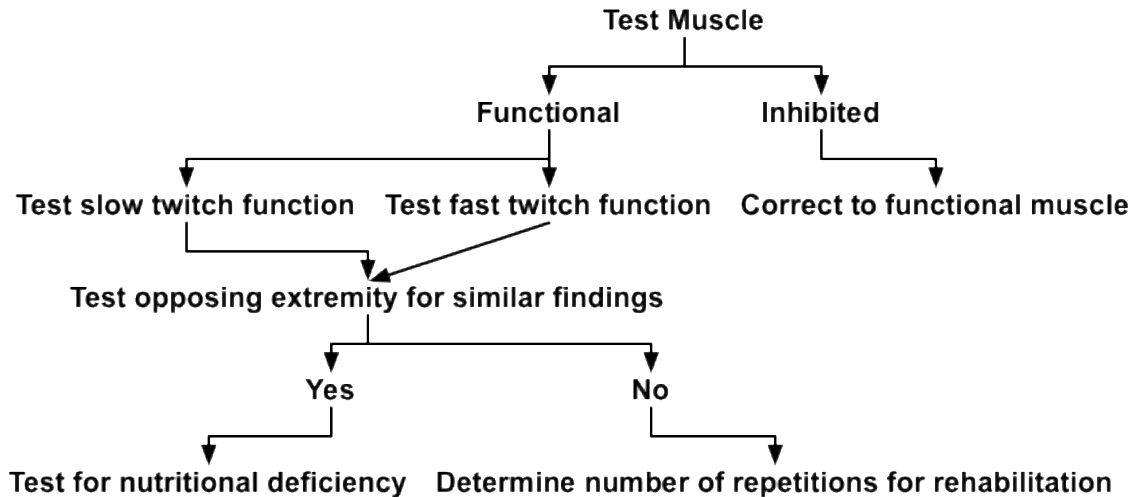


In checking with the standard text on muscle testing, this activity is close to the ideal position for testing the teres minor muscle. At this angle there is very poor contraction of the infraspinatus the major external rotator of the shoulder. Consequently, doing this exercise is a very poor exercise for the total external rotators of the shoulder.

Ideally, if an individual muscle needs to be exercised the best positioning for it is replicating the muscle test. Over the years, muscle testing has evolved into an attempt to isolate the individual muscle is being tested positioning the body part to minimize recruitment from other muscles.

The second problem in establishing an exercise routine to rehabilitate muscle involves the number of repetitions. Whether you're talking about a trainer in a health spa or in a physical therapy center, clients or patients are commonly told to do the same number of repetitions. This will range from 6 to 10 and even up to 17 repetitions. There is no testing to determine what number of repetitions the person can actually perform.

In applied kinesiology since 1980, aerobic and anaerobic muscle testing has been used to determine the ability of a muscle to contract consecutively. In the original findings, failure of the muscle to contract repeatedly was related to nutritional imbalances. For example, failure of the muscle to contract repeatedly to slow muscle tests at one per second and have could be related to an iron deficiency related to decreased level of myoglobin in the muscle. To test for this, the person should be tested for multiple failures of muscles in both the upper and lower extremity. It is highly unlikely that an individual will have an iron deficiency in just one muscle. In doing anaerobic fast twitch muscle testing it was originally related to a deficiency of pantothenic acid. As these muscles work with the Krebs cycle of energy it opens up more than just one nutrient but the portions of the B complex that are involved in the whole Krebs cycle. Again, if there is an imbalance in this energy system then there should be multiple weaknesses in both the upper and lower extremity muscles to the anaerobic muscle test.



For over 30 years, in dealing with professional athletes and Olympic athletes the following procedure has been used. Once the muscle needing rehabilitation has been isolated and the muscle functions properly the muscle is retested for either fast twitch or slow twitch functioning. The number of repetitions that the person can perform before failure is recorded. The person is told to do less than the failure number of repetitions. For the general population this number is two thirds of that to leave a safety factor. For the professional athlete, if the muscle becomes inhibited on the fifth repetition than they were instructed to do sets of four.

Using this procedure a combination of number of repetitions along with the speed of the repetitions depending upon whether you wish to rehabilitate fast twitch function or slow twitch function is determined for each individual patient. This procedure has allowed a faster return and rehabilitation of weakened structures in not only athletes but in elderly patients.

Conclusion

Using muscle testing, a specific exercise routine can be determined for the specific needs of the patient.

The Patellar Tendon and the Quadriceps

David W. Leaf, D.C., DIBAK

Abstract

Standard muscle testing is originally started with Kendall and Kendall has many limitations in biomechanics. This paper will discuss improved ways of testing for imbalances in the quadriceps muscles as related to patellar motion and the patellar tendon.

Key Indexing Terms

Patellar Tendon, Retropatellar Pain, Quadriceps, Fibrosis, Applied Kinesiology, Manual Muscle Testing

Introduction

The patella has to have and be able to move not only superior and inferior but also slightly medial and lateral to palpation. Limitations in motion of the patella have adverse effects on the relative function of the quadriceps muscle. After injury or repeated stress localized inflammation is common and protein cross-links are formed "gluing" the tendon to the tibia and restricting motion of the patella. It is also common to find adhesions in the tissue above and superior to the patella.

Discussion

Adhesions of the patellar tendon decrease the distance from the inferior aspect of the patella to the tibial tuberosity, effectively creating a condition known as patella infera.

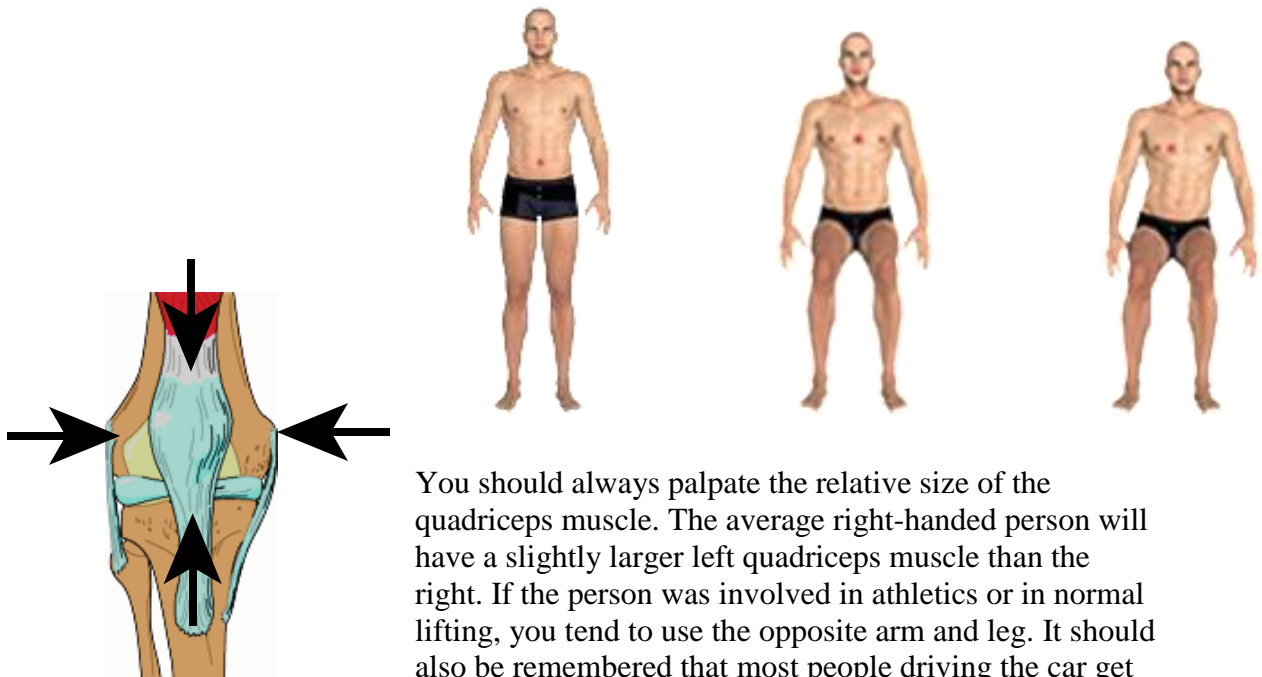
In extension of the knee, Ahmad found that adhesions decreased the knee extension force created by the quadriceps muscle on the tibia, indicating a decrease in the effective moment arm of the extensor mechanism. Furthermore, as a result of patellar tendon adhesion, the angle formed by the quadriceps and patellar tendons decreased, resulting in an increase in patellofemoral joint reaction force and pain or ache. (Ahmad, Kwak et al. 1998)

Salsich found that subjects with patellofemoral pain when tested in stair climbing and descent had reduced knee extensor function. This suggested that quadriceps avoidance was employed to reduce patellofemoral joint reaction forces. The altered biomechanics in the stair tests were found at the knee and not in the ankle or the pelvis. (Salsich, Brechter et al. 2001)

In the initial examination of the patient, questions should be asked if they have difficulty getting out of a low chair, out of a soft couch, or off of the ground as well as difficulty climbing or descending stairs. Do they have any tenderness and soreness around the

patella if they're kneeling? All of these are indications of potential malfunction of the quadriceps muscle at varying degrees of angulation of the knee.

Examination of imbalances in patellar function begins by observing the patient bending their knees. An easy way of checking for abnormal function in one leg versus the other is to take a laser pointer and aim it at the person's umbilicus. As the patient squats, notice the tracking of the laser pointer up the chest. Make sure to instruct the patient to then slowly so that the laser beam does not get on their face. In normal functioning, the dot should move in a straight perpendicular motion. Have the person do this squatting action 5 to 6 times. If there is an imbalance in one leg, the person will start to deviate to the side. It is easy to have the patient then look and see where the laser point is located. Make sure that you instruct the person to look straight ahead and not watch the spot.



You should always palpate the relative size of the quadriceps muscle. The average right-handed person will have a slightly larger left quadriceps muscle than the right. If the person was involved in athletics or in normal lifting, you tend to use the opposite arm and leg. It should also be remembered that most people driving the car get

in and out using only their left leg to support their body weight. This slowly leads to a slightly larger development of the left quadriceps over the right quadriceps.

With the patient in a supine position with the leg totally relaxed, the patella should be palpated for motion or restriction in superior, inferior, medial and lateral motion.



Standard muscle test for both the rectus femoris and the vastus muscles should be performed. If the muscles are found to be inhibited, normal procedures should be performed to determine if there is a problem within the muscle or potential problems with the nerve supply to the muscle. -If there was restriction of the

patella in its superior – inferior motion, cross-frictional massage should be done to the patellar tendon and if indicated the area superior to the patella and the muscle retested.

The knees should then be further flexed at different angles to make sure that the rectus femoris and the vastus are able to adequately contract at these increased angles of knee flexion. Failure of the muscle at an angle may very well indicate adhesions around the patella and this need to be investigated and corrected.



In an analysis of 50 patients entering the office with chronic low back and leg symptoms. It was found that 34 of them had an involvement of restricted motion of the patella. This occurred on the side of the short stride and there was mild to moderate atrophy of the quadriceps muscle.

In each of these cases, the patient was instructed on how to perform the cross friction massage at home. They were told to do this every day for two weeks. They were then to walk normally and come in without massaging it for 3 to 5 days. On re-examining it was found that 5 patients showed they needed to continue with the patellar correction and on questioning it was found that three had not performed the massage properly and two had severe atrophy of the quadriceps muscle needing extensive rehabilitation.

Conclusion

In patients, especially chronic patients, with low back problems or knee problems, it is highly recommended that the quadriceps muscle be tested at multiple degrees of knee flexion in order to determine if there is adequate motion of the patella to ensure proper functioning of the muscle. Correction of this is necessary to ensure adequate rehabilitation of the muscle.

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The Patellar Tendon and the Quadriceps
David W. Leaf, D.C., DIBAK

Light Therapy Desensitization

Michael P. Lebowitz, D.C.

Abstract

Visible light is like a multivitamin, consisting of many different frequencies ranging from approximately 400-700 nm. Selective malabsorption due to emotional trauma, wearing glasses or contact lenses, being indoors etc., can contribute to organ dysfunction, various subclinical maladies, and repression of unpleasant/traumatic memories. Just like prescribing specific nutrients- prescribing treatments with specific frequencies of light can help restore normal homeostasis and thus stabilize your patient.

Key Words

Light, Color, Desensitization

Introduction

Color therapy, the use of full spectrum lighting, etc. have been the focus of research for many decades. Pioneers such as Dinshah⁽¹⁾, Babbitt⁽²⁾, Spitler⁽³⁾, and Ott⁽⁴⁾ have brought many valuable findings to the field of light and health. Approximately 25 years ago, Jacob Liberman O.D., PhD⁽⁵⁾ started using specific frequencies of the visible light spectrum to successfully treat a wide diversity of symptoms. I will be quoting heavily from a paper I wrote for the ICAK in 1993 called Spectra View Technique.⁽⁶⁾

“Liberman feels that there are three factors that block biological receptivity or absorption of selective frequencies of visible light. The first is excessive time spent under artificial light. Artificial light being imbalanced compared to sunlight causes certain body sensors to lose part of their function according to Liberman. The second is excessive use of sunglasses or tinted glasses. The third, physical or emotional trauma, may cause certain sensors to close down such that even if people are exposed to certain frequencies of light, they may not fully absorb them.

Liberman hypothesized that stimulating the body (through the eyes) with the portion of the spectrum that is blocked will cause the “unstimulated sensor to awaken”. In his clinical experience he found that having people look at certain colors would evoke different emotional responses varying from depression to elation. He decided to treat (having the patient look at certain colors through an apparatus) with the colors that made people uncomfortable or exacerbated their symptoms. By doing this, peoples’ addictive behavior would change, often intensifying at first but then resolving. He also found that old unresolved emotional issues and memories would resurface and with further treatment resolve along with their physical symptoms.”

Being intrigued by his work in the early 1990s with the help of a patient we developed a machine called the Spectra View that had the option of looking at any one of 106 different light frequencies or colors and we started our research.

Discussion

Following Liberman's theories, we decided to do something opposite to our usual way of thinking. We treated with the frequencies or colors that caused inhibition of an intact muscle to mimic in a sense Liberman's treating with colors that made the patient uncomfortable. We would use 2 colors per session 10 minutes each and then the next treatment retest those and either retreat with them if they still caused inhibition, or move on and test others. To get through them all often took 20-70 sessions so we only did it on very select patients. I had perhaps my two most dramatic results on any patients that I ever had in practice by utilizing the technique. About half the cases we treated had dramatic results (e.g. one DC gave up a 25 year habit of chewing tobacco after session 7 which was something we were not focusing on), while the other half had no discernable change. I stopped the technique after a year as it just didn't fit into my one room practice but will mention the 2 most dramatic case histories before moving on to newer applications.

Case Histories

1. Alice is a personal friend and she was 45 years old when we did the treatments. She suffered from continual shoulder pain, chest pain, irregular heartbeat, as well as debilitating left rhomboid pain aggravated by stress. She had lost vision in one eye seven years previously as a result of a car accident. The top eye hospital on the east coast told her the vision loss was permanent. She suffered from depression and unknown to me at the time had tried to commit suicide three weeks prior to starting the treatment. Previous treatment by me had yielded only very temporary alleviation of her pain (using standard AK and nutrition). During the spectra view therapy we discontinued all other treatment. Alice also had a doormat personality- just asking to be taken advantage of by others and had virtually no self-worth despite being a very talented woman. After session one (looking at the colors that weakened – 2 colors ten minutes each) the left rhomboid pain as well as the shoulder pain and chest pain vanished, never to return except for a brief period during another session that was especially traumatic. After session four, her energy which had been very low since her accident returned to normal. The psychological abuse she continually received from her husband no longer effected her. Session six caused extreme pain behind the eye she was blind in and session seven brought vision back to her eye. During session ten she “saw” her mother beaten by her father when Alice was just an infant and her father trying to strangle her (she was later able to confirm this incident while talking to her mother). She also saw her birth (she was a home birth) and also verified the furniture in the room, etc. in a conversation with her mother. Subsequent sessions brought new memories, headaches, nightmares, etc. It took 31 sessions before she tested clear. By then Alice was asymptomatic, no longer a “doormat” and had a zest for life. Once her children moved out of the house she divorced and became a happy, healthy, fulfilled, independent woman.
2. Paula was 19 years old and had just gotten engaged. At 19 she had already been married and divorced twice. At 5 foot 5 inches she weighed 265 pounds. I had

treated her a number of times helping various musculoskeletal issues but was unsuccessful with weight loss. She agreed to undergo a 7 day water fast and did not lose one pound. Shortly after that we commenced treatment. All in all it took about sixty sessions. After one particular session she remembered a Thanksgiving party at her house where she was sexually abused by a cousin when she was still in diapers (she was not able to confirm this one way or the other). She shared the incident with me and then told me that every Thanksgiving as far back as she could remember she would have major vomiting episodes. Over the next 3 months without a diet change Paula lost 100 pounds and called off the third wedding. Her case seems almost physiologically impossible but I saw it myself.

Color Therapy Desensitization 2015

With the advent of more advanced computer technology we decided to revisit light therapy. We made 60 different color slides to view on a computer screen. The treatment procedure is as follows

1. After checking the patient for dysbiosis, metals, foods, etc., see which of the colors cause an intact muscle to be inhibited. These colors should also block all (or almost all) your positive findings. If some do not, only prescribe the ones that do.
2. Have the patient at home treat with the positive colors for a total of 20 minutes per session for 14 days (if there are 10 colors- treat 2 minutes per color, 8 colors 2-1/2 minutes per color etc.). Treatment should be in a dark room and the color should take up the whole computer screen. Warn them there is a chance they will have some memories come up during the session or in dreams. If a color seems to be significant while treating, they can increase the time on that color and for the session.
3. In two weeks you should retest the colors for muscle inhibition. Usually none will weaken. If some do continue those for another week
4. Once no colors weaken, use a weak indicator muscle and see which colors cause muscle facilitation. Treat as in step 2.
5. Recheck 2 weeks later as in step 3.
6. Continue until no colors cause muscle facilitation.

We hypothesize that this home treatment helps balance the Sympathetic/para-sympathetic nervous system as taught by Jacob Liberman. On a practical level most patients feel they have benefited from the treatment and we have found less recidivism of dysbiosis, metals, etc. Patients report being more emotionally stable. We also feel we may have corrected a patients receptivity to frequencies of the visible light spectrum as well as replenished deficiencies of some of the frequencies and as a result helped “heal” various traumas, organ function, etc. While sunlight has all the visible light frequencies, just like sometimes we need to prescribe a specific vitamin or mineral as opposed to a multi, in these cases we need to prescribe specific visible light frequencies.

Conclusion

Light therapy is a powerful technique to help your patient heal. Using colors that either inhibit or facilitate muscles in the above mentioned fashion can be a valuable home therapy the patient can do on their own to help stabilize their nervous system and decrease recidivism.

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Light Therapy Desensitization
Michael P. Lebowitz, D.C.

Small Intestinal Bacterial Overgrowth (SIBO): Testing for and Treating SIBO using Applied Kinesiology

Noah Lebowitz, D.C.

Abstract

Small Intestinal Bacterial Overgrowth (SIBO) is a common issue causing intestinal distress, diarrhea, weight loss, and malabsorption syndrome. Traditional diagnostic methods are disputable and the actual prevalence is unknown, but it has been associated with irritable bowel syndrome, celiac disease, chronic diarrhea, and other conditions. In Applied Kinesiology (AK) we have ways to check for dysbiosis, and ways to check for small intestinal issues, but no specific tests for SIBO. Minimizing false negatives is pertinent to any diagnostic procedure. By testing and evaluating patients for SIBO under multiple ways helped discover a way to minimize these false negatives and help diagnose SIBO.

Key Indexing Terms

Small Intestinal Bacterial Overgrowth, Applied Kinesiology, Irritable Bowel Syndrome, Diarrhea

Introduction

The small intestines typically contain less than 1,000 organisms per mL, most consisting of gram-positive bacteria (1). Small Intestinal Bacterial Overgrowth (SIBO) is a term used when the upper small intestines contain 100,000 to 1,000,000 or more organisms per mL (2, 3). SIBO is not typically caused by pathogenic bacteria uncommon to the small intestines, but an increase in the number of bacteria typically found. The most common are *Escherichia coli*, *Streptococcus*, *Lactobacillus*, *Bacteroides*, and *Enterococcus* species. In a recent study the authors identified 141 micro-aerophilic strains (*Streptococcus* 60%, *Escherichia coli* 36%, *Staphylococcus* 13%, *Klebsiella* 11% and others) and 117 anaerobes (*Bacteroides* 39%, *Lactobacillus* 25%, *Clostridium* 20% and others) (4).

There are many symptoms that can be caused by SIBO but some of the most common ones include: abdominal bloating and/or belching after eating, abdominal cramps, loud noises in the belly after eating, vomiting, nausea, weight loss, malabsorption, and other abdominal issues. Ones symptoms will vary depending on the specific type of overgrowth they are experiencing. Cases have shown the predominant bacteria causing fat malabsorption, bloating and diarrhea, or mucosal damage, depending which bacterial levels are elevated (4).

There are multiple tests for SIBO, although the accuracy is debatable between sources. The current gold standard for SIBO diagnosis is aspirating bacteria from the jejunum, measured in an excess of 100,000 bacteria/mL. Many more recent studies have “diagnosed” SIBO using a lactulose Hydrogen Breath Test (HBT) (6). In a HBT glucose is given to a person and the amount of hydrogen expired is measured in a gas chromatograph. Typically a small amount of hydrogen is produced by anaerobic bacteria in the large intestines, but if SIBO is occurring then an increase in hydrogen production occurs. SIBO is diagnosed if there is a 12 ppm or more rise in expired hydrogen following a glucose or lactulose HBT. The sensitivity is thought to 40% and specificity at 80% (7). There is much debate though on how high the levels need to rise to be considered diagnostic, and if glucose or lactulose is better used for the HBT. One study to address this found 84% of those with SIBO having a positive lactulose breath test, while 20% of the population without SIBO also had a positive test (8).

While some with SIBO suffer from chronic diarrhea, weight loss, malabsorption, and other symptoms, many are relatively asymptomatic. The prevalence of SIBO is widely disputed depending on the testing method. Studies do show it to be of greater prevalence in the elderly, with one study showing as high as 15% of non-hospitalized elderly having SIBO, compared to only 6% of healthy young adults (5). These percentages are much higher in those diagnosed with other intestinal disorders.

More and more research is starting to show a correlation between SIBO and Irritable Bowel Syndrome (IBS). One recent study showed that 78% of 202 patients with IBS had an abnormal lactulose breath test, indicative of having SIBO (9). Another study evaluated diabetic patients with diarrhea for SIBO and 43% tested positive, with 75% improving after undergoing antibiotic treatment for SIBO (10). In a different study of 15 individuals diagnosed with celiac disease, but still experiencing intestinal issues, were tested and 66% tested positive for SIBO. All of the patients had resolution after being treated with antibiotics (11). These are just a few of the illnesses found to be associated with SIBO.

With SIBO being so prevalent in many intestinal disorders the author felt it should be evaluated using an Applied Kinesiology (AK) approach. Is there a way to diagnose SIBO using AK? How can we minimize the number of false negatives in diagnosis? Also can it be safely treated to either alleviate symptoms and/or remove the positive testing via AK. These questions are addressed.

Methods and Procedures

A sample of 30 patients were evaluated for possible SIBO infections. To evaluate for a potential SIBO infection, a composite mixture of *Bacteroides Fragilis*, *Clostridium Botulinum*, *Clostridium Difficile*, *Clostridium Perfringens*, *Clostridium Septicum*, *Clostridium Tetani*, *Clostridium Welchii*, *Enterococcus Faecalis*, *Streptococcus Faecalis*, *Enterococcus Faecium*, *Escherichia Coli*, *Group A Streptococcus*, *Group B Streptococcus*, *Klebsiella Pneumoniae*, *Staphylococcus Aureus*, *Staphylococcus Epidermitis*, *Staphylococcus Saprophyticus*, *Streptococcus Agalactiae*, *Streptococcus Lactis*, *Streptococcus Mitis*, *Streptococcus Mutans*, *Streptococcus*

Pneumoniae, Streptococcus Pyogenes, Streptococcus Salivarius, and Streptococcus Viridians was produced.

On each patient a facilitated indicator muscle was used from the pectoral major to screen for conditional inhibition when tested for the contents of the SIBO mixture. The same contents were tested against facilitated rectus femoris and external oblique muscles (small intestines related muscles).

Results

The results from evaluating 30 people were compiled and tabulated. When evaluating for SIBO no patients tested positive (a facilitated muscle becoming conditionally inhibited) when evaluating it using the Pectoralis major, sternal division, muscle. When the same substance was evaluated using the rectus femoris muscle 1 person tested positive (3.33%). When the evaluation was done in the same manor but using the external oblique muscle 19 or 30 people tested positive (63.3%).

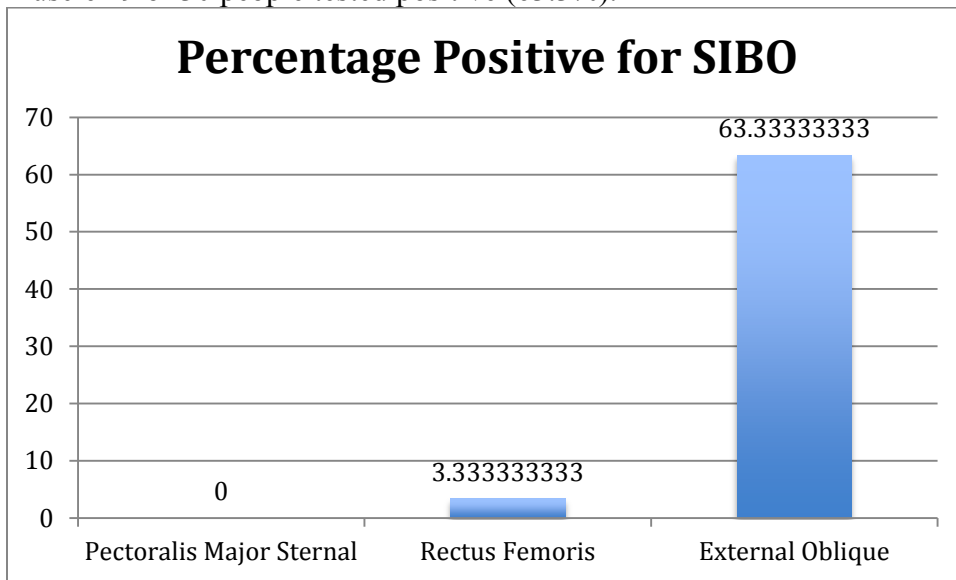


Figure 1. The percentage of 30 patients who tested positive for SIBO by testing ones Pectoralis Major Sternal Division, Rectus Femoris, and External Oblique

	Positive	Negative	Total	Percentage
Pectoralis Major, Sternal Division	0	30	30	0
Rectus Femoris	1	29	30	3.333333333
External Oblique	19	11	30	63.33333333

Figure 2. The raw data for 30 patients evaluated for SIBO

Conclusion

Looking at the data above one can see that unless you test for SIBO using the external oblique muscles then you will most, if not all, positive tests. Dr. George Goodheart Jr. showed how certain muscles are related to certain specific organ functions. As shown in the data, there did seem to be some type of correlation with SIBO only testing positive

when challenged via the external oblique muscle (except for 1 positive test with the rectus femoris).

This new way to test for SIBO shows promise as a way for AK practitioners to be able to detect and treat SIBO. The next step to continue this technique would be to compare tests to lactulose HBTs and see how they correlate. With further confirmation this can be shown to be a safe, fast, efficient, and inexpensive way to diagnose SIBO, and to also test for the best way to treat SIBO in each patient individually.

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**Small Intestinal Bacterial Overgrowth (SIBO):
Testing for and Treating SIBO using Applied Kinesiology
Noah Lebowitz, D.C.**

A Case Study of Resolution of Phantom Limb Pain through the Correction of an Intraosseous Subluxation

Jay Robert Marienthal, D.C.

Abstract

Objective

This paper investigates the mechanical causes of an intraosseous subluxation and gives a case study that demonstrates the successful resolution of phantom limb pain using this procedure.

Clinical Features

This paper presents the hypothesis that the phenomenon of an intraosseous subluxation is caused not only by changes that occur within the bone but also through the connective tissue pathways that communicate throughout the body and with the bone. A case study was performed to evaluate the hypothesis that phantom limb pain can be treated through the correction of an intraosseous subluxation.

Interventions and Outcomes

A case study was carried out on a 21 year old male patient who had been experiencing phantom limb pain for the last three years. He was diagnosed with an intraosseous subluxation that was corrected by using standard Applied Kinesiology procedures.

Conclusion

This case study resulted in successful resolution of phantom limb pain through the treatment of an intraosseous subluxation. This study helps validate the use of Applied Kinesiology in the treatment of phantom limb pain. More research is needed to confirm the findings of this study, but this could help to give the many patients suffering from phantom limb pain a quick and effective treatment option.

Key Words: Phantom Limb Pain, Intraosseous Subluxation, Fascia, Extracellular Matrix, Applied Kinesiology

Introduction

It is estimated that there were about 1.6 million people with limb loss in the USA in 2005, and this number is projected to increase by more than double, to 3.6 million, by the year 2050.⁴ Phantom limb pain has been reported in 60-80% of individuals suffering from amputation.⁵ There is currently a need for effective therapies that can be used to help give

these patients relief from their symptoms.⁷ The use of manual muscle testing and Applied Kinesiology in the diagnosis and treatment of an intraosseous subluxation is a very useful clinical tool. This paper hypothesizes that a patient's phantom limb pain symptoms will be improved by performing a correction for an intraosseous subluxation at the distal end of the remaining limb. While the neurological basis for phantom limb pain is a major factor in the expression of symptoms, and should be further investigated, this paper attempts to further the understanding of the mechanical force changes that occur with an amputation and present a theory as to why the correction of an intraosseous subluxation can give relief of phantom limb pain.

Method

A 21 year old male patient that suffered a left thumb amputation at the proximal portion of the distal phalanx after falling onto a table saw three years prior and was evaluated for a complaint of phantom limb pain. He stated that he had felt the pain consistently since the injury, and he described the sensation as a sharp pain that radiated beyond the end of his remaining thumb. He also stated that his symptoms would be exacerbated every time that he would flex the remaining distal phalanx.

Before evaluating this patient, it was determined that the patient was not demonstrating any switching patterns. The left flexor hallucis longus muscle was then tested for strength and found to be weak. When the muscle was tested the patient stated that the pain that he felt shot through his finger. Upon therapy localization to the distal end of the remaining limb, the strength of the left flexor hallucis longus muscle returned to normal and the pain was not felt. A vector was found that created the greatest amount of strengthening, which was found to be negated on inspiration. There was noted restriction in the motion of the skin through the scars in the area that the patient complained of the greatest amount of pain. During the treatment, when minimal pressure was applied in the vector that created the greatest amount of strength, there was significant pain that felt exactly like the pain that the patient would complain of and describe as phantom limb pain. After ten breaths, the pain was found to be decreased but still there. The left flexor hallucis longus muscle was then retested and still found to be weak, but strengthened to a slightly different vector. After five different vectors were treated the patient stated that he no longer had any pain and the strength of the left flexor hallucis longus muscle was returned to normal.

Results

This case study successfully demonstrated that by using Applied Kinesiology after an amputation, the correct vector of an intraosseous subluxation was able to be determined. After the corrections were made the patient was able to have complete resolution of phantom limb pain.

Discussion

An intraosseous subluxation is described as a microscopic compaction or separation within the bone's matrix that is treated by applying a force in the opposite direction to the disturbance.^{1,2} However, current research suggests that the extracellular matrix is connected not just within the bone, but throughout entire body through fascial pathways.³

This understanding contributes to the theory that when treating an intraosseous subluxation the surrounding connective tissue will also be affected. A better understanding of the components can illustrate how the many different types of tissue are connected.

The periosteum can be considered to be a highly innervated strip of fascia encapsulating bone that is attached to bone by strong collagenous fibers called Sharpey's fibers.⁵ This structure is very sensitive to movements and is the part responsible for the pain associated with trauma to the bone.⁶ Fascial connections that attach tendons and ligaments to the periosteum make clear connections that communicate information through the body and can be affected through changes in fascial tension.⁸

The extracellular matrix is a proteinous mucopolysaccharide complex that is made up of many different types of collagen, elastin, reticulin, glycosaminoglycans and proteoglycans that make up the intercellular space in connective tissues.³ The body is constantly bombarded with a wide variety of mechanical forces due to movement, gravity, and trauma.³ The diversity in the structural makeup of these fibers allows for the successful distribution of forces to maintain body integrity, while creating an environment that allows cells to be embedded in a framework, and still allowing for the proper flow of nutrients, metabolites, ions, and hydration.³ The extracellular matrix acts like a liquid crystal semiconducting lattice that generates bioelectric signals that communicate throughout the entire body.³

The fascial system is described by Meyers, in *Anatomy Trains*, as a system that, “conveys mechanical information – the interplay of tension and compression – along the fibrous net, the gluey proteoglycans, and even through the cells themselves.”³ The fascial system traverses entirely throughout the body while communicating information at the speed of sound.³ The fascia helps to give tension to the body, while at the same time applying compression, which maintains the consistent shape of the body.³ The most common type of fascial injury results from when it is stretched quickly.³ However, when the fascia is slowly stretched its viscoelastic properties allow it to restructure into a new position.³

Myofibroblasts are a unique class of cells found in fascia that may be partly responsible for the ability of fascia to restructure.³ These cells are not stimulated through normal neural pathways, like smooth and skeletal muscle fibers, but are instead stimulated through sustained mechanical tension, cytokines, nitric oxide, histamine, mepyramine, and oxytocin and act to give a low energy-long duration contraction. These cells have been shown to exert contractile forces through tissues, helping to achieve and maintain fascial restructuring in the body.³

Phantom limb pain was once thought of as a primary psychiatric illness. Today, the three most prominent proposed mechanisms for this complaint are: maladaptive changes in the primary sensory cortex after amputation; a lack of proprioceptive input causing conflict between the signals received from the amputated limb and the information provided by vision that serves to send motor commands to the missing limb; and vivid limb position memories that emerge after amputation.¹⁰ Any trauma significant enough to result in

amputation will also cause trauma to all of the other tissues in that area: Bone; periosteum; fascia; muscle; adipose; blood vessels; lymph vessels; and nerves. Each one of these tissues will have changes in the connective tissues that make up their structure and will result in changes in the transmission of electrical signals, movement of fluids and direction of mechanical forces.³

The permanent deformation of the remaining area and the new mechanical stresses that are placed on the limb due to changes in the structure of the connective tissue could be responsible for the mixed signals sent to the brain that result in the symptoms of phantom limb pain. The way that the wound heals from the amputation will create new mechanical forces on the remaining tissues and tears in the connective tissue will cause fibroblasts and mesenchymal stem cells to lay down new layers of collagen, which align themselves along the lines of stress to create more resistance.³ The new organization of tissues will put different stresses on the limb and all associated joints, which will add new neural stimulation, which is hypothesized as one of the causes of phantom limb pain.

By using the concepts of Applied Kinesiology and knowledge that the periosteum and fascia can cause pain and restriction outside of the local area, another theory as to the creation of phantom limb pain can be postulated. The injury to the limb may cause changes in the connective tissues throughout all layers of tissue, and result in phantom limb pain. By correcting these problems through the use of basic Applied Kinesiology procedures, there are many patients that will experience relief for the first time.

Conclusion

Current research teaches us that connective tissues are far reaching throughout the body and changes in the forces applied to them will result in fascial restructuring. This study demonstrates successful resolution of phantom limb pain after the treatment of an intraosseous subluxation, which helps give validity to the use of Applied Kinesiology in patients suffering from phantom limb pain. This study also helps to expand the definition of an intraosseous subluxation from a disturbance of the crystalline structure in the bone, to disturbances through the bone and surrounding connective tissues. More research is needed to confirm the findings of this study, but this could help to give the many patients suffering from phantom limb a beneficial treatment option.

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**A Case Study of Resolution of Phantom Limb Pain through
the Correction of an Intraosseous Subluxation
Jay Robert Marienthal, D.C.**

A Hypothesis of Embryologic Origin of Chapman's Reflexes and a Case Study Demonstrating the Reversal of Unilateral Chapman's Reflexes in a Patient with Situs Inversus Totalis

Jay Robert Marienthal, D.C.

Abstract

Objective

One of the tenets of Applied Kinesiology is the use of manual muscle testing to determine the need for treatment of Chapman's Reflexes. This paper originates the hypothesis that the Chapman's Reflexes and the associated organ and glands stem from a common mesodermal embryologic origin. A case study was performed evaluating the hypothesis that there will be a reversal of unilateral Chapman's Reflexes in a patient with Situs Inversus Totalis. This case study was performed to help give validity to the theory that common mesodermal embryologic origin is responsible for the effectiveness of the treatment of Chapman's Reflexes.

Clinical Features

The unilateral Chapman's reflexes were evaluated in a patient with Situs Inversus Totalis and evaluated to prove the hypothesis that they would be found on the opposite side to which they are traditionally recognized.

Intervention and Outcome

All unilateral Chapman's Reflexes were found to be on the opposite side in a patient with Situs Inversus Totalis. Standard Applied Kinesiology treatment corrected the associated muscle with all unilateral Chapman's Reflex.

Conclusion

The successful demonstration that active unilateral Chapman's Reflexes were found on the opposite side of where they are traditionally found in a patient with Situs Inversus Totalis lends support to this author's theory that there is common mesodermal embryologic origin of Chapman's Reflexes and the associated visceral organ or gland.

Key Words: Chapman's Reflex, Neurolymphatic Reflex, Situs Inversus Totalis, Applied Kinesiology

Introduction

One of the tenets of Applied Kinesiology is the use of muscle testing to determine the need for treatment of Chapman's Reflexes.^{1, 2, 3} However, it is extraordinarily challenging to find any definitive research regarding a scientific rationale as to why these reflex points are found in these specific locations. This paper originates the hypothesis that the Chapman's Reflexes and the associated organ and glands stem from a common mesodermal embryologic origin. A case study was performed evaluating the hypothesis that there will be a reversal of unilateral Chapman's Reflexes in a patient with Situs Inversus Totalis. This case study was performed to help give validity to the theory that common mesodermal embryologic origin is responsible for the effectiveness of the treatment of Chapman's Reflexes.

Method

An evaluation for weak muscles of a patient with previously diagnosed Situs Inversus Totalis was performed. This was done over multiple treatments because there was never one treatment where the patient exhibited weakness of all of the muscles with a unilateral Chapman's Reflex. The muscles that have Chapman's reflexes only on the left side are the Pectoralis Clavicular, Rhomboids, Supinator, Latissimus Dorsi, Triceps, Middle Trapezius and Lower Trapezius. The muscles that have Chapman's reflexes only on the right side are the Pectoralis Sternal and Popliteus. Before evaluating this patient, it was determined that the patient was not demonstrating any switching patterns. The patient was assessed for muscle weakness and then asked to therapy localize to both the classically described Chapman's Reflex point and to the point on the opposite side. If a therapy localization was found to strengthen the associated muscle, the point traditionally used for Chapman's Reflexes was treated with rotary massage and then the muscle was retested. After that, the point on the opposite side was treated with rotary massage and then the muscle was retested.

Results

In this patient with Situs Inversus Totalis it was found that every time the patient had a weak muscle that has a unilateral Chapman's Reflex, the muscle did not strengthen with therapy localization to the classically described Chapman's Reflex but did strengthen to the same spot on the opposite side. When the spot where the Chapman's Reflex is usually found was treated with rotary massage, there was no effect on the associated muscle. However, when the spot on the opposite site was treated with rotary massage, the strength of the associated muscle returned to normal.

Discussion

Chapman's Reflexes were first discovered by Dr. Frank Chapman, D.O. in the 1930's and incorporated into Applied Kinesiology by Dr. George Goodheart Jr., D.C. In 1965.^{1, 2, 3} These reflexes were described as points on the anterior and posterior surfaces of the body, primarily in the intercostal spaces adjacent to the sternum and along the spinal column.^{1, 2, 3} Dr. Chapman used these reflex points to help diagnose the patient's condition, and then found that through the use of digital massage to the specific point correlating with the problematic organ, the clinician could effectively influence the clinical outcome.^{1, 2, 3} Dr.

Chapman originally discovered these points empirically and stated that “According to the amount of soreness of the anterior contractions, you may judge the extent of the lymphatic blocking – and even to the extent and seriousness of the inflammation of the area involved.”³ In 1965, Dr. George Goodheart observed that specific muscles that were found weak on manual muscle testing would strengthen dramatically when a specific Chapman's Reflex was stimulated by massage.^{1, 2, 3} He then began correlating Chapman's reflexes and found that they matched with his own findings on muscle organ relationships and began calling these points “Neurolymphatic Reflexes.”^{1, 2, 3}

In the practice of Applied Kinesiology, Chapman's Reflexes can be a very beneficial diagnostic and therapeutic tool. Diagnosis of a need for treatment of Chapman's Reflexes in Applied Kinesiology is determined when an inhibited muscle is strengthened, or a previously intact muscle becomes inhibited, when the patient touches a Chapman's Reflex on the anterior or posterior surface of the body.^{1, 2, 3} Walther described Chapman's Reflexes found on the anterior surface of the body as being “puffy, doughy, swollen feeling of a homogeneous nature, about three centimeters in diameter” when they are found in an acute state.³ He continues, “as chronicity sets in, the homogeneous nature changes to one of concentrations, slightly more compact tissue about one to two centimeters in diameter and feeling somewhat like soft lima beans.”³ Furthermore, “with greater chronicity, the compactness is accentuated and the size of the palpable nodules becomes smaller and much harder, somewhat like granules of sand or small BB's within the tissue.”³ He found that posterior reflexes feel, “much the same as the acute anterior reflexes, but they appear to change little with chronicity.”³ The treatment usually consists of hard digital pressure to the points that have shown a positive therapy localization and should result in a strengthening of a weak corresponding muscle or a previously intact muscle no longer becoming inhibited when the patient touches the neurolymphatic point.^{1, 2, 3}

The lymphatic system begins developing after the fifth week of gestation. Lymphatic vessels form from lymphatic progenitor endothelial cells inside of embryologic veins that leave the veins in specific paths and extend radially from the dorsal half of the cardinal veins.^{4, 5, 6, 7} From there, lymphatic structures develop throughout the mesenchyme, which gives rise to bones, cartilage, endothelial cells and the circulatory system.^{5, 6, 7} Six primary lymph sacs are formed: two jugular, at the junction of the subclavian and anterior cardinal veins; two iliac, at the junction of the iliac and posterior cardinal veins; one retroperitoneal, near the root of the mesentery; and one cisterna chyli, dorsal to the retroperitoneal sac.⁶ Numerous channels connect the sacs with each other and drain lymph from the limbs, body wall, head, and neck.⁶ Two main channels, the left and right thoracic ducts, join the jugular sacs with the cisterna chyli.⁶ Soon after that, an anastomosis forms between these ducts.⁶ The left lymphatic duct, known as the thoracic duct, then develops collectively from the distal portion of the right duct, the anastomosis, and the cranial portion of the left thoracic duct.⁶ The right lymphatic duct is derived from the cranial portion of the right thoracic duct.⁶ Both ducts maintain their original connections with the venous system and empty into the junction of the internal jugular and subclavian veins.⁶ Numerous anastomoses produce many variations in the final form of the thoracic duct.⁶

Once the lymphatic system is developed, it consists of lymphatic vessels that transport lymphatic fluid between different parts of the body.⁶ These lymph vessels consist of lymph capillaries and lymph collecting vessels, the thoracic duct and right lymphatic duct.⁶ The lymph capillaries are mostly responsible for absorbing interstitial fluid from the tissues and the lymph collecting vessels move fluid forward to larger collecting vessels and is called an afferent lymph vessel as it enters a lymph node.⁸ In the lymph node, the lymph percolates through the structure and is carried away by the efferent lymph vessel before being returned into the bloodstream through one of the subclavian veins.⁸ The lymph fluid is pumped back into circulation with the aid of extrinsic and intrinsic forces.⁸ Extrinsic forces include arterial pulsations, skeletal muscles contractions, fluctuations of central venous pressure, gastrointestinal peristalsis, and respiration.⁸ Intrinsic forces are the result of coordinated contractions of lymphatic vessels through the smooth muscle cells.⁸

Although direct information connecting the innervation of the lymphatic system to the Chapman's Reflexes has been difficult to find, there have been hypotheses that these reflex points could be explained by the activation of the autonomic nervous system.^{1, 2, 3} To help validate this theory, it has been found that the smooth muscle cells that surround the lymphatic vessels and coordinate contractions are activated by both the sympathetic and parasympathetic system.^{9, 10, 11}

Situs Inversus Totalis is a rare autosomal recessive condition that is caused by a mutation in the coding region of the *DNAH11* gene and occurs in about 0.01% of the population.^{12, 13} In this condition the organs of the chest and abdomen are found in a mirror image position to that of normal anatomy.¹³ While 20% may develop bronchiectasis and primary ciliary dyskinesia due to the reversal of the direction of the bronchial cilia (Kartagener's syndrome), many do not have any other symptoms and will live normal healthy lives.¹³

Cases of situs inversus totalis are rare, but do present in clinical practice.¹³ To help practitioners of Applied Kinesiology to improve their diagnostic capabilities and clinical effectiveness, as well as add validity to the use of Chapman's Reflexes in clinical practice, the hypothesis that the unilateral Chapman's reflexes would be reversed in a patient with Situs Inversus was investigated.

Conclusion

This author has found that a detailed scientific explanation of the mechanism of action of Chapman's Reflexes is not clearly defined in the research. The theory that the visceral organs and the Chapman Reflex points develop from similar mesodermal embryologic origin represents a plausible mechanism of action to explain the clinical effectiveness of this procedure. This case study successfully demonstrated that in a patient with Situs Inversus Totalis, active unilateral Chapman's Reflexes were found, and treated, on the side opposite to where they are traditionally found. This lends support to the hypothesis that the effectiveness of the treatment of Chapman's Reflexes is due to the common mesodermal embryologic origin of the spot location and the underlying associated organs

and glands. More research should be done to more clearly define the mechanism of action of Chapman's Reflexes and to see if this same phenomenon will be seen in other patients with Situs Inversus Totalis.

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**A Hypothesis of Embryologic Origin of Chapman's Reflexes and a Case Study
Demonstrating the Reversal of Unilateral Chapman's
Reflexes in a Patient with Situs Inversus Totalis
Jay Robert Marienthal, D.C.**

A Proposed Standardization of the Nomenclature for the Diagnosis and Treatment of the Intervertebral Disc by Functional Neurologists

William Maykel, D.C., DIBAK

Abstract

Spinal pain is a complex, costly, ubiquitous problem that is inadequately treated with both conservative methods and pain medications. According to the Institute of Medicine, a branch of the National Institute of Health in their recent publication *Relieving Pain in America*, this represents a “national and moral imperative” to fix. The author proposes a simple standardized nomenclature system for the Functional Neurology profession to better diagnose, patient communicate/activate/participate in the treatment of their intervertebral disc problems found throughout the lives of the majority of all persons.

Functional neurological evaluation with the “challenge” acts to guide both the clinician and the patient through the spectrum of steps that take place as the intervertebral disc heals. These steps are non-weight bearing (NW), weight bearing (W), torque (T), and the flexion torque (FL-T). The enhanced understanding of the process by which the discs heal would encourage the integrative approach necessary to develop the epigenomics to mitigate the genomics which may account for 50-70% of intervertebral disc degeneration, 60% of osteoarthritis and 60% of back pain. A simple, standardized nomenclature for the treatment of intervertebral disc problems is presented.

Key words: Intervertebral Disc Diagnosis, Treatment, Healing, Professional Applied Kinesiology, Challenge, Non-Weight Bearing (NW), Weight Bearing (W), Torque (T), and Flexion Torque (FL-T), Functional Intervertebral Discs Treatment/Healing Nomenclature, Functional Neurology, Epigenomics/Genomics/Back Pain

Anatomy and physiology of the intervertebral disc. The intervertebral discs are the complex structures positioned between the vertebral bodies whose primary function is to evenly transfer compressive forces from one vertebral body to the next while allowing intervertebral movement (i.e. flexion, extension, lateral bending and rotation). The disc is composed of a soft proteoglycan rich center called the nucleus pulposus. Due to its high water content and loose collagen network, it resembles a fluid, and in fact its behavior has been described as a tethered- fluid. This is surrounded by 10 to 20 concentric lamellae or rings of collagenous fiber bundles called the annulus fibrosis. Each annular ring contains alternating fiber angles of about 65 degrees to add strength. The annulus fibrosis and nucleus pulposus cooperatively maintain the stiffness of the disc against

compressive loading. They are also sufficiently compliant to allow some degree of movement between the vertebral bodies.

The superior and inferior vertebral endplates of cartilage comprise the third compartment of the intervertebral disc. These bind the disc to their respective vertebral bodies. These endplates cover the entire surface of the adjacent vertebral body except for a narrow rim of bone called the ring apophysis around the perimeter of the vertebral body.

The peripheral annulus lamellae are type 1 collagen and attach to bone around the ring apophysis and are referred to as the ligamentous portion of the annulus fibrosis. The greater tensile strength of the outer annulus fibrosis is matched by the distribution of type 1 collagen.

Referred to as the capsular portion of the annulus fibrosis the inner fibers of the annulus insert into the vertebral endplate. They form a continuous envelope around the nucleus.

The composition of the nuclear material is 70 to 85% water. Proteoglycans make up 50% and collagen less than 20% of their dry weights respectively.

Proteoglycans are large molecules consisting of complex sugars and protein. They have the valuable property of being able to imbibe and retain large amounts of water. These molecules are the key to the hydrodynamic properties of the nucleus pulposus. If the nucleus loses its proteoglycans, it can no longer properly brace the annulus fibrosis. It then becomes progressively compressed and narrowed under the loads of daily living.

Normally during the day physical activity reduces the height and volume of the discs by 20%. (1) At night, when the spine is relatively unloaded, the discs elevated swelling pressure sucks in water from surrounding tissues causing tissue hydration to increase and swelling pressure to fall. Thus the discs water content exhibits a cyclic diurnal variation.

Sustained loading of discs causes them to lose height gradually. This process is known as 'creep'. Most disc creep is due to the expulsion of water. (2, 3, 4) Approximately 25% of the creep has been attributed to viscoelastic deformation of the annulus. (5) There is direct evidence linking intradiscal stress concentrations with pain. (6)

The intervertebral discs are the largest avascular structures in the body. Numerous studies have shown that "the supply of nutrients to cells within the intervertebral discs are barely adequate for normal requirements" (7-10). Impaired metabolite transport is associated with disc degeneration. (11,12)

According to cell culture experiments the nucleus pulposus cells are tolerant of low oxygen concentrations but die if the extracellular concentration of glucose falls below a critical period. (13) Posture has large impacts on the two transport mechanisms of diffusion and fluid flow.

Proposed nomenclature for functional neurology exam. Functional Neurology (aka The Professional Applied Kinesiology profession) can utilize the challenge test to elucidate the relative degree of intervertebral disc compression. When the disc is under

extreme compression, it will challenge with the patient lying down- either prone or supine. The detection of the challenge here is termed non-weight bearing or NW. This may correlate with elevated patient symptomology. At this point it must be understood that on the other hand there may be no discernible symptoms that the patient is aware of, so the disc disease is silent. The doctor and the patient at this point have their work cut out for them. For the doctor alignment of the patient's entire musculoskeletal axis needs to take place along with intersegmental traction, and therapeutic electrical modalities like interferential and frequency specific micro current utilized. The patient needs to be educated in the continuous use of correct posture, moist cold and stretching exercises. Of course the correction of any of the components of their ability to eat the correct diet, digest it, assimilate, detoxify and eliminate it must be handled up front as well. The fragility of the discs nutritional status must be communicated.

Now as treatment begins the intervertebral disc will next challenge in a sitting or standing position. This is termed weight bearing or W. At this point the doctor may tell the patient that their disc is 25% improved. The "kinesthetic moment" can be both not only motivational to the patient, but also locks in the importance of daily compliance to their spinal stretching program and ongoing great posture. As the dental profession has successfully achieved patient compliance with the daily cleansing of their oral cavities, so must the neurology profession do the same for their patients ongoing posture, stretching and periodic adjustments.

At the next level the intervertebral disc will challenge in a gait position or twisting/rotating this. This is termed torque (T). At this point the patient may be informed of the fact that their disc is 50% improved. The same goes for flexion(FL) 75% , flexion with torque (FL-T) 85%, then flexion with torque with left brain activity FL-T-LB 95% and then maximum healing has been achieved. These are shown in figure 1:

I.

USING PAK CHALLENGE TO DIAGNOSE IVD PROBLEMS






						
% improvement:	0 %	25%	50%	75%	90%	100%
Nomenclature:	NW Non-weight bearing	W Weight bearing	T Torque	FL Flexion	FL+T Flexion with torque	Negative challenge
Posture:	Lying down	Sitting or standing	Walking or twisting	Forward bending	Forward bending with rotation	
Usual symptom severity correlate:	HIGH	MEDIUM		LOW		NONE

Figure I

The utilization of the PAK "challenge" test is a quick, non-invasive test that may be utilized to determine the location and severity of spinal intervertebral disc compression. As the discs become more healthy and less compressed the nucleus absorbs more water. This chart represents the stages by which discs normally heal and may be utilized as a guideline by your PAK doctor to evaluate your progress and compliance with your posture, stretching and nutrition related to your healing.

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Ivd epigenomics. There are few key points that need to be mentioned here. First of all, a failure to progress to the next level implies that either the patients not following your exercise or postural recommendations or both. You can use this challenge nomenclature system to validate to the patient your ability to accurately determine their treatment compliance. Innate is great and does not lie.

Secondly, you must be very careful to cover all of your nutritional bases. The majority of people will have a positive shock absorber test which indicates multiple mineral deficiencies needed to maintain strong ligaments. These are the minerals like manganese, zinc, copper and molybdenum. If the shock absorber test is positive they need to be on a good multi-vitamin mineral two to three with each meal. The day of the one per day multi is 20 years outdated. You just can't physically get enough minerals in one pill.

Check your patients need for extra magnesium. If multiple facilitated muscles become inhibited after a quick stretch they are magnesium insufficient. This correlates with a low, or low normal RBC magnesium as well as a low DEXA magnesium test. Read and follow the information on the attached document. (Tricks to Maintain a Positive Magnesium Status.)

One more thing, never forget that we are one of the five animal species that has lost the ability to convert glucose to ascorbate. You need ascorbate to make collagen, so the use of one to three grams of vitamin C between meals- so too much iron is not absorbed- is one more thing to make sure you must cover with your patients. According to Randy Jirtle, PhD of Duke University who changed the phenotype of the Agouti mice, bred for sandy color and obesity to be skinny and black using methyl groups, "The genome represents the tip of the iceberg and the epigenome the body of the iceberg". With this in mind the facts that genetic inheritance account for 50-70% of the intervertebral disc degeneration, 60% of osteoarthritis and 60% of back pain (14) should compel our profession to engage in the full spectrum lifestyle instruction that is epigenomic.

I have included the daily cervical, thoracic, and lumbar disc exercises that should be taught to all patients. Our instructions on correct posture and mattresses are also included.

In summary, with the elegant functional neurologic test called the challenge we can reliably identify the exact causes of lack of normal function in the deep structures of the spine. In the case of the intervertebral disc we have a nomenclature system that is accurate and reliable. It has stood the test of time and it has been helpful for improved patient compliance, and with this improved clinical outcomes. I propose we formally adopt this system. We can become the functional neurologic dentists of tomorrow.

Discussion

Tricks to keep a positive magnesium status

Who doesn't have stress? Stressors, such as exercise, pollution, prescription and recreational drugs, alcohol, carbonated beverages, caffeinated beverages, sugar containing foods, calcium supplements and multivitamin/mineral supplements with a 2:1 calcium to magnesium ratio all deplete this mineral. Magnesium comes from the root word magnito, which means magnet, and it pulls calcium into the bones.

Magnesium is the kingpin of the mineral world of the body. It controls the body's use of calcium, sodium and potassium. In the tissues of the body it acts as an antioxidant. It prevents cardiovascular disease and performs every single function that cardiovascular medications are used for. For example, magnesium thins the blood (like Coumadin or warfarin) and it lowers blood pressure. It is nature's calcium channel blocker (regulating calcium from entering cells) and it functions as an anti-arrhythmic (normalizing heart rate). Recent scientific evidence has also demonstrated that 85% of people are deficient in getting the RDA for magnesium.

“Magnesium directly correlated with phase angle, a BIA parameter and marker of cellular health and inversely correlated with hsCRP (a sensitive cardiovascular marker) in peritoneal dialysis patients.” (Fern AP., et al. (2010) *Advances in Peritoneal Dialysis*, 2: 112-5.)

- Magnesium is known as the stress mineral. As soon as you experience stress and the adrenal glands secrete adrenalin and cortisol, your magnesium becomes depleted because all of the enzymes necessary to metabolize these hormones are magnesium dependent. Thus it is depleted by all types of stress. When you are low in it, it actually amplifies your response to stress of all types, since it is anti-inflammatory.
- A positive magnesium status is important to maintain because of its profound effect on cell membrane integrity. It is difficult to maintain for the following reasons:
 - The optimal concentration inside the cell is 42 times greater than in the fluids outside the cell.
 - The enzyme that pumps magnesium into the cell is magnesium and potassium dependent.
 - It is necessary for the formation of the tripeptide glutathione, which is important for phase two liver detoxification. It is the main reducing agent of all cells – it may be likened to the Fed-Ex of the cellular immune system, recharging key antioxidants and removing waste. It is a key nutrient for preventing cancers of all types.
 - Failure to maintain liver detoxification results in a fatty liver (steatorrhea). Currently there is an epidemic of NASH (non-alcoholic steatorrhea).
 - All the soils of the industrialized nations have been depleted of magnesium for the last 60 years.

“The expression of nitric oxide by endothelial nitric oxide synthase (eNOS) is known to be regulated in part by the interaction of vitamin C, vitamin D, biotin, taurine and

polyphenols with low molecular weights, such as grape seed extracts. Other essential nutrients, such as vitamin B6 and magnesium, are known to regulate blood pressure through various mechanisms.” Marc Houston MD, William Sparks CN
“Combination Nutraceutical Supplement Lowers Blood Pressure in Hypertensive Individuals.” Integrative Medicine Vol. 12. No. 3, June 2013

- Four hundred of the body’s key enzymes are magnesium dependent. The conversion of food into energy and the stability of your genes so they make exact copies of each other (genomic stability) are two good examples of these.

Now the obvious question is how you do get enough magnesium and what is enough magnesium? Because it is difficult to keep this mineral in our cells and everything washes it out, you need to use several different forms on a regular basis to maintain adequate amounts without too much trouble. Tablet forms include magnesium glycinate and magnesium citrate. Avoid magnesium oxide even though it has increased elemental magnesium, it is poorly absorbed by the body. Powdered magnesium citrate and magnesium ascorbate can be mixed with hot water. Liquid magnesium chloride is easily assimilated and can be added to any liquid.

A busy working male should be taking a baseline amount of 400-600 mg per day and can increase that amount to 800-1000 mg per day with increased exercise, stress or heat exposure. These same recommendations apply for busy working women, just at a level of 100-200 mg less. We recommend using several different forms of magnesium to leverage cell membrane uptake to help maintain optimal levels. The only potential side effect of excessive magnesium intake is diarrhea or a loose stool. If this happens, several things can be done. First of all, change to the glycinate or chloride form as they are more easily assimilated. If this doesn’t work consider using several grams of taurine and/or phosphatidyl choline to improve your cell membrane function.

Magnesium protects us from neurodegeneration. In healthy brain cells, magnesium functionally blocks the NMDA receptor. This receptor is involved in memory. This allows it to respond with a normal response to become activated. A lack of adequate magnesium causes the formation of dangerous free radicals with damage the mitochondria leading to DNA breaks and damage.

A recent study found that a new form of magnesium was able to concentrate 15 times greater in the cerebrospinal fluid of test animals. This new, highly absorbable form of magnesium (called magnesium-L-threonate or MgT), rebuilds ruptured synapses and restores the degraded neuronal connections seen in Alzheimer’s disease and other forms of memory loss. It has been shown to significantly enhance both short and long term memory by increasing synaptic density and plasticity. This is a huge breakthrough as a decrease in neural connectivity and adaptability (lack of plasticity) are the harbingers of neurodegenerative changes.

Adequate magnesium is the best insurance policy we as individual and as a nation can have. Think about it: anti-inflammatory, neuroprotective, improves respiratory, vascular, insulin, immune and kidney function. Adequate amounts prevent the development of cranial stress MAPs by normalizing TMJ muscle function, thus preventing systemic pain. Talk about a great return on investment.

Cervical Intervertebral Disc Exercises

In order to promote healing of the injured soft tissues in your neck (your intervertebral discs, which are ligaments) you need to stretch your neck through full ranges of motion, slowly with synchronized breathing. This encourages nutritional fluids to get into the disc tissues from the body of the vertebra above and below the discs. This passive influx of fluids providing nutrition is very important to get these tissues to heal since they do not have a good blood supply.

In order to achieve the results do the following exercises twice a day. Perform them two times in the morning and two times in the evening. It is very important that you stand with your feet shoulder width apart and breathe deeply for each of these exercises.

1. Flexion – Stand nice and straight, take a deep breath in and bring your chin towards your chest as you inhale. Inhale as deeply as possible and bring your head as far forward as you can. Then slowly exhale and come back to the neutral position.
2. Extension – Inhale deeply and tilt your head backwards as far as you can comfortably while you are inhaling as deeply as possible. Then slowly exhale and bring your head back to the full upright position.
3. Series of Four – The next four steps will bring your head through an X range of motion. Imagine yourself looking at the top of your head from above, and the figure you will create is an X shape. The first range of motion will have you stretch the muscles in the back left side of your neck by having you inhale and bend your head forward and to the right at a 45° angle. Inhale while you go through the range of motion to the full extent and then exhale as you go back to neutral.
 - For the second step, inhale and extend your head back and to the left at a 45° angle feeling the right anterior neck muscles stretch. Exhale to neutral.
 - Next inhale and bend your head forward and left at a 45° angle, coming back to neutral as you exhale.
 - Fourth, inhale and bend backwards and right at a 45° angle, exhaling to neutral.
4. Lateral Bending – Inhale and bring your right ear towards your right shoulder as far as you can and exhale returning to neutral. Then inhale and bring your left ear towards your left shoulder, then exhale fully coming back to neutral.
5. Rotation – Inhale and look as far as you can to your left over your left shoulder rotating your torso so that you turn and face 180 degrees behind you. Exhale and come back to center. Then inhale and turn your head to the right as far as possible and exhale coming back to center.

This completes one full range of motion and works all of the joints in your neck helping put fluid in all the discs. Some crepitus or joint noise is completely normal.

You will repeat these exercises until you can go through all of these ranges of motion with absolutely no pain. If at any time you feel sharp pain, do not force that range of motion but rather do all the other ranges of motion. In general, concentrate on your long deep breaths with long slow stretches. **Joint noise is normal – pain is not.** If pain persists in any of these range-of-motion exercises, you need to come in and get adjusted. Otherwise make these a part of your daily health routine.

Anterior thoracic – do's and don'ts

As you may recall, the spinal column is an organ composed of 24 vertebra that make up three curves. There are two forward curves, one in the low back and one in the neck. The thoracic curve of the spine, which is from the base of the neck to the top of the low back, makes a rounded curve. Each of these 12 vertebra articulates (or is connected) to a rib. This area can be injured by a variety of ways but the most common one is poor posture. So it is important to understand the following do's and don'ts:

DO – sit up straight

DO – use a lumbar support

DO – sit on a good, firm surface

DO – sleep on a firm surface

DO – perform daily spinal stretching exercises

DO – go to bed when you are tired

DO – turn to face directly anything you intend to pick up

DON'T – sit in a slouched position as this pushes the vertebra in this backwards curve forward and causes subluxations of this area

DON'T – put your feet up on a desk or chair while seated as this leverages vertebra in a misaligned position

DON'T – sleep or nap on a soft couch

DON'T – sleep on your stomach

DON'T – twist to reach

DON'T – read in bed unless you are properly supported (sitting up straight with a back cushion support)

Rock and Roll Exercise. Sit on the floor with your knees bent and with a padded surface under you. Place your arms around your knees and as you exhale, roll backwards until your shoulders and base of skull touch the floor. Keep the motion going. As you inhale, rock forward, pulling your knees with your arms. Establish a rhythm and do 10-20 rock and rolls 3 times a day.

Thoracic IVD Stretch. Stand with your feet shoulder width apart. Slightly bend your knees. Reach above your head with your right arm as high as you can comfortably. With your left arm, reach for the floor. Laterally bend to the left until you feel a good stretch on your right side. Take a deep breath in as you stretch up, over and down. Exhale as you come up. Repeat to the right side. Do 10 repetitions.

Improved Arch and Sway. (AKA Cat/Cow) Get on your hands and knees. Inhale deeply while you simultaneously tuck your chin to your chest, arching your back up and contracting your abs (pelvic tilt). Exhale, extending your head looking up to the ceiling, dropping your midback towards the floor. Repeat with long, deep breathing, 5-6 times, slowly increasing the amount of spinal flexion and extension coincidental with your breathing.

After doing several arch and sway in the neutral position-as above-add this to your regimen. While on all fours, inhale and look over your left shoulder. Exhale back to neutral. Then inhale and look over your right shoulder. You will hear an audible release as this maneuver opens the facet joints in the lower neck and upper thoracic's.

End with 2-3 repetitions in the neutral pose.

Lumbar Disc Exercises

Lateral Bending

Stand with your feet shoulder-width apart and your arms by your sides. Inhale while slowly bending as far to your left as you can without pain, sliding your left arm down the side of your leg. Exhale as you slowly come up. Repeat the exercise to your right side.

Forward Bending

Stand with your feet shoulder-width apart and your hands on the front of your thighs. Inhale and slowly bend forward, sliding your hands down over your knees towards the floor. While bending forward, no pain should be felt. You should only feel a stretch in your hamstring muscles (in the back of your thighs). Exhale as you slowly come up.

One lumbar disc exercise includes: Left – Right – Forward.

Do 3 sets of 5 disc exercises per day.

REMEMBER: It is all right to feel a pulling sensation in the back of your legs and/or lower back. But if pain is felt, decrease the degree of bending before that point of pain.

A SMALL STRETCH IS BETTER THAN NO STRETCH AT ALL!

Mattress Matters

As a specialist in preventing and treating spinal injuries, I've paid very close attention to the support (or lack thereof) that various sleep surfaces provide. What follows is my opinion, based on decades of clinical practice – the good, the bad and the ugly. It's important to know that your spine resets itself at night while you sleep. What I mean by this is that the intervertebral discs which hold your vertebrae apart and allow for spinal curves, strength and range of motion, expand while you sleep by imbibing water. You are actually one inch taller in the morning than you are when you go to sleep at night. In order for you to do this, your spine needs a firm surface that offers support so that the weight of your body at your hips and shoulders does not sink in and make an uphill path for your spine to travel. That's not a good idea. Failure to reset your spinal length means you are losing your height as you age which becomes a risk factor for an earlier death as you age.

THE GOOD: The best mattress that I've found is the Stearns & Foster line. They have recently merged with Sealy, so any of those brands are good.

Some of the mattresses feel firm, but previous experience has taught me that this is not the only criteria for quality. If the top coiled spring is not firmly prevented from moving laterally, by appropriate internal construction connecting the coiled springs at the top to the bottom ones, there can be a "lateral sheer" created that leads to back problems. The only way short of being muscle tested on the mattress is to ask about the construction from a knowledgeable sales person.

THE BAD: Foam mattresses, in general, do not provide enough upward support for all the discs to separate adequately. The misaligned spine tends to stay misaligned. The foam used in the NASA space shuttles was meant to mold to the astronaut's back to prevent injury on acceleration, and is not firm enough to adequately support the human spine at night.

THE UGLY: Futons, water beds and other non-supportive surfaces are a recipe for disaster. Our research has shown that electric heaters (whether turned on or not) create electrical problems for the body so they don't heal. The same is true for electric blankets. Evidently the wire configuration aborts the body's electro-magnetic healing properties which leads to inflammation and if prolonged, autoimmune disease.

SLEEP BREAKTHROUGH – Earthing bed covers improve sleep, lowers blood pressure and inflammation. Considered by Dr. Steve Sinatra – world famous cardiologist – to be the biggest breakthrough in healing in his 40 year career in medicine (Ph.800-228-1507).

Good Posture Promotes Good Health

Good posture promotes good health and longevity. By understanding few basics you can prevent a world of trouble. Remember posture may be interpreted as the orientation of adjacent vertebrae. As you now know, mechanical loading of the spine does not have to be severe to cause pain. Small forces to the right areas of tissue can result in exquisite pain. The way you sit, stand and sleep affects your alignment. Good posture is a

constant process involving awareness. As you may recall, the spinal column is an organ composed of 24 vertebrae that make up three curves. The preservation of those curves is the key to good posture. There are two forward or lordotic curves, one in the low back and one in the neck

The one in the neck is composed of 7 vertebrae and the one in the low back is composed of 5 vertebrae. Sitting in the middle of these two is the backward facing or kyphotic curve of the thoracic spine. This is from the base of the neck to the top of the low back. Each of these 12 vertebrae articulates (or is connected) to a rib. This curve can be injured by a variety of ways but poor posture is right up there at the top.

These three curves make the spine a spring loaded organ and the maintenance of these curves is preventive medicine since they contribute twenty times more resiliency to the spine. All of the spine's motions behave a little differently due to these curves. Forward bending (flexion) and backward bending (extension) take place in a straight forward manner. It is with rotation and lateral bending that a "twist" occurs. This is known as coupled motion. So, for example, when you turn your neck to the right to back up your car, your spine also laterally bends to the left. Thus function blurs the anatomical distinctions of the three spinal curves, blending them together in series to create the complexity known as a full range of motion. If you flatten the middle and upper thoracic curve it decreases neck range of motion and function. If you can't couple, you will hurt. So it is important to understand the following do's and don'ts for good spine function.

- Do – Sit up straight so that you have a small forward curve in your low back. There is a neutral sweet spot that you want to find and maintain. Not too far forward and not too far back. This keeps your weight on the ischial bones (the ones at the base of your buttocks) and allows free motion of your sacrum.
- Do – use a lumbar support, if you need to. But don't let this be your excuse not to get up and move around frequently.
- Do – sit on a good, firm surface.
- Do – sleep on a moderately firm surface.
- Do – go to bed when you are tired. Falling asleep sitting up is actually very dangerous as it may negatively affect the brain stem, coordinator of your balance, blood pressure, etc.
- Do – turn to face directly anything you intend to pick up. Keep your shoulders, hips and knees parallel to avoid flexing and twisting at the same time.
- Do – stand with a slight bend in your knees to prevent too much stress in the lower back.
- Don't sit in a slouched position as this flattens the thoracic kyphosis and causes biomechanical distortions of this area.

- Don't put your feet up on a desk or chair while seated as this leverages vertebra in a misaligned position.
- Don't – sleep or nap on a soft couch.
- Don't – sleep on your stomach as it reverses the neck and thoracic curves.
- Don't - twist to reach.
- Don't read in bed unless you are properly supported (sitting up straight with a back cushion support).

“Imagine that your head is an apple, one half inch in front of and above your neck.”

The key postural takeaway of the Alexander postural positioning technique.

Dr. George Goodheart
 Founder of Professional Applied Kinesiology

Good posture helps maintain normal vertebral alignment and lessens the chance of developing high concentrations of stress in the intervertebral discs, ligaments and zygapophyseal (facet) joints. Besides good posture there are two other mechanisms that can prevent functional pathology in the spine. One is that of sustained 'creep' loading. This applies to the fact that sustained loading of the intervertebral disc causes them to lose height gradually. Most of disc creep is due to the expulsion of water with 25% of it due to viscoelastic deformation of the outer disc or annulus. The third factor that can place abnormal stress on the spine is asymmetrical muscle activity. The creep and asymmetrical muscle activity may be minimized with daily stretching exercises.

On the following pages are your lifestyle directions to maintain a healthy pain free spine. Properly performed on a daily basis these exercises will help to provide you with a solid foundation in the structural aspect of your web or wellness. The return on investment is exponential, like a smile on your face, a healthy spine with good posture signals a healthy body mind. Failure to take appropriate care of your spine will cause spinal decay.

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**A Proposed Standardization of the Nomenclature for the Diagnosis and Treatment of the Intervertebral Disc by Functional Neurologists
William Maykel, D.C., DIBAK**

The Sacral Intraosseus Stress Maladaptation Pattern (MAP)

William Maykel, D.C., DIBAK

Abstract

The sacrum is a fusion of 5 vertebrae. Due to its position between the ilia it routinely becomes weight bearing due to a person's loss of their lumbar lordosis (slouching). With weight on the sacrum in the seated position, instead of only the ischial tuberosity, interosseous bending may occur at one or more of the sacral segments inhibiting major pelvic muscles. This acts as a contributor to low back pain and instability.

The pelvic spinal complex (figure1) is the term I have created to describe the interactive biomechanics of this body region. The spinal column consists of 24 vertebrae stacked one upon the other connected by intervertebral discs as well as longitudinal ligaments and capsular ligaments at the facet joints. The spine sits upon the pelvis, which is really a downward continuation of the spine and why I refer to the whole structure as the pelvic-spinal complex. A healthy spine has three curves- two forward (lordotic) in the neck and low back and one backward (kyphotic) in between. These three curves give the spine as an organ 20 times more strength and resiliency.

The pelvis is a composite of three major bones. In the center is the sacrum which is a fusion of five bone growth centers. The top of the sacrum is called the sacral base because it provides the physical base for the spine above it. At its lower end sits the coccyx or tail bone. On either side of the sacrum are the ilia. Each of these ilia are innominate bones are so called because no one could figure out what they looked like. Thus they're called the innominate or "unnamed" bones. The ligaments that attach the sacrum to the ilia are the sacro-iliac ligaments. These joints are beveled at a 45 degree angle from back to front and have a little "boot" in them that allows the sacrum to move back and forth (flex and extend) between them with respiration. Since they support the entire torso, the sacro-iliac joints only move a very small amount, about 2 degrees in a type of figure eight motion with ambulation.

Everything moves together, in a dynamic fluid manner with motion. With a right step forward, the sacral base lowers on the right side. This unleveling, cause the last three lumbar vertebral bodies to rotate left right-left-right. For ease of reference you can think of right as clockwise when viewed from above. Simultaneously, the top three vertebrae

rotate right-left-right to keep your eyes level with the horizon. This helps maintain your balance in motion.

This vertebral rotation and counter rotation take place at the same time that the spinal curves decrease and increase in dimension coincident with inspiration and expiration. As you move through space there is an instantaneous action of motion throughout the entire pelvic-spine, cranium, upper and lower extremity complexes. Visually healthy human motion appears to function like fluid dynamics (figure 2).

All of this motion is fundamentally generated by internal pattern generators in the brain and spinal cord which are adapting to the specific internal and external conditions mediated by proprioceptors. The intrinsic muscles of the pelvis such as the gluteals and piriformis's must work with the gait phase transitions of the feet to propel us through space in a balanced pain-free manner. The muscle spindle cells and golgi tendons are ideal proprioceptors as they synthesize information regarding body movement with that of the state of the environment.

One common dysfunction that is a major contributor to low back pain and pelvic instability are intra-osseus sacral subluxations. We all know that “**sitting is the new smoking**”. Improper slouching while sitting may cause an introsseus deformity of any one or all five of the sacral bone growth centers. To find them, have the patient lie face down. Take the thumb and index of your challenging hand moving them from sacral center to periphery and move from S1 to S5 one segment at a time. Correct with inspiratory assist at the segments that show a positive challenge from lateral to medial.

Intra-osseus sacral dysarthrias are extremely common. When present they inhibit all the major muscles within the pelvis. Proper attention to the patients seated posture is key to stopping the cycle. The sacral apex is not meant to be weight bearing as it has to move with respiration. The seated weight needs to take place on a person's ischial tuberosities, and not their sacral body. Finding, fixing and correcting these common sacral dysarthrias is one very important “piece of the puzzle.”

NORMAL PELVIC-SPINAL COMPLEX MOTION

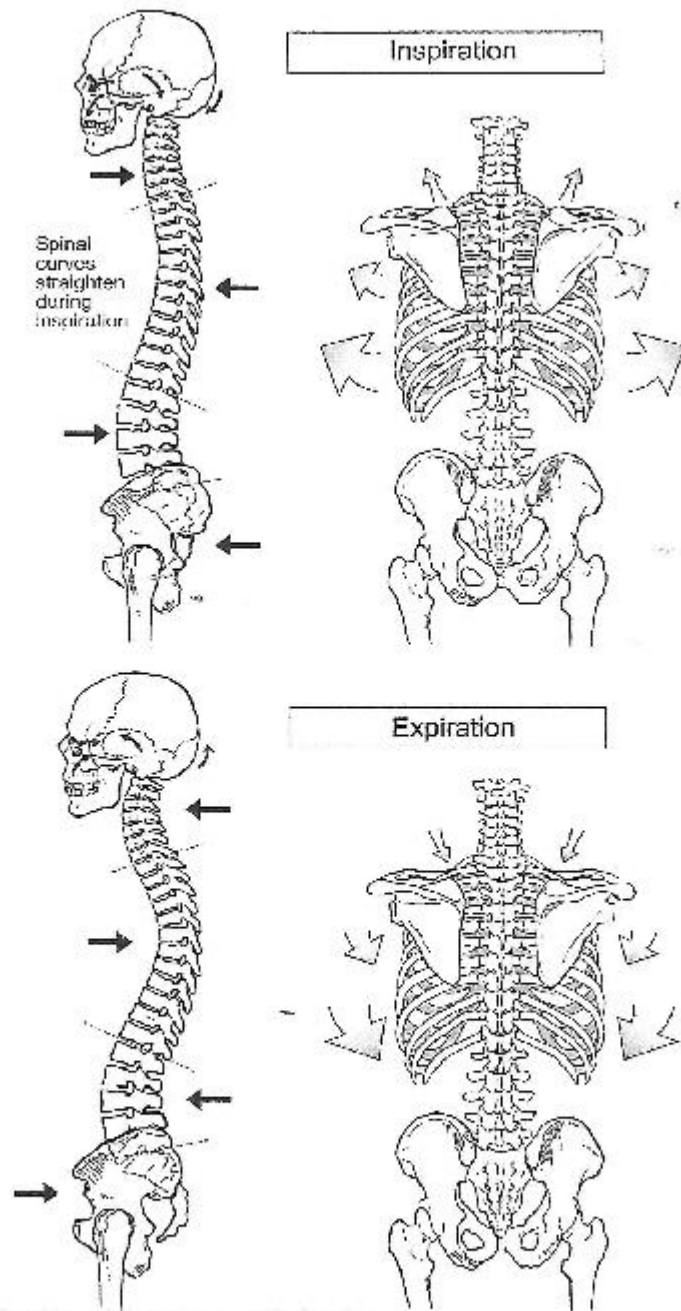


Figure 1. (CO) William Maykel/Steven Moskowitz

THE FLUID DYNAMICS OF HUMAN MOTION

Walking, Right Leg Forward

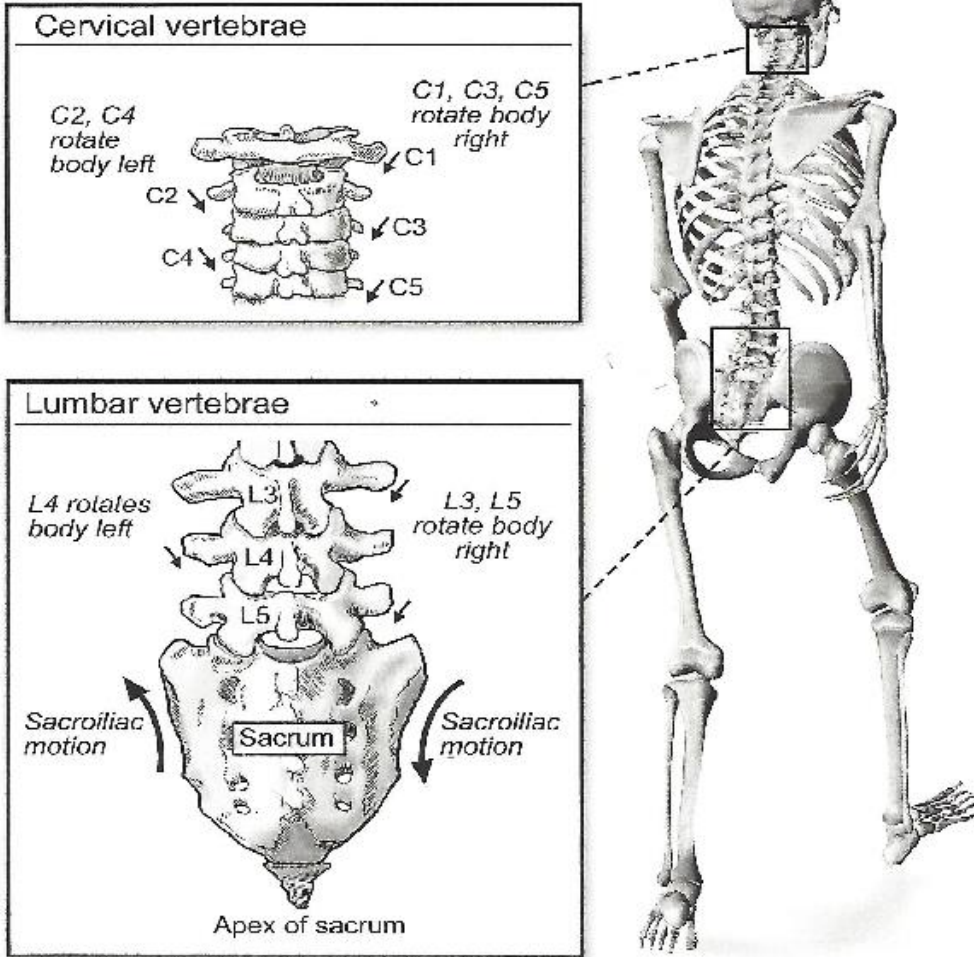


Figure 2. (CO) William Maykel/Steven Moskowitz

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The Sacral Intraosseous Stress Maladaptation Pattern (MAP)
William Maykel, D.C., DIBAK

A Summary of Spinal-Rib Subluxations with Muscle Dysfunction

Michael McCall, D.C., DIBAK, M.S.

Abstract

This paper summarizes the relationship of muscle dysfunction to spinal and rib subluxations. Goodheart discovered that spinal fixation pattern causes bilateral muscle dysfunction. Frances has observed spinal and rib subluxations that can present as bilateral muscle inhibition. There are additional subluxation patterns that this author has found that can contribute to bilateral muscle weakness as well as additional muscle weakness patterns.

Introduction

The following charts are provided below with the spinal rib subluxations, the patterns of muscle weakness, and if applicable, the name of the physician who found and shared the information. Goodheart has been known to say, "Give credit where credit is due." A majority of this research comes from the work of Timothy D Frances. I have found these correlations consistent in 15 years of practice. I do have concern that I may give the wrong names to the discoveries and welcome clarification from the ICAK to preserve an accurate history of this great human enterprise.

The chart below is taken from Francis' paper titled, "Spinal-Rib Subluxation/Muscle-Syndrome Correlations", and Frances' paper, "Spinal Subluxation/Bilateral Muscle Syndrome Correlations". This author's additions are added in italics. Correlations which do not have a name in a bracket are attributed to Timothy Frances.

Key Indexing Terms

Therapy Localization (TL), Neurolymphatic Point (NL), Neurovascular Point (NV)

Discussion

Numbers in lower font to the right of the muscles signify types of weaknesses- 1 for unilateral, 2 for bilateral individually and 3 for bilateral simultaneously. Bilaterally simultaneously is testing both muscles that show as intact individually, but together becomes inhibited. This is exactly like the Temporal Bulge PMC weakness.

This paper is written as an office reference guide to be consulted when necessary.

I Spinal/Rib Subluxations

A. C6/7

Counter rotations

C5/6 fixations

B. Lateral/Posterior Occiput

C. C1

D. C2

Muscle/Syndromes

1. Sartorius/Gracilis
2. Adrenal Stress
3. Category II Pelvic Lesion
4. *Bilateral Adrenal Related Muscle Weakness*²

1. *Bilateral Adrenal Related Muscle Weakness*²

1. Ocular Lock Pattern with Eyes Held Superior and Lateral (Posterior). Or tongue held out and right or left. (Lateral)

2. Hyoid Dysfunction

3. *Bilateral Upper Trapezi*²

4. Bilateral SCM's (Frances)³

5. Supraspinatus (Frances)³

6. Middle Trapezius (Frances)³

7. *Frozen Shoulder**

8. Neurological Disorganization*

1. Neurological Disorganization

2. Optic Chiasm (Schmitt)

3. Bilateral Supraspinatus^{2,3}

4. Temporal Bulge (Leaf)

5. Teres Major (Frances)^{2,3}

6. Allergies

7. TMJ (Leaf)

1. Ocular Lock Pattern with Eyes Held to the Right or Left

2. Hyoid Dysfunction

3. Sinus dysfunction

4. Neurological Disorganization*

5. *Pronator Quadratus*^{1,2}

E. Inferior Occiput

1. Ocular Lock Pattern with Eyes Held Straight Superior Direction
2. Neurological Disorganization
3. Hyoid Dysfunction
4. Hiatal Hernia/*Acid Reflux*
5. Psoas Imbalance
6. Gait Imbalances
7. Category II Pelvic Lesion
8. Short Leg
9. Rib Torque (Victor Frank)
10. Anterograde Lymphatic
11. Bilateral SCM's (Frances)³
12. Supraspinatus (Frances)³
13. Middle Trapezius (Frances)³
14. *Bilateral PMC Weakness*^{2,3}
15. *Most Flexors Weak**^{1,2}

F. C5/Anterior C5

1. Bilateral Latissimus Dorsi (Victor Frank)³
2. Blood Sugar Dysfunction (Victor Frank)
3. Middle Deltoids^{1,2,3}
4. Open ICV
5. Teres Major (Frances)³
6. PMC (Frances)³

G. T7

1. SCM (Frances)³

H. First Rib

1. Most Gonadal Related Muscle Weakness^{1,2,3}
2. *All Rotator Muscles Weak Unilaterally*
3. *Compaction Injuries**

I. C3

1. Deltoid/ Serratus Anterior/Coracobrachialis

- 2. Lung Conditions
 - 3. Failure to Pass Deep Tendon Reflex Test (Belli)
 - 4. Food Allergies (Belli)
 - 5. *NEHT**
 - 6. *Bilateral Quads*
- J. Anterior T2/T2
- 1. Subscapularis ²
 - 2. Pre/Post Cordial Tap
 - 3. Cardiac Low Back (Victor Frank)
 - 4. Emotional Broken Heart Syndrome (Howard Cohn)
 - 5. Blood Sugar Dysfunction (Goodheart)
 - 6. Category II Lesion (Frances)
 - 7. Supraspinatus (Frances) ³
 - 8. *Vertigo with Neck Extension*
- K. T3
- 1. *Bilateral Lung Related Muscle Weakness* ²
 - 2. Cervical Extensors (Frances) ³
- L. Anterior T5/Rib Heads
- 1. Bilateral PMC Weakness ^{2,3}
 - 2. Temporal Bulge
 - 3. Teres Major (Frances) ³
 - 4. Middle Trapezius (Frances) ³
- M. Anterior T7/Rib Heads
- 1. Gluteus Maximus/Medius/Minimus
 - 2. Adductors ^{2,3}
 - 3. Piriformis 2
 - 4. Gonadal Hormone Related Imbalances
 - 5. Bilateral Latissimus Dorsi (Victor Frank) ³
 - 6. *Bilateral Pectoralis Minor Weakness* ^{2,3}
- N. T8
- 1. Teres Major (Frances) ³
 - 2. *Bilateral PMS 2 (TS Line)*

O. Second Third Rib Heads	<p>3. <i>Liver Dysfunction</i></p> <p>1. Sartorius/Gracilis²</p> <p>2. Adrenal Stress</p>
P. Anterior T10/ T10 T10 Rib Heads	<p>1. PMS Weakness²</p> <p>2. Liver Dysfunction</p> <p>3. <i>Compaction Injuries*</i></p>
Q. Anterior L1/L1	<p>1. Bilateral PMC²</p> <p>2. Temporal Bulge</p> <p>3. Piriformis^{1,2,3}</p> <p>4. Open ICV</p> <p>5. <i>Hamstring/Bilateral Hamstrings</i>^{2,3}</p>
R. Anterior L3/L3	<p>1. <i>Quadriceps/ Bilateral Rectus Femoris</i>²</p> <p>2. Spastic ICV</p> <p>3. Failure to Pass Deep Tendon Reflex Test (Belli)</p> <p>4. Food Allergies (Belli)</p> <p>5. Digestive Disturbance</p> <p>6. <i>Gluteus Maximus</i>^{1,2,3}</p> <p>7. <i>Adductors</i>^{2,3}</p> <p>8. <i>Unilateral/Bilateral Concurrent Psoas and Iliacus Weakness*</i>²</p>
S. L4	<p>1. Ocular Lock Pattern with Eyes Held to the Right or Left</p> <p>2. Hyoid Dysfunction</p> <p>3. Sinus dysfunction</p> <p>4. Neurological Disorganization*</p> <p>5. <i>Bilateral Iliacus Weakness</i>²</p> <p>6. Bilateral Gluteus Medius Simultaneously (Frances) Or Individually^{2,3}</p>

T. L5

1. Bilateral TFL Tested Simultaneously (Goodheart) Or Individually ^{2,3}

2. Anemia (Goodheart)

3. *Gluteus Maximus* ^{1,2,3}

4. Bilateral Piriformis (Frances) ^{2,3}

5. Hamstring (Frances) ^{2,3}

6. Iliolumbar Ligament (Frances)*

7. Cervical Extensors (Frances) ³

8. Dysbiosis/Diarrhea/IBS

9. L5 Anterior Bilateral Iliacus (Frances) ³

U. Base Posterior Sacrum

1. Ocular Lock Pattern with Eyes Held Straight Down

2. Retrograde Lymphatic

3. Neurological Disorganization*

4. Pectoralis Minor Weakness ^{2,3}

5. Bilateral Weakness of the Hamstrings (Victor Frank)³

6. Carpal Tunnel Syndrome (Victor Frank)

7. Bilateral Piriformis Weakness (Frances)^{2,3}

8. *Bilaterally Inhibited Upper Trapezii*²

9. *Bilaterally Inhibited SCM's*²

V. Apex Posterior Sacrum

1. Ocular Lock Pattern with the Eyes Held Straight Superior

2. Piriformis ^{2,3}

3. Neurological Disorganization*

4. *Most Flexors Weak*

W. Sacral Subluxation

1. *Unilateral Concurrent TFL and Glut Medius Weakness*

X. Posterior Inferior Ilium

1. Bilateral Rectus Abdominus

Y. Pubes

1. Adductors (Goodheart)³

2. Incontinence

Z. Coccyx

1. Coccygeus/Ileococcygeus/Pubococcygeus
2. TMJ Dysfunction (Frances)
3. *Neurological Disorganization*
4. *Temporal Bulge*

The * requires further explanation. The Frozen Shoulder that is linked with a lateral occiput is found in a majority of Frozen shoulder cases and has a varying impact in clinical results. Neurological Disorganization that is with * is related to Ocular Lock.

In the cases of an Inferior Occiput and an Anterior Apex Sacrum this author has found that the patients will have multiple flexor weakness throughout the body ie. cervicals, thoracic, and lower extremities.

This author has found that recurrent compaction injuries will TL to the first and 10 ribs and sometimes vertebrae. Retest the muscle weakness of the affected joint with TL and see if the weak muscles become facilitated.

Neuro Enteric Hologram Technique (NEHT) is a discovery of Goodheart who found that the quadriceps will test weak with either the patient's eyes held close or open. If found weak the patient will TL the NL, NV, and Alarm Points associated with the small intestine to discover the best course of treatment. Many times TL to L3 and C3 was found to be fruitful.

Unilateral Sacral subluxations can cause an ipsilateral weakness of the Glut Medius and TFL.

Conclusion

The findings in this paper are based on the work of earlier authors and have been shown there consistent validity in 15 years in a chiropractic practice. Though there may be an infinite amount of causes for bilateral muscle weakness, however, a great place to start looking is in the spine.

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A Summary of Spinal-Rib Subluxations with Muscle Dysfunction
Michael McCall, D.C., DIBAK, M.S.

Liver Involvement in Compaction Injuries

Michael McCall, D.C., DIBAK, M.S.

Abstract

David Leaf, D.C. discovered the compaction injury in 1995. This is considered a traumatic injury triggered by a joint being compressed from a trauma. Applied Kinesiology (AK) muscle testing will find most of the muscles that cross the injured joint as being weak, with one or two muscles testing intact. Current treatment to compaction injuries is origin and insertion, GTO and spindle cell techniques directed to the “strong, in the clear muscle” that weakens to Repeated Muscle Activation Patient Induced (RMAPI). If this treatment is done correctly, it will gain great clinical results. In the last four years, this author has seen a recurrence of this pattern return without any history of physical trauma. Treatment that is directed to the five factors of the liver and getting the patient off of wheat will have a lasting effect.

Key Indexing Terms

Applied Kinesiology (AK), Therapy Localization (TL), Neurovascular Point (NV), Neurolymphatic Point (NL)

Introduction

David Leaf, D.C. discovered the examination findings and the treatment protocols of compaction injuries. Leaf found that compaction injuries are caused from physical trauma where a joint is compressed.

In AK, the examiner will find multiple muscle weakness of all the muscles that cross the injured joint except for one (rarely two). A gentle tug of the joint in the opposite direction of the injury will temporarily cause the weak muscles to test strong momentarily. The “strong in the clear” muscle will weaken to patient induced repeated muscle contraction. This repeated activation of the muscle is an extension of Goodheart’s work called “Repeated Muscle Activation Patient Induced” (RMAPI). This will confirm the diagnosis of a compaction injury. Treatment consists of performing origin and insertion, GTO and spindle cell technique to the muscle that tests strong, but weakens to RMPAI. Subluxations of the sacrum and the occiput are related to this injury. Therapy localization of these structures tested against the weak muscles is a good screen to use.

Goodheart theorized that a muscle that weakens to RMAPI may reflect low levels of acetylcholine, the neurotransmitter needed for muscle contraction. Nutritional support is water and supplementation for the acetyl-choline pathway with nutrients consisting of WGO or lecithin, Choline, B2, B5 and B3.

This protocol is very effective for physical trauma of a joint that the vector of force is a compressive one. Many times the symptoms would resolve after the first treatment and remain that way unless there was a recurrence of the trauma, dehydration or a deficiency

in the patient of the acetyl-choline pathway.

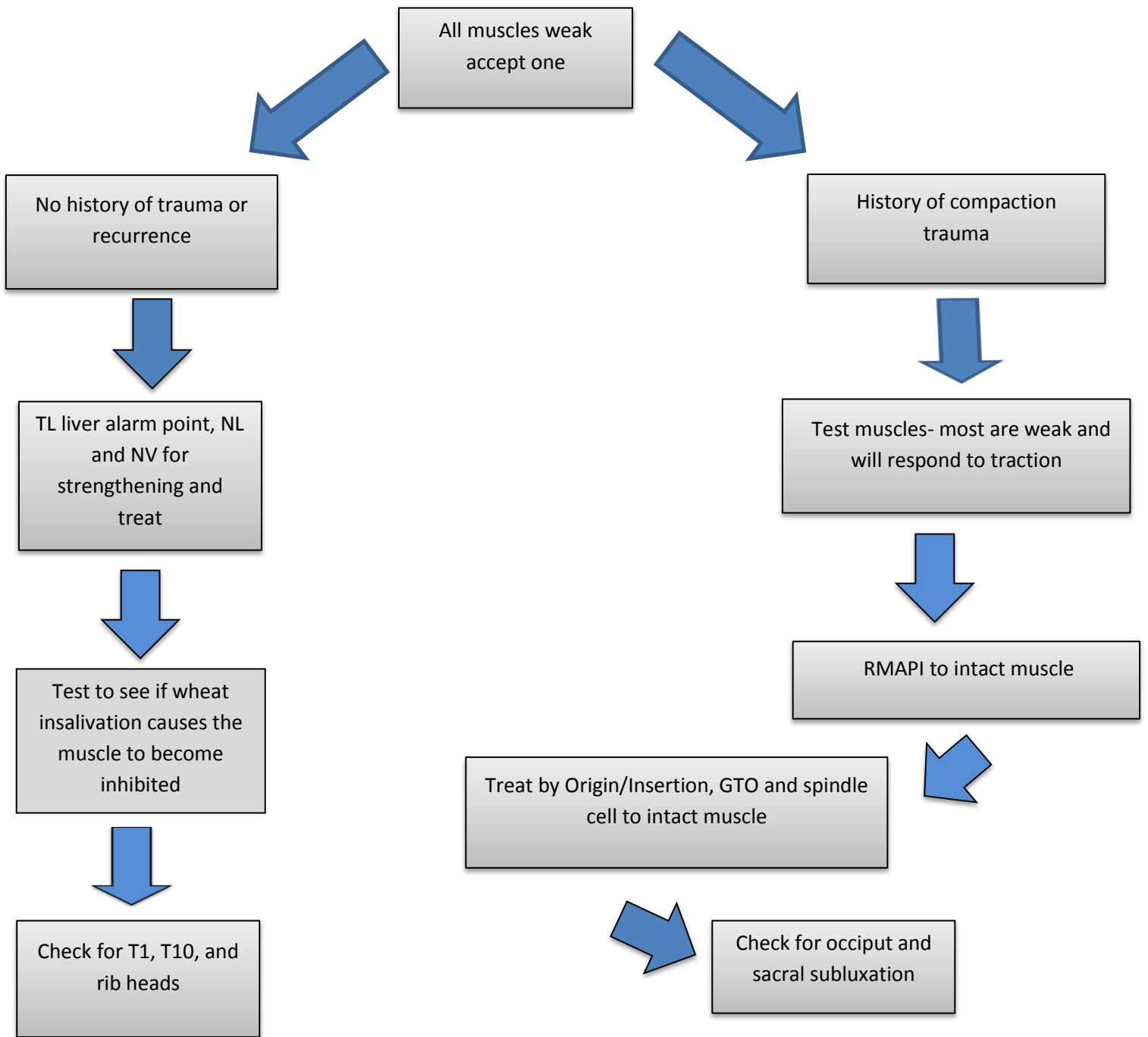
Discussion

There are some cases in the compaction trauma that will recur without any physical trauma. TL to the liver alarm point, NL or the NV will negate the muscle weakness pattern of this injury. Osseous TL of the 1st rib head, T1, 10th rib head and T10 will also negate the weakness. Manipulation of these structures that TL, and directing care to the reflex points that test, will restore the muscle weakness at the joint, and will give noticeable relief to the patient. Insalivation of wheat, post treatment, will bring back the muscle indicators via manual muscle testing. When the patient can eliminate wheat from the diet, the muscle and symptom pattern will not recur.

Manual treatment to T1 and T10 vertebra and rib relates to the associated point of Liver in TCM. T 9-10 being the associated point for liver and T10-11 for Gall bladder. T1 is the Lovett brother to T 10. Please note that the 1st rib also relates to an upper limbic fix. Reasons for the liver relationship can be conjectured as “liver meridian supports the muscles” in Traditional Chinese Medicine (TCM), as well as being closely associated with the choline pathway. Acetyl choline is the neurotransmitter for muscle contraction and is the main neurotransmitter in the parasympathetic system, both pre and post ganglion, and the preganglionic nerves in of the sympathetic nervous system. Choline is a powerful methylation agent, as well as a fat mobilizer. Choline helps the liver process fat and contributes to methylation detoxification of the body.

Processed wheat has low levels of choline and betaine, which may be the factor that causes a return to the symptoms of the compaction injury, as well as cause “neuroinflammation”.⁽¹⁾

Once the compaction injury is resolved the first time, and it recurs once or twice more, the protocols outlined in this paper will be a successful undertaking for the benefit of the patient.



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Liver Involvement in Compaction Injuries
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Sympathetic Overflow, Sleeplessness and Depression in a Teen-A Case Study

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Abstract

The objective is to share a case history that demonstrates the interrelatedness of the digestive system (Ileocecal valve) to the hormonal system (adrenal axis). Case histories involving several systemic interactions can be confusing to clinicians. The symptomatic expression in this case was depression, sleeplessness, and back pain. Based on several case observations the ileocecal valve should share the title with other disorders that have been dubbed "great pretenders" mimicking many other diseases and disorders.

Over the years, several patients have presented with conditions that are unexplained by conventional laboratory testing, analysis, and standard medical examination procedures. This has left clinicians across many disciplines duped, and the patient hopeless as their afflictions fell short of "true pathology" when they were really "functional illness." Even worse, well meaning doctors experiment and the patient is prescribed antidepressant or anti-anxiolytic medications because no obvious cause could be identified.

Applied kinesiology examination and procedures in this case allowed a reverse tracking of the sequela and helped make diagnosis fruitful. Applied Kinesiology procedures can allow the clinician to take appropriate action at the appropriate time and assist patients in healing who may have lost hope.

Key Indexing Terms

Chiropractic, Applied Kinesiology, Adrenal Stress, Herbs, Manual Muscle Test (MMT), Nutrition, Physiological Phenomena, Adrenal Stress Syndrome, Functional Medicine, Large Intestine, Colon, Iliocecal Valve

Introduction

Synergy in the human body is underappreciated by almost all healthcare professionals. The interactions of hormones, meridians, reflexes, and neurologic stimuli are myriad; in the search for health and wellness this delicate balance should always be restored when possible.

The digestive tract alone contains many functional valves as well as its own nervous and hormonal system; these valves include iliocecal, cecal colic, valve of Houston, cardiac sphincter, lower esophageal sphincter, and anus. The adrenal gland is source for over 50 different hormones in the human body. The interactions of these and other hormones exceed our current understanding. But it is known that myriad interactions exist. Outside

of gross anatomic studies and imaging, clinicians should consider receiving training that allows a better understanding of the fact that functional illness precedes poor function and this leads to pathology.

The management of health in a manner that addresses "cause" is still a novelty in modern civilization. The approach of working with the body by addressing collaterally damaged tissues and then the primary cause is a needed in order for true long term healing to take place.

Since the Ileocecal valve syndrome is not an inflammatory bowel syndrome little attention is paid to it in medical circles. In clinical practice more attention must be paid to the synergistic physiology and structure as they relate to each other and as they relate to history and presentation. Most education received by professional healthcare practitioners' in any field does not pay attention to this need. The idea of a connection between a patient's body part "A" and "B" fails to be made many times due to their remoteness. The incidence and number of possible disorders relating to the combined dysfunction of the adrenal gland and ileocecal valve reported anecdotally are numerous and may include health problems that seem to have no connection.

Jargon relating to Ileocecal valve.

Adrenal means the two adrenal glands situated on top of the kidneys. Functional hypoadrenia or adrenal insufficiency refers a physiologic condition, in which there is hormone dystrophy,

The Ileocecal valve also abbreviated "ICV", is located at the junction of the ileum and cecum. As it has been demonstrated to be a functional valve - it opens and closes. "Open" means the opening is dilated. And "closed" means the orifice is approximated or contracted so nothing can pass through. Normal valve functions may occur inappropriately and create symptoms. Manipulation of the valve involves opening or closing it manually. "Meridian therapy" is the stimulation of acupuncture points that alter function and energy in energetic pathways called "meridians." Nutritional support would be those supplements given to assist structural corrections. "Diet modification" means changes made to patients' diets. "TFL" is short for the Tensor Facia Lata a muscle which originates between the ASIS and the middle and lateral aspect of the external surface of the iliac crest and attached on the lateral thigh on the Iliotibial band (IT band) a thickening of the fascia lata. "TS Line" Stands for Tempero-Sphenoidal line, a mostly diagnostic palpatory line located bilaterally on the skull near the temporal and sphenoidal areas. The clinical palpates this line for nodules that correspond with muscle and possible organ imbalance.

Case Study

A 16 year old female presented with a history of extreme malaise, fatigue, slow cognition, poor school performance, attention issues, depression, and insomnia.

Prior to intake the patient was seen by her primary care doctor, pediatrician, neurologist, and a psychiatrist. All findings were negative so the patient was offered an antidepressant.

Using standard medical physical examination the following abnormalities were detected; orthostatic hypotension and light sensitivity to pupils, high basal temperature, alopecia,

no pulse change on standing, a ten second breath holding time, and an average vital capacity of 800cc's (normal=3900cc's) was found as well as a sliding hiatal hernia.

As per Walther in The Applied Kinesiology Synopsis standard reflexes for an open ICV were tested and in this case all were active, these were treated with hard digital pressure, or other standard methods; these included neurovascular, lymphatic, and the acupuncture meridian connector point bladder 58. The patient was then put on Nutri-West's Chlorophyll plus, Total Enzymes, and DSF as these strengthened the TFL on gustatory challenge.

This patient made a gradual full recovery over 4-month span. Energy returned, sleep then improved, and lastly mood; motivation, and positive outlook improved as well.. Per her mother she returned to the normal life of a 16 year old.

Discussion

Ferretting out the relationship between organ systems can be difficult. In this case hyperadrenia seemed to be causing the ICV imbalance. Currently there are very few objective measures other than muscle testing to act as a guide. Coupled with history, some lab studies, and a good exam, the muscle test is extremely helpful to use as a tool in tracking down the primary source of a problem.

During the first visit close attention was paid to normalizing valve and digestive function. As progress was being made by valve management we then moved into the phase of working with synergists that dominate poorly functioning organs like the adrenal gland. There are many differential diagnoses that must be made in this case and these included; Lyme disease, thyroid disorders, chronic infectious mononucleosis, and disorders of energy producing systems of the body. These problems must be considered and valve dysfunction should be ruled out after the search for pathology is fruitless.

Conclusion

Synergistic, functional, or holistic management is the future for some people if they are to earn health. Sympathetic overflow from the adrenal axis and concurrent management of conditions like the ileocecal valve hold promise for many and protect them from a life of pain and dysfunction. Competent Adrenal management represents an opportunity that can have a significant impact on a wide array of human biological functions and offers the hope of recovery for those lost in the quagmire of chronic illness. It will serve clinicians well to add management of synergistic illness to their armamentarium.

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Sympathetic Overflow, Sleeplessness and Depression in a Teen - A Case Study
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A Multi-Segmental Sensory Motor Model For Autonomic Coordination During Walking and Gait

Eric Kees Peet, D.C.

Abstract

There are several complimentary alternative techniques within the healing arts that utilize advanced patterns of ipsilateral pelvic and head coordination for evaluation and treatment purposes. These patterns are reflex based, occurring at an autonomic level, and are derived from walking, or gait. This is puzzling within the context of classical academic neurology, which is taught with two overly simplistic assumptions; that skeletal muscle is voluntarily controlled purely within the contralateral cortex portion of the brain, and a mono-segmental model, often only a single finger, is all that's needed to understand this. This creates a contrast of opinions concerning the scientific validity of certain complimentary alternative techniques such as applied kinesiology, sacro-occipital technique, and functional neuromuscular dentistry. When the limitations of these over simplistic classic neurology teachings are critically recognized, and the neurologic literature is reviewed at a deeper level, a multi-segmental autonomic model of the sensory motor system can be created. One that accounts for all of the major body segments involved with walking and gait, and includes two lower extremities, two upper extremities, and two sides of the head represented by the trigeminal neurology. One that also accounts for the substantial contribution to skeletal muscle coordination which occurs at an autonomic, or non-voluntary subconscious, brain stem level in the reticular formation and cerebellum. This portion of the sensory motor system is ipsilaterally organized and accounts for this reflex coordination between the pelvis/lower extremity and the head. It further accounts for ascending and descending reflex compensation patterns between the two, providing validity to these alternative techniques.

Introduction

There are primitive reflex coordination patterns present in the human sensory motor system that are derived from the stereotypical movements involved with walking, or gait. A significant pattern influencing our skeletal muscles occurs at an autonomic level within the reticular formation, and cerebellum, not purely within the cortex in a voluntary fashion. These patterns happen at lower levels in the neurology, and allow us to balance with adaptive coordination during the process of walking, while simultaneously engaging

in higher thinking processes. Having to be cognitively focused with skeletal muscle coordination at an attentive voluntary level, with hundreds of muscles involved during erect posture and gait, would be overwhelming. The instigation of standing up and walking may be voluntary, but the ultimate coordination of the hundreds of muscles turning on and off to produce fluid gait are not. Over the millions of years since humans adopted walking as their defining, or stereotypical movement pattern, neurons and synaptic engrams have also been evolving at a brain stem level, not just a cortical one. This view is in contrast with some of what classic academic neurology suggests is the organization of how skeletal muscle is controlled by the brain. This contrast may arise from the very simplified way that the control of skeletal muscle is taught. It is classically taught as only a mono-segmental, a single neural network, neuronal pool, or a single digit model. In most books it's a mere finger. It's also taught that it is under purely voluntarily control, suggesting that it is only happening within the contralateral cortex portion of the brain. The neurologic complexity of coordinating the multi-segmental biomechanics involved with gait cannot be described, appreciated, or studied, with such a rudimentary paradigm. If academic neurology is to understand the coordination patterns that applied kinesiologists and functional neuromuscular dentists have utilized for evaluation and treatment purposes for decades, it must realize that a multi-segmental model of the sensory-motor system is needed to emulate the multi-segmental biomechanics that occur during walking and posture. By doing so, a better understanding of the intricate complexity of the human sensory motor system emerges. One where a greater appreciation of the interplay between voluntary cortical initiated movements, and non-voluntary autonomic coordination expressing those movements, is realized.

Discussion

With academic kinesiology, the head can be observed deviating laterally toward the same side of the body as the foot that is bearing weight during a normal walking stride (1). The pelvis also deviates to this side in an ipsilateral relationship. This occurs in parallel coordination of the two so that the center of gravity of the head remains directly over the center of gravity of the pelvis and lower extremity (2). This makes it easier to balance the two on top of one another and conserves energy. The opposite arm characteristically swings forward of the lower extremity in a contralateral relationship. Robert Lovett, an orthopedic surgeon and professor of spinal biomechanics at Harvard, first described this ipsilateral head and pelvis relationship as it relates to spinal biomechanics as early as 1907.³ This forms the basis for the Lovett relationship that is utilized in applied kinesiology.⁴ These multi-segmental biomechanics, with the head and lower extremity coordinating ipsilaterally in parallel, while the upper extremity coordinates contralaterally, dictates how the lateral curvatures in the spine interact with our walking gait. The loading and rebound unloading of these lateral curvatures contributes to our

forward momentum as we walk. This relationship is well described by Serge Gracovezcky, referring to this as our spinal engine.⁵

The proprioceptive, or feedback, influenced sensory motor system constantly monitors these relationships, and compares them with spatial information derived from the autonomies of the vestibulocochlear anatomy in the inner ear. Together, it's the interaction of the two that provides us with the remarkably adaptive coordination that goes into balance.⁶ We continuously utilize these two functions of our neurology during walking, running, and jumping. The contralateral relationship between the upper and lower extremities fits conveniently into the paradigm of all skeletal muscle having a purely contralateral organization, and that this is entirely mediated in the contralateral sensory motor cortex.^{7,8} This overly simplistic model of the sensory motor system however, doesn't account for the reflex autonomic ipsilateral head and pelvic coordination observed during walking. This leads to confusion, and debate, between conventional academic neurology, and the clinical sciences that recognize ipsilateral pelvic and head coordination patterns. These clinical sciences utilize these reflex autonomic patterns of ascending or descending neuromuscular influences within the sensory motor system to help patients with their conditions.⁹ Where a therapy applied to the temporomandibular joint will indirectly influence muscle strength, or posture, in the body in a descending fashion.^{10,11,12} Or therapies applied to the lower extremities pelvis and spine of the body, will indirectly influence the jaw.^{13,14,15,16,17} These techniques include sacro-occipital technique, cranial osteopathy, functional dentistry, and applied kinesiology.^{4,14,18} The influence of these reflex patterns can have a significant enough effect, as to reverse a structural pathology as significant as idiopathic scoliosis.¹⁶ These clinical techniques, although studied and utilized effectively for decades, are often viewed as esoteric, or even discredited as unscientific all together. To better understand this coordination requires more than a single finger, or a mono-segmental, cortical voluntary paradigm.

An adequate model has to include two lower extremities, two upper extremities, and both sides of the head, to genuinely account for all of the anatomy required for walking.¹⁹ Putting the pieces of this puzzle all together from the information contained within most neurology texts requires rigorous study, and the information is usually not in the same part of the text, or multiple texts are required, making it complicated. For a beginning student of applied kinesiology, or neurology, it's a more direct approach to understanding these complex relationships to simply realize that a multi-segmental conceptual model, or paradigm, is a better way of visualizing how these relationships occur.

To review some of the basic neurology, ascending information originating from the networks of neurons in the lower and upper extremities are routed from the spinal cord

through the reticular formation as the gracile fasciculus, and cuneate fasciculus respectively. Also mediating into this region of the reticular formation are both the spinal tract, and nucleus, of the trigeminal nerve. This brings in subconscious proprioceptive information from the two sides of the head.^{7,18,21} The trigeminal spinal tract, and nucleus, do not cross over to the other side, but remain ipsilateral in their organization into the brain stem.^{7,22} In cross-section studies of the reticular formation, neuronal projections can be observed bridging from the gracile fasciculus from the lower extremity, around the cuneate fasciculus from the upper extremity, into the region of the trigeminal tract and nucleus.⁷ Another interesting feature of the trigeminal neurology is that it contains a core of non-myelinated inter-neuronal reflex loops.^{7,20} This histological feature is identified as gray matter in the spinal cord, but for some reason it's not in the trigeminal neurology, even though these reflex loops behave in an identical manner as they do in the spinal cord. For the purpose of our multi-segmental model, they can be called the cranial cords. In the rare incidence where bilateral trigeminalectomies were performed, the patients displayed difficulties with balance and walking coordination.⁷ Further evidence of ipsilateral pelvic and head coordination occurs when the ventromedial division of the descending corticospinal tract, and the corticocerebellar tract, are also considered. The ventromedial, or ventral, corticospinal tracts remains uncrossed.^{7,8} They control deep axial muscles of the neck and trunk, and have brainstem pathways, or tracts, routing through the same reticular regions as the trigeminal spinal tract, and nucleus. Many axons from the ventromedial pathways send collaterals to different segmental levels. About one-half of the axons that reach the lumbar cord, also have collaterals in the cervical gray matter.⁷ The tectospinal tract important for the coordinated control of the head, the vestibulospinal tracts carrying information for the reflex control of equilibrium from the vestibular system, and the reticulospinal tract composed of interneurons for collateral communication within the reticular formation, are all components of the ventromedial corticospinal pathways, and are organized ipsilaterally.⁷ The other component of this motor control system is the corticocerebellar tract. It contributes to fine motor control of the gravity resisting erector spinal muscles, and the pelvic and lower extremity muscles, and like the ventromedial corticospinal pathways, is organized ipsilaterally.^{7,8} Cerebellar lesions, or injuries, express themselves in the motor system as a unilateral extensor inhibition on the same side as the lesion.²³ Collectively this organization links subconscious proprioception from the side of the head with the temporomandibular joint, to the cervical and lumbar neurologic anatomy, along with the vestibulocochlear input for balance, into a cohesive, ipsilaterally organized reticular formation. Ipsilateral coordination of head and pelvic/lower extremity motion is occurring within our sensory motor system at a reticular autonomic level, not at a cortical voluntary one. This is in direct contrast to the classic teachings of how skeletal muscle is controlled in a cortical contralateral fashion, and provides a source for potential confusion.

With this as a foundation, a multi-segmental paradigm with six segments, three cords, and substantial reticular autonomic integration, is created in (figure 1). A significantly more complex paradigm, but a far more complete conceptual representation of our actual anatomy, where multi-segmental neurodynamics can be consistent with our multi-segmental biomechanics that are utilized for walking. This paradigm provides a basis for an educated discussion about the complex neurologic dynamics that occur during walking to begin. It further accounts for the ascending or descending patterns of reflex neuromuscular compensation between the body and the head. Where ipsilateral head, pelvic, and lower extremity coordination during gait can be taken into account. This graphic paradigm is a simpler, more straightforward, way of explaining this phenomenon making it easier to understand. It takes a lot of complex neurological relationships, that are described in a fragmented way in most neurology texts, and puts it together in a cohesive model that bridges the gap between the academic and clinical sciences.

Conclusion

An ipsilaterally organized multi-segmental model occurring in the brain stem reticular and cerebellar autonomies is a significant departure from the classic, rudimentary, teachings of sensory-motor neurology. It is a necessary one however, for academic neurology to understand the ipsilateral head and pelvic coordination that is observed within the studies of kinesiology, and biomechanics, in humans during walking movements. A relationship that is utilized within complimentary alternative techniques such as applied kinesiology, and neuromuscular dentistry. With a deeper and more thorough examination of the current established literature, there is an academic foundation that can be utilized to realize this paradigm. There is certainly a significant degree of self-evident truth in a sensory-motor conceptual model that encompasses a broader scope of the human anatomy than a single figure. One that explains both contralateral, and ipsilateral, coordination patterns within the gamut of human bipedal movement, and one that accounts for the ability of ascending and descending neuromuscular compensations to occur. A paradigm that not only acknowledges the presence of these relationships, but one that makes it obvious that those relationships should be there, and why. The founding father of Applied Kinesiology, George Goodheart, often quoted to his students “see with eyes that see”. With this simple statement he challenged his followers to believe in the relationships they perceived with their vision, their palpation, and their quantifiable skills as clinicians, to represent the truth. That if an academic paradigm does not fully encompass the relationship being observed, it’s not the observed relationship that is invalidated, it’s the academic paradigm that is not yet refined enough to fully understand and predict the truth in nature that is being observed.

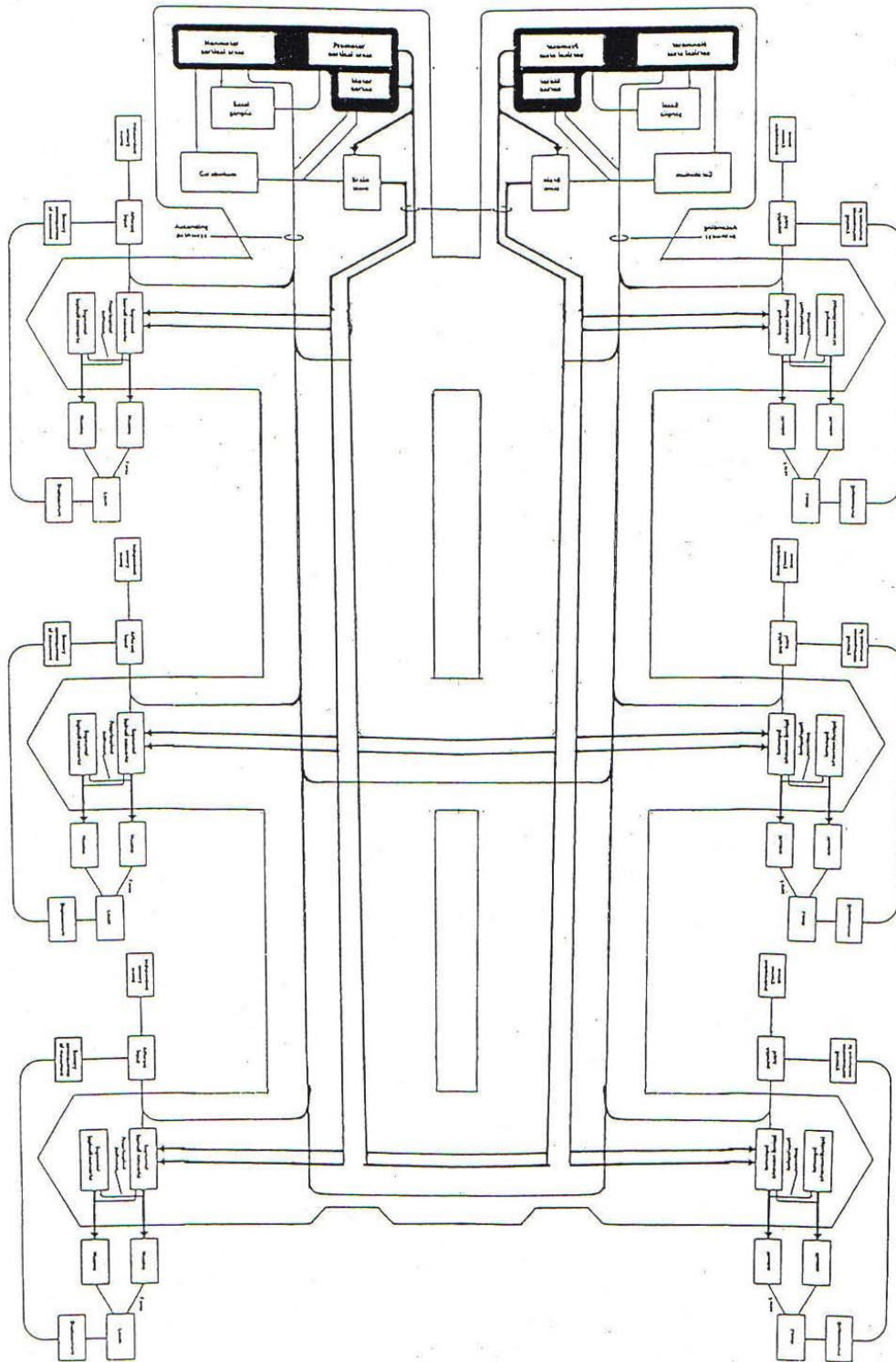


Figure 1

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**A Multi-Segmental Autonomic Sensory Coordination Model for Walking and Gait
Eric Kees Peet, D.C.**

Carbonic Anhydrase and Applied Kinesiology

Thomas A. Rogowsky, D.C., DIBAK, D.C.B.C.N.

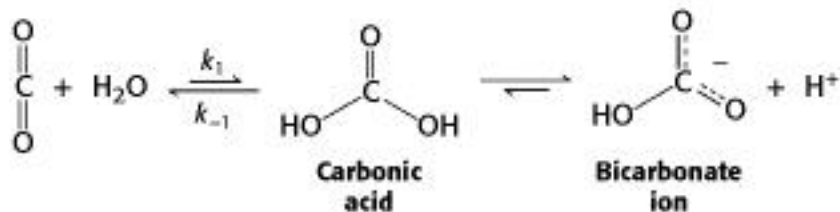
Abstract

Carbonic Anhydrase (CA) is an extremely important enzyme in regulating carbon dioxide (CO₂) and acid-alkaline balance in the body. It is an enzyme and catalyst important in combining CO₂ and water (H₂O) into a bicarbonate (HCO₃⁻) and proton and reversing the equation. This hydrating of CO₂ and dehydrating the HCO₃⁻ can be accomplished without CA, but it is much slower process. Because of the zinc ion in the active portion of the CA enzyme, it is classified as a metalloenzyme. There are functional deficiencies caused by dysfunction of CA. These areas will be associated with specific patterns of conditionally inhibited muscles. These will be discussed with appropriate remedies to facilitate proper muscle function and restore proper muscular balance with the use of Applied Kinesiology.

Key Indexing Words

Applied Kinesiology, Carbonic Anhydrase, Carbon Dioxide, Carbonic Acid, Gastric Secretions, Respiratory Rate, Alkaline Acid Balance

Introduction



Carbon dioxide (CO₂) is produced as a result of aerobic metabolism. Carbon dioxide is released into the blood, is combined with water, and transported to the lungs for exhalation. The combination of water and carbon dioxide forms carbonic acid which then can release a proton and a bicarbonate ion.

This reaction of carbon dioxide and water and the reverse loss of water and return to carbon dioxide will occur without any catalysts. However this reaction is too slow to fully accomplish the necessary processing of CO₂ the body needs to function optimally. Most organisms use enzymes called carbonic anhydrases to catalyze these reactions. CO₂ is converted into a bicarbonate ion, HCO₃⁻, which is released into the bloodstream. Then the HCO₃⁻ must be converted back into CO₂ to be released once it reaches the lungs.⁶

Carbonic anhydrase accelerates the CO₂ reaction with H₂O dramatically. The most active enzymes will perform this reaction one million times per second.¹

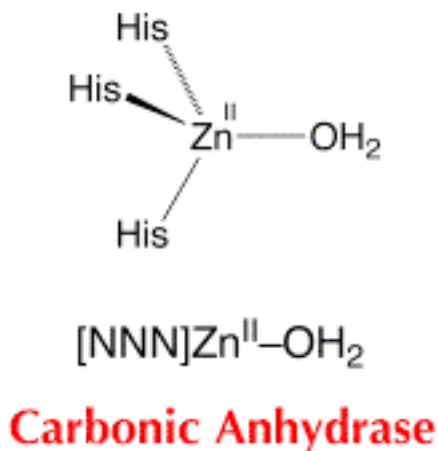


Figure 1

Carbonic anhydrase is found in the blood, specifically the red blood cells. There it catalyzes the CO₂/ H₂O reaction. Carbonic anhydrase is incredibly important in the body. Regulating the CO₂ concentration regulates the pH of a body. CA aids the secretion of acid in the stomach. It also helps to make pancreatic juices alkaline and saliva neutral.⁶ This enzyme is found everywhere in the body. It regulates pH in the kidneys as well as in the cells that regulate both water and acid concentrations.

Carbonic anhydrases are enzymes that catalyze the hydration of carbon dioxide and the dehydration of bicarbonate:



Carbonic acid is of utmost importance in the following areas:

- **Parietal cells in the stomach** secrete massive amounts of acid into the lumen while releasing bicarbonate ions into blood.^{3, 8}
- **Pancreatic duct cells** do the opposite, with bicarbonate as their main secretory product to alkalize the duodenum and allowing pancreatic enzymes to function.^{3, 8}
- Secretion of hydrogen ions and reabsorption of bicarbonate ions by the **renal tubules** is a critical mechanism for maintaining acid-base balance.^{3, 4}
- Carbon dioxide generated by metabolism in all cells is removed from the body by **red blood cells** that convert most of it to bicarbonate for transport, then back to carbon dioxide to be exhaled from the lungs.³

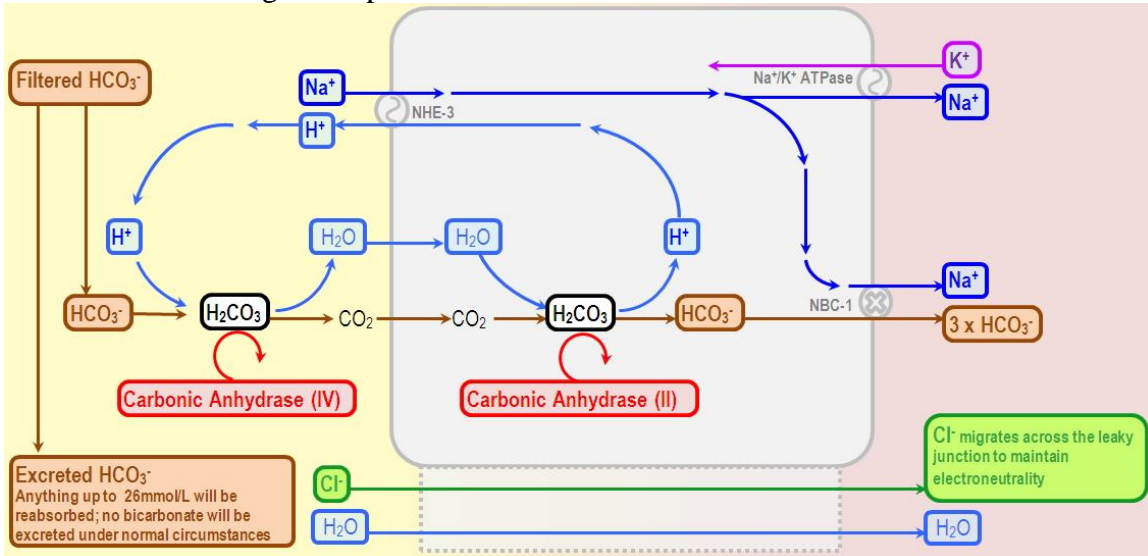
The organs involved in regulation of external acid-base balance are the lungs and the kidneys.

The lungs are necessary for excretion of the respiratory acid CO_2 and there is a huge amount of this to be excreted: at least 12,000 to 13,000 mmols/day.

The kidneys are responsible for excreting the fixed acids in the amount of 70-100 mmols/day. The kidneys' role is critical because there is no other way to excrete these acids. Though this amount seems small, they are very large when compared to the plasma concentration of $[\text{H}^+]$ being only 40 nanomoles/litre. The second extremely important role that the kidneys play in acid-base balance is the reabsorption of the filtered bicarbonate. Bicarbonate is the predominant extracellular buffer against the fixed acids, and it is important that its plasma concentration be facilitated to protect against renal loss. In acid-base balance, the kidney is responsible for two major activities:

- Reabsorption of filtered bicarbonate: 4,000 to 5,000 mmol/day.
- Excretion of the fixed acids (acid anion and associated H^+): about 1 mmol/kg/day.⁴

Bicarbonate handling in the proximal tubule:



Carbonic anhydrase converts the filtered bicarbonate into easily resorbed CO_2 . This facilitates almost complete reabsorption of the filtered bicarbonate ion. As a result, the concentration of chloride in the tubule will increase since more chloride must remain in the tubule to maintain electroneutrality.

Drug induced low carbonic anhydrase function. There are several drugs and conditions that cause renal tube acidosis (RTA). One such drug that blocks CA-4 is acetazolamide, a carbonic anhydrase inhibitor. Taking it can lead to proximal RTA.⁶ Acetazolamide is a diuretic, usually sold under the trade name *Diamox*. Acetazolamide is used for the medical treatment of glaucoma, seizures, altitude sickness, congestive heart failure, epilepsy, and drug induced edema. *Diamox* is now sold as *Diamox Sequels*.⁷

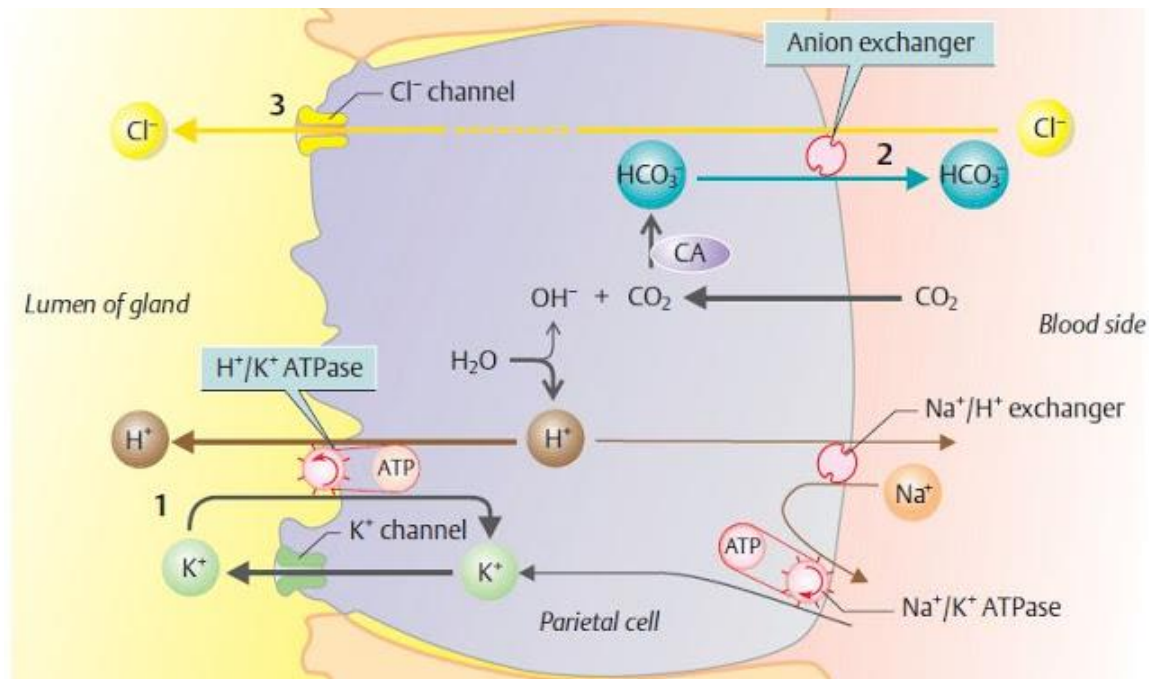


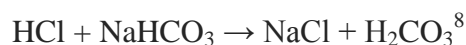
Figure 2

Stomach

The enzyme carbonic anhydrase catalyzes the reaction between carbon dioxide and water to form carbonic acid. This step is shown in Figure 2 where CA represents the carbonic acid enzyme. This acid immediately breaks into hydrogen and bicarbonate ions. The hydrogen ions leave the cell through H^+/K^+ ATPase antiporter pumps. The bicarbonate ions leave the cell as chloride ions enter and which are then are excreted through the chloride channel.⁸ The two excretions of hydrogen and chloride ions then make up the strong acid which lowers the pH of the stomach to the point that pepsinogen can be converted into pepsin. A typical adult human stomach will secrete 2 or 3 liters of gastric acid daily.⁸

Duodenum

In the duodenum gastric acid is neutralized by sodium bicarbonate. The secretion of sodium bicarbonate from the pancreas is stimulated by secretin. Secretin is produced in the S cells of the duodenum. Secretin gets activated and secreted in the mucosa of the duodenum and jejunum when the pH in the duodenum falls below 4.5 to 5.0. The neutralization is described by the equation:



It appears that carbonic anhydrase has a role in the neutralization of the stomach acid by secreting the bicarbonate ion. I have found that CA facilitates an inhibited latissimus dorsi muscle when a CA ampule is placed on the body under the south pole of a magnet.

Determinants of ventilatory rate

Levels of CO₂ rise in the blood when O₂ is increased beyond the capacity of the lungs to expel CO₂. Sometimes this lack of capacity is due to poor carbonic anhydrase function in red blood cells. CO₂ is stored largely in the blood as bicarbonate (HCO₃⁻) ions. CO₂ is converted to carbonic acid (H₂CO₃) by means of enzyme carbonic anhydrase. This acid then disassociates into H⁺ and HCO₃⁻. Build-up of CO₂, hypercapnia, therefore causes the accumulation of the disassociated hydrogen ion, which decreases the pH of the blood.

The following receptors play important roles in the regulation of respiration: central and peripheral chemoreceptors and mechanoreceptors. When the pH of the blood is lowered these receptors stimulate a more rapid rate of respiration to expel the CO₂. This will return the blood pH to its normal range.

Central chemoreceptors of the central nervous system, located on the ventrolateral medullary surface, are sensitive to the pH of their environment.

Peripheral chemoreceptors act most importantly to detect variation of the oxygen in the arterial blood, in addition to detecting arterial carbon dioxide and pH.

Mechanoreceptors are located in the airways and parenchyma and are responsible for a variety of reflex responses.⁹

Methods

Patients demonstrate dysfunctional muscles and patterns that are associated with carbonic anhydrase deficiency.

Bilateral Pectoralis Major Clavicular (PMC) muscle inhibition

Bilateral PMC inhibition will normalize (test strong) when a pepsin ampule is placed on the body under the south pole of a magnet. It may also normalize when a carbonic anhydrase ampule is placed on the body under the south pole of a magnet. In the case where carbonic anhydrase does not normalize the bilateral PMC, an *H pylori* vial could be checked. For further discussion regarding this topic, please refer to the presentation “T3 and *H pylori*” made at the 2015 ICAK-USA meeting in Chicago regarding. A third option would be to check the emotional neurovascular points bilaterally on the most predominant portion of the frontal bone directly superior to the eye.¹⁰ The acidity caused by the HCl allows pepsinogen to be converted into pepsin. Pepsin then activates more pepsinogen into pepsin. This last conversion appears to be the essential reason for the PMC inhibition. Pepsinogen under the magnet will inhibit a facilitated indicator muscle. If this occurs, it could indicate a zinc deficiency, and zinc should be tested to see if it facilitates the bilateral PMC. If zinc does not test, the conversion of pepsinogen may need pyridoxal 5 phosphate, magnesium, L-histadine and or selenium. Figure 2 shows how the hydrogen ion is secreted into the lumen by H/K ATPase pump, bringing a K ion in exchange. Bicarbonate ions defuse into the bloodstream and in return, a chloride ion enters the parietal cell and then the lumen to form HCl.

Bilateral Psoas muscle inhibition can occur when there is excessive bicarbonate present in the blood causing alkalinity or when there are excessive hydrogen ions in the blood causing acidity. The kidneys will excrete whichever chemical is in excess to bring the blood back into the proper pH balance. The kidney is the only organ that excretes the H ion. In this case, the psoas inhibition will be negated when the CA ampule is placed on the body under the south pole of a magnet. Check for the proper nutrients to activate CA (zinc, pyridoxal 5 phosphate, magnesium, L-histadine and or selenium).

Insulin Resistance will occur with poor protein digestion when the pepsin in the stomach is not at an optimum level. An insulin ampule under the south pole of a magnet will conditionally inhibit a previously facilitated muscle and will be negated when the pepsin ampule joins the insulin under the south pole of a magnet. See bilateral PMC above.

Poor protein absorption can occur with poor stomach function and low pepsin. See bilateral PMC above.

Latissimus dorsi muscle association with pancreas enzyme. The pancreas enzymes will only work in an environment with a pH above 4.5 to 5. This is accomplished by the release of sodium bicarbonate in the jejunum. There is also evidence that CA will release bicarbonate from CO₂ and H₂O. The latissimus muscle will be facilitated by bicarbonate or the CA ampule when placed on the body under the south pole of a magnet. Check for the proper nutrients to activate CA (zinc, pyridoxal 5 phosphate, magnesium, L-histadine and or selenium).

Rebreathing. Dr. Walter H. Schmitt has shown rebreathing into a paper bag will strengthen a previously inhibited muscle when there is a lack of proper citric acid cycle function and, therefore, lower ATP production.¹¹ Conversely, if rebreathing inhibits a previously intact/facilitated muscle or if hypercapnia is present, it can indicate a deficiency in carbonic acid or its cofactors/coenzymes. Rebreathing inhibition will be negated when the CA ampule is placed on the body under the south pole of a magnet. Check for the proper nutrients to activate CA (zinc, pyridoxal 5 phosphate, magnesium, L-histadine and or selenium).

Treatment of the above conditions. When CA facilitates an inhibited muscle, find the proper nutrient to negate the inhibition caused by the ampule (zinc, p5p, magnesium, L-histadine, or selenium), then stimulate the associated Chapman's reflex(es) associated with that muscle. If an indicator muscle is inhibited by an ampule such as insulin or by rebreathing, find the proper nutrient to negate the inhibition caused by the ampule (zinc, P5P, magnesium, L-histadine, or selenium). Then find and stimulate the Chapman's reflex(es) that negate(s) the ampule or rebreathing. Recheck the nutrient(s) needed and supplement the patient with those that are deemed necessary to maintain proper function of the CA.

Conclusion

Many systems require carbonic acid to function. Among these are ventilation, stomach function, protein digestion, and kidney regulation of acid alkaline balance. I have given the protocol to determine if these conditions are present and the ways to return these conditions to normal physiological balance. Testing the associated muscle groups to find inhibited muscles that will respond to carbonic anhydrase and its activating nutrients will help the practitioner of Applied Kinesiology reach the root causes of a problem, facilitate a more timely clinical intervention, and achieve better outcomes.

Flow Chart for Carbonic Anhydrase Enzyme

Check for inhibited muscles groups

Bilateral PMC

Bilateral Psoas

Bilateral Deltoid, middle division

Bilateral Latissimus Dorsi

Check any inhibited muscle with the Carbonic Anhydrase (CA) vial to check for it to remove the inhibition.

If CA removes inhibition or restores proper facilitation, remove vial and check zinc, magnesium, pyridoxal 5 phosphate or B6, L-histadine and selenium to see if any of the substances facilitate the inhibited muscle.

Alternative methods for determining the need for increased CA

Check for inhibition of an intact facilitated muscle after rebreathing several times into a paper bag.

Check for inhibition of an intact facilitated muscle against an insulin vial.

Check for facilitation of an inhibited muscle when exposed to multiple forms of proteins (thus avoiding a sensitivity to a particular type of protein).

Check any inhibited muscle with the Carbonic Anhydrase (CA) vial to check for it to remove the inhibition, or check for facilitation of an inhibited muscle when exposed to the CA vial.

If CA removes inhibition or restores proper facilitation, remove vial and check zinc, magnesium, pyridoxal 5 phosphate or B6, L-histadine and selenium to see if any of the substances facilitate the inhibited muscle.

In the case of a bilateral PMC inhibition, check for facilitation with pepsin vial. If pepsin facilitates the PMC, check for inhibition of an indicator muscle with pepsinogen vial. Check zinc, magnesium, pyridoxal 5 phosphate or B6, L-histadine and selenium to see if any of the substances facilitate the inhibited muscle.

Finally, treat the Chapman's reflexes (CR) for the associated muscles that tested as inhibited. In the case of rebreathing, treat the brain CR. With insulin and/or protein

deficiency, treat the stomach CR. Recommend the appropriate nutrient for proper CA support.

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Carbonic Anhydrase and Applied Kinesiology
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The Importance of the Bilateral Scalenus Medius Muscles in Cervical Stability

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Abstract

The scalenus medius muscles are extremely important for cervical stability. There are two major biochemical conditions that cause conditional inhibition in these muscles. They are excess levels of IL-6, and less common, low aldosterone levels. The high IL-6 level usually comes from an infection, many times subclinical in nature. The other possible association with the bilateral scalenus medius muscles is low aldosterone levels due to poor conversion from corticosterone in the adrenal cortex. Treatment for the infection lowers the IL-6 level and restores proper facilitation to the muscles. Likewise supplying the coenzyme or cofactor for the corticosterone conversion to aldosterone will result in facilitation of the scalenus medius muscles.

Key indexing terms: Scalenus Muscles, Brachial Plexus, Brachial Neuritis, IL-6, Corticosterone, Applied Kinesiology, Aldosterone, Glucocorticoids

Introduction

When a patient presents with neck pain, either unilateral or bilateral in nature, one of the initial checks should be whether there is conditional inhibition of the scalenus medius muscles. Without proper facilitation there will be a lack of proper support and balance of the cervical spine resulting in distortion as well as cervical vertebrae misalignment. The misalignment can cause cervical spine pain and inflammation including the irritation of the brachial nerve as it exits the spine.

The brachial plexus is a network of nerves exiting the cervical spine and the first thoracic vertebra. Specifically, the anterior rami of the lower four cervical nerves and first thoracic nerve (C5–C8, T1) form this plexus. C5 and C6 merge to establish the upper trunk, C7 forms the middle trunk, and C8 and T1 combine to form the lower trunk. Figure 3 is a chart showing muscle and its associated brachial plexus nerves. Some of the lesions in the brachial plexus result in the poor function of muscles commonly found inhibited in Applied Kinesiology. The dorsal scapular nerve comes from level C5 and innervates the rhomboid muscle, and the subclavian nerve originates in both C5 and C6 and innervates the subclavius muscle. The subclavius muscle draws the clavicle anterior and inferior and depresses the shoulder and also lifts the first ribs during respiration. The subclavius is often found inhibited with clavicle misalignments that limit the range of motion of the arm overhead. The serratus anticus muscle supports the scapula and keeps it from winging out. It also helps hold the ribs in their proper position, preventing them from misaligning anteriorly. The serratus anticus muscle, innervated by

the long thoracic nerve that arises from C5, C6 and C7, is the shoulder stabilizing muscle in forward-reaching and pushing actions. The deltoid, biceps, brachialis, and brachioradialis are most likely to show inhibition and even paralysis with an injury to the upper brachial plexus C5 and C6 nerves. Pain and/or the loss of sensation in the lateral aspect of the upper arm is also common with such injuries. An inferior brachial plexus injury can occur when a person grasps something to break a fall or when a baby's upper limb is pulled excessively during delivery. This injury affects the short muscles of the hand results in the inability to form a full fist or open a jar.¹

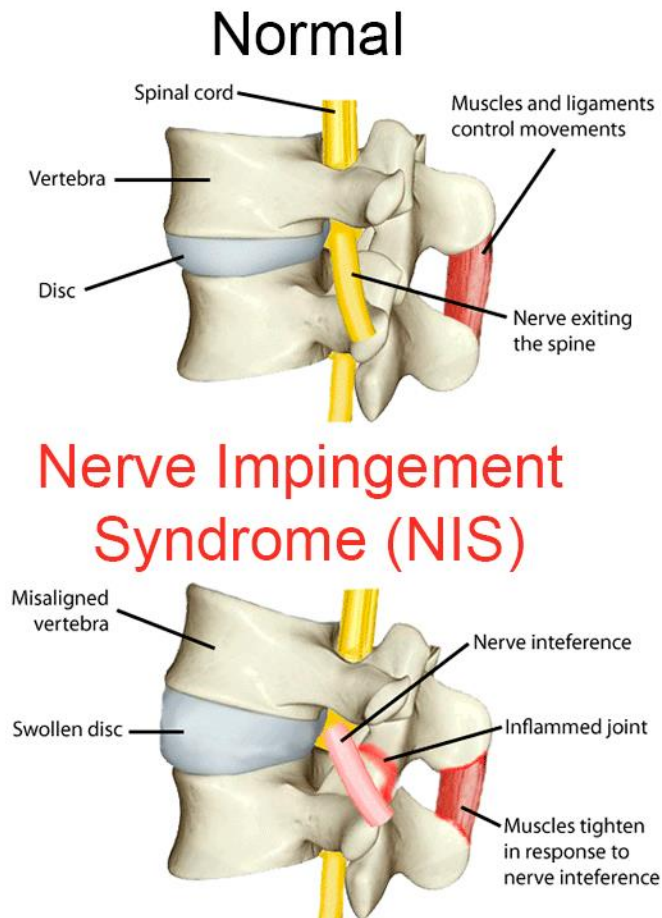


Figure 1

Acute brachial plexus neuritis is a neurological disorder that is characterized by the onset of severe pain in the shoulder region. Additionally, the compression of a root can cause pain radiating down the arm, numbness, paresthesia, erythema, and weakness of the hands. Intrascapular and scapular pain is also common occurrence with a brachial nerve irritation.¹

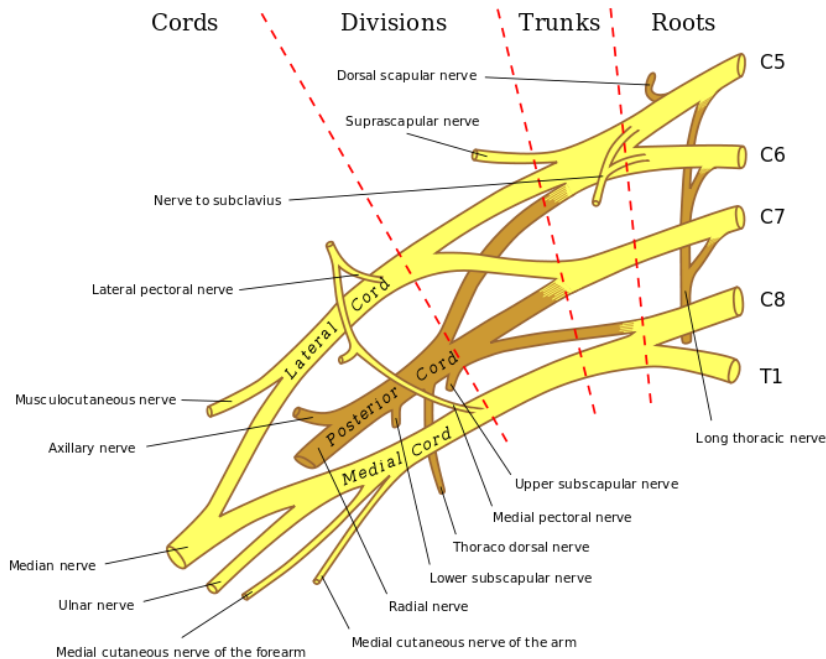


Figure 2

Methods

Once a cervical dysfunction is determined as the primary presenting issue with a patient, it should be ascertained from patient history and complaints whether a brachial root problem is a likely possibility. Begin the exam by testing the muscles associated with the five nerve roots, noting the joining of C5/C6 and C8/T1 nerve roots soon after they exit the spine. Specific muscle tests should be narrowed down to the muscles that most likely would be associated with the suspected brachial nerve root. If no brachial involvement is suspected or found, determine cervical misalignments or dysfunctional areas and proceed to testing the bilateral scalenus medius muscles.

Dr. John Bandy presented this invaluable tool in helping to identify brachial plexus involvement at the Steamboat Springs AK Extravaganza in 1985. I have expanded on some of his ideas.

Using manual muscle testing can help identify:

1. Brachial plexus involvement
2. Level of possible root involvement and the muscle innervated by that root to be tested for inhibition
3. Whether an inhibited muscle is related to a brachial plexus nerve root
4. Level of cervical vertebra associated with involved nerve root

Muscle	Nerve	Root
Rhomboid	Dorsal Scapular	C4, C5
Levator Scapula	Dorsal Scapular	C4, C5
Serratus Anterior	Long Thoracic	C5, C6, C7

Diaphragm	Phrenic	C5 (C4,C3)
Subclavius	Subclavius	C5, C6
Supraspinus/infraspinatus	Suprascapular	C5, C6
Pectoralis major and minor	Lateral Pectoral	C5, C6, C7
Coracobrachialis, Brachialis	Musculocutaneous	C5, C6, C7
Biceps brachii	Musculocutaneous	C5, C6, C7
Subscapularis upper div.	Upper subscapular	C5, C6
Subscapularis lower div.	Lower subscapular	C5, C6
Teres major	Lower subscapular	C5, C6
Latissimus dorsi	Thoracodorsal	C6, C7, C8
Deltoid, Teres minor	Axillary	C5, C6
Triceps brachii, supinator	Radial	C5-T1
Anconeus, forearm extensors	Radial	C5-T1
Brachioradialis	Radial	C5-T1
Pectoralis Major/minor	Medial Pectoral	C8, T1
Flexor Carpi Ulnaris	Ulnar	C8, T1
Flexor Digitorum Profundus	Ulnar	C8, T1
Intrinsic hand muscles	Ulnar	C8, T1
Opponens	Median, recurrent br.	C5-T1
Finger flexors		C7, C8
Finger abductors		T1
Finger extensors		C7

Figure 3

There are specific muscles for each root of the brachial plexus, and if the associated muscle is conditionally inhibited it can indicate the level of vertebral involvement. While testing that muscle, apply steady pressure on the suspected associated vertebra in various directions until one direction facilitates the muscle. Note the direction the vertebra needs to be moved in order to restore better root function.

This will facilitate the muscle associated with that brachial root level. Rechecking the vector of vertebral correction and the associated muscle will be important in assessing the success of increasing the stability of the cervical spine via this technique.

Once the level of vertebral involvement is determined, test the scalenus medius (SM) muscle on each side. In this paper we are considering the effect of a bilateral inhibition on the stability of the cervical region and the involved vertebral level. In a prior paper, I discussed the involvement of the scalenus anticus muscle in cervical instability (The Role of the Scalenus Anticus Muscle in Dysinsulinism and Chronic Non-traumatic Neck Pain, ICAK Proceedings, 2000).

Scalenus medius muscle test

According to Beardall, the scalenus medius muscle is tested by flexing the head and neck on the trunk 45 degrees, and rotating the head 20 degrees away from the side tested.¹² The objective is to bring the origin and insertion of the SM in alignment and in closest

proximity to one another. Contact is to the parietal bone directly superior to the ear and superior to the line made from the insertion to the origin of the SM muscle. Direct your pressure to separate the origin and insertion of the SM by using the head as a lever to accomplish this.



Scalenus Medius test right side

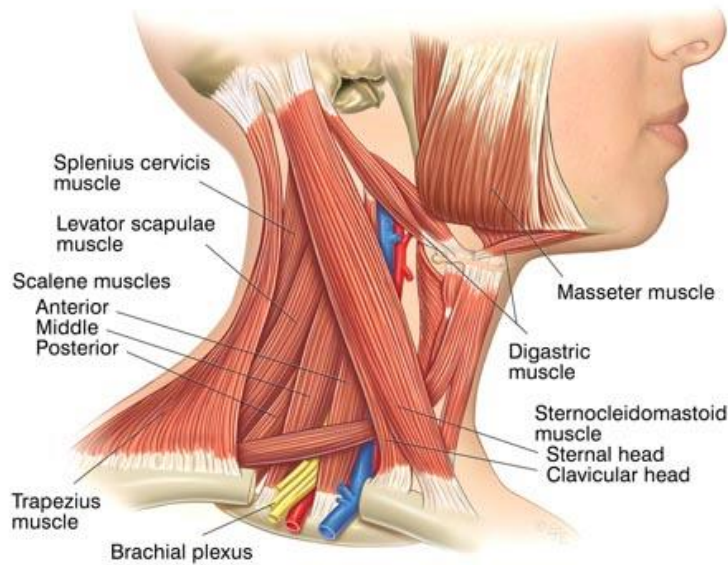


Figure 4

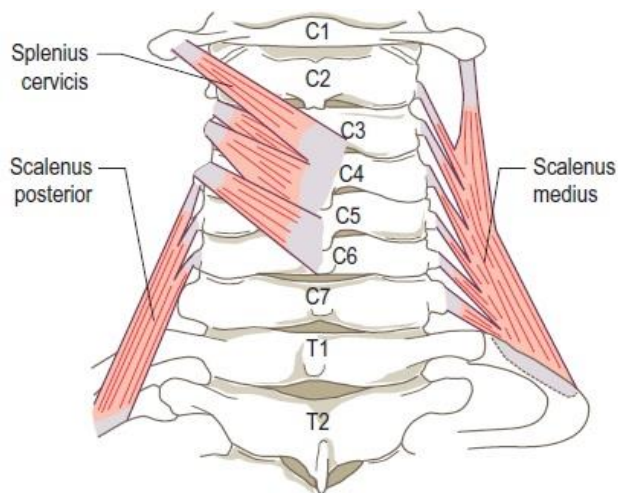


Figure 5

If you find bilateral SM muscle inhibition, test a vial of IL-6 on the patient's body under the south pole of a magnet. If this facilitates the bilateral SM muscles, then test substances that may be stressing the immune system or substances which counter the inflammation caused by IL-6. If an infection-type of vial negates the IL-6 inflammation, find a nutrient or nutrients that negate(s) that infection vial(s). One can also look at cortisol elevation causing immune system inhibition, and if it negates the infection vial, look for the causes of elevated cortisol in the body. This is often where an emotional issue is found to be driving the cortisol elevation and should be treated. Often treating the emotion is sufficient therapy to restore facilitation to the SM muscle. However, sometimes it is still necessary to supplement the patient with the necessary nutrients that negated the infection vial response.

Treatment of the high IL-6 would depend identifying the source of the elevation.

If the IL-6 is found without a generating cause and appropriate IL-6 anti-inflammatory nutrients are identified, treat the Chapman's reflexes for the adrenal glands, one inch lateral and two inches superior to the umbilicus bilaterally.

If infection-related vials are found to negate the high IL-6, find the appropriate nutrient(s) to negate these vials and treat the Chapman's reflexes that negate the infection vials. These reflexes will be related to the system most affected by the infection vials such as small intestine or spleen and thymus glands.

If high cortisol caused the infection vial(s) to test positive, find the source of the high cortisol. These sources can include sugar handling problems, emotional issues and other stressors the patient may be experiencing. Often one specific stress is identified and is probably the one that has the highest priority in driving the high cortisol. The problem may also be poor breakdown of cortisol. Nutrients to assist that breakdown should be identified. Another factor may be high ACTH and nutrients to assist in either lowering ACTH or an adaptogen type of nutrient may be needed. The treatment and resetting of reflexes will depend upon what source of the high cortisol is found.

For example, Patient M displays brachial plexus symptoms with an inhibited right deltoid middle division muscle and a C5 misalignment found by an AK based vertebral challenge. Patient M has bilaterally inhibited SM muscles. IL-6 temporarily facilitates these muscles. IL-6 also inhibits a properly facilitated indicator muscle, the pectoralis major sternal division (PMS). Vials relating to Candida Albicans and Fungus facilitate the inhibited PMS. IL-6 is removed from under the magnet leaving the two vials related to C Albicans and Fungus which results in again having an inhibited PMS. A nutrient containing oregano is put under the magnet or on the tongue and the PMS is facilitated. The oregano nutrient is removed leaving the C Albicans and Fungus vials and the emotional NVs are therapy localized and they too negate the PMS muscle. Treat the emotions and retest the SM muscles, the C5 vertebrae, and the deltoid middle division that was affected by the brachial plexus lesion. If all muscles are facilitated and this is the end of your treatment, retest the oregano nutrient to see if it is still needed.

The other possible cause of bilaterally inhibited SM muscles is a functionally low aldosterone level. Test a vial of aldosterone on the patient's body under the south pole of a magnet to see if the SM muscles are facilitated. Salt (NaCl) will also facilitate the inhibited SC muscle if this pathway is involved. Salt may be placed under the magnet or put on the patient's tongue. If these two substances restore the SM muscle to proper function, then remove the aldosterone/NaCl and place corticosterone under the magnet. If this inhibits a properly facilitated muscle, leave the corticosterone and test the following under the magnet one at a time to see which will remove the inhibition caused by lack of conversion of corticosterone into aldosterone: vitamin A, niacin or niacinamide, and licorice root. Note which one negates the corticosterone driven inhibition.

Since this conversion happens in the adrenal cortex, the adrenal Chapman's reflexes should be treated with the corticosterone still under the magnet to reset the system inhibition. The elevated IL-6 will also therapy localize to the adrenal Chapman's reflex. This is due to the connection between IL 6 and the glucocorticoids produced in the adrenal cortex.

Discussion

Interleukin 6 (IL-6) is an interleukin that has a surprising number of functions in the body. In this paper we are concerned with its pro-inflammatory action.

IL-6 is secreted by T cells and macrophages in response to infections or injuries, leading to increased inflammation. IL-6 also plays a role in fighting infections. Smooth muscle cells in the tunica media of many blood vessels also produce IL-6 as a pro-inflammatory cytokine.²

There is a connection between IL 6 and the adrenal gland. Glucocorticoids play an important part in control of the cytokine response after an immune challenge. Conversely, cytokines modulate glucocorticoid production by the hypothalamic–pituitary–adrenal (HPA) axis.⁹ This connection allows us to use Chapman's adrenal reflexes to indicate IL 6 involvement and, in some cases, to treat high IL-6. The following information supports the way that glucocorticoids produced by the adrenal cortex function in relationship to inflammation in the body, here shown by elevated IL-6 levels. Dexamethasone (DM), a corticosteroid, is similar to cortisol produced in the adrenal cortex. It often is used to replace cortisol when the body does not produce enough.³ One study found that DM inhibited the lipopolysaccharide (LPS)-induced production of IL-6 by 10% to 90%. Cortisol had a similar effect but was about 25 times less potent than DM. These results show how glucocorticoids contribute to controlling inflammation, specifically IL-6 production. This study also showed the immunosuppressive effect of glucocorticoids.⁴

IL-6 is an essential corticotropin-releasing hormone stimulating the glucocorticoids during immune system activation independent of the HPA axis. A female mouse's HPA axis is stimulated more by IL-6 than a male mouse. Female mice produce higher corticosterone levels than do male mice in response to stress. Many autoimmune diseases have been found to be more prevalent in female humans than males. These include Hashimoto's thyroiditis, lupus and rheumatoid arthritis. The severity of these diseases changes during the hormone cycles that are unique to females. These diseases are also associated with dysregulated IL-6 and impaired HPA stimulation. This study supports the hypothesis that there is a gender-specific role for IL-6 in modulation of the HPA axis and increased IL-6 production with impaired HPA function found in the reciprocal interaction of endocrine and immune systems.⁹

There is also a direct connection between a dysfunctional spinal structure, in this case study the low back, and the production of IL-6. IL-6 is secreted by intervertebral disc cells, and increased levels were found in herniated discs.⁶ One study showed serum levels of IL-6 were significantly higher in subjects with low back pain (LBP) than in control subjects. Subjects with LBP due to spinal stenosis (SS) or degenerative joint disease

(DDD) had significantly higher levels of IL-6 than subjects with disc herniation (DH) and control subjects (controlling for effects of age, gender, and osteoarthritis (OA) history). This finding suggests that circulating proinflammatory cytokines play a more extensive role in disc diseases such as SS and DDD. The results of this study showed circulating levels of IL-6 were higher in participants with DDD than those with DH. It is unknown if circulating cytokines cause degenerative changes and pain or if elevated cytokine levels are a consequence of the degeneration and pain condition.⁵ I would expect that one could extrapolate these findings to the subject of this paper, the cervical spine. Another study showed that chronic lumbar radicular pain may be associated with a persistent increase of the pro-inflammatory substances IL-6 and IL-8 in serum after disc herniation.⁷ In addition, high serum IL-6 levels, but not disc degeneration or Modic changes, were associated with poorer recovery in patients with lumbar radicular pain.⁸

Aldosterone and corticosterone levels play into the proper function of SM muscles as well as the IL-6 level. Corticosterone is the precursor molecule to the mineralocorticoid aldosterone, one of the major homeostatic modulators of sodium and potassium levels in vivo. A very interesting serendipitous event led to this discovery. A patient that had been treated for chronic cervical pain involving her blood sugar imbalances, consumed some bullion soup during an acute cervical pain episode. It temporarily relieved her pain. Knowing that bullion is high in sodium prompted me to see if salt (NaCl) strengthened any cervical stabilizing muscles. The scalenus anticus had remained facilitated, but the scalenus medius was inhibited bilaterally and became facilitated by the NaCl. I then tested a vial of aldosterone under a magnet, and it also facilitated the SM muscles. I found that a corticosterone vial caused a facilitated indicator muscle to become inhibited. Consulting Dr. Chris Astill-Smith's chart¹³ on steroid production in the body showed which nutritional substances to check against the muscle inhibited by the corticosterone. The conversion requires NADPH, oxygen (or the nutrients that support healthy red blood cell production), NAD(P), vitamin A, and also licorice root. When the appropriate nutrient was administered to this patient, it resulted in long-term improvement in the patient's cervical problems.

Aldosterone plays a central role in the regulation of blood pressure mainly by acting on the distal tubules and collecting ducts of the nephron. It does so by stimulating the absorption of sodium and the secretion of potassium. This action increases water reabsorption, which thereby increases blood pressure and blood volume.¹⁰ When dysregulated, aldosterone is pathogenic and contributes to the development and progression of cardiovascular and renal disease.

Corticosterone has only weak glucocorticoid and mineralocorticoid potencies in humans and is important mainly as an intermediate in the steroidogenic pathway from pregnenolone to aldosterone. Corticosterone is converted to aldosterone by aldosterone synthase, found only in the mitochondria of glomerulosa cells. Glomerulosa cells are found in the Zona glomerulosa, which is the most superficial region of endocrine cells in the adrenal cortex.¹¹

Summary

High levels of inflammatory interleukins are recognized as a major problem in the field of functional medicine. This is particularly relevant for the practitioner of Applied Kinesiology because of the prevalence of high inflammatory interleukins in the general populace in addition to the essential place it holds in the physiological matrix of the body. Specific muscle weaknesses, inflammation in spinal disorders, and cervical spine instability relate to high IL-6 levels. Low aldosterone and high corticosterone levels result in cervical spine instability as well as general dehydration, low blood pressure, kidney and heart dysfunction. Applied Kinesiologists have the means and the methods to help reverse these conditions. I have given the protocol to determine if these conditions are present and the ways to return these conditions to normal physiological balance. Associating the scalenus medius muscle weakness with these two conditions can help the practitioner of Applied Kinesiology reach the root causes of a problem, facilitate a more timely clinical intervention, and achieve better outcomes.

Flow Chart for Cervical Instability With Inhibited Bilateral Scalenus Medius Muscles

Patient presents with cervical spine dysfunction.

Determine if there is brachial plexus root involvement via symptoms and history.

If no brachial plexus involvement, locate the vertebra(e) that lack proper function.

If brachial plexus is involved, check the muscles listed on Chart 1 for inhibition. Choose the muscles to test based on the patient's symptomology or the structural imbalance displayed.

Find associated vertebra that restores the facilitation to the muscle(s) found inhibited.

Test the bilateral scalenus medius muscles (SMM).

If inhibited, check IL-6 vial for facilitation of the SMM. IL-6 inhibits intact indicator muscle. *¹Second option if IL-6 does not facilitate SMM.

If positive facilitation occurs, check infection vials against IL-6 to see which vials will change the indicator muscle back into facilitation.

The positive infection vial(s) then should be checked w/o IL-6 vs. cortisol and possible botanicals that have antimicrobial properties.

If cortisol changes the inhibited muscle, check for sources of stress including emotional stress. Check the high cortisol vs. types of stress and treat accordingly.

Note the botanicals that negate the infection vial(s). Find which systems negate the infection vial(s) and treat their associated Chapman's reflexes.

If IL-6 is the primary cause of the bilateral SMM inhibition, find nutrients that negate that type of inflammation. Then treat the adrenal Chapman's reflex.

*²Retest the SMM as well as the muscles that were inhibited for proper facilitation. Then recheck the cervical misalignments and correct those that remain.

*¹Option 2: NaCl or an aldosterone vial facilitates bilateral SM muscles. Corticosterone vial inhibits intact indicator muscle.

Check nutrients that support healthy red blood cell production, niacin or niacinamide, vitamin A, and licorice root for facilitating corticosterone inhibited indicator muscle. Remove nutrient and treat Chapman's adrenal reflexes. Go to *².

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The Importance of the Bilateral Scalenus Medius Muscles in Cervical Stability
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Hormones and IRT

Dale Schusterman, D.C., DIBAK

Abstract

This paper shows how to use Injury Recall Technique (IRT), as developed by Dr. Walter Schmitt, to evaluate and treat functional hormonal imbalances. IRT with cranial therapy localizations associated with pineal, pituitary, hypothalamus, or thyroid hormones is a powerful addition to balancing a patient.

Discussion

Injury Recall Technique (IRT) is one of the indispensable techniques in a holistic chiropractic practice. Dr. Walter Schmitt developed IRT based on the concepts of Robert Crotty, DPM and Gordon Bronston, DPM. It was originally called Muscle Chain Response Test. Dr. Schmitt has taught IRT for decades and there is valuable information on his website (www.drwallyschmitt.com) and in the ICAK Collected Papers, if you are unfamiliar with the procedure. He has also taught innovative ways to use IRT with emotions, allergens, organ balancing, neurotransmitter balancing, and how to go “beyond IRT.” If you are not using IRT in your practice, you are probably working too hard to fix things that are most easily remedied by this approach. This paper will demonstrate a simple method to find hidden functional hormonal imbalances, and how to correct them with IRT.

Recently, this author had an existing patient show up at the office in crisis. One look at her got her to my treatment room. She had just had a root canal and was feeling terrible. Her normally low blood pressure was 147/100. Performing the atlanto-occipital junction IRT while she touched the involved tooth and gum, and then the upper cervical spine, and the talus IRT to the adrenal Chapman’s Reflexes (CR) with cortisol under a magnet brought immediate relief. She took a deep breath of relaxation. Her blood pressure was now 120/80. The entire treatment took less than 10 minutes and most of that time was taking her blood pressure. Sometimes IRT works that fast and miraculously.

When the body is injured, there is an immediate adaptive response in the nervous system, which acts like a firewall to prevent further damage. Dr. Schmitt learned from the podiatrists that a gentle inferior traction of the talus, while the patient was in contact with an area of injury (recent, or old), would reset many of the neurological consequences of a trauma. He later found that gently flexing the atlanto-occipital junction would reset neurological patterns associated with injuries located above T1. The talus traction works best for injuries below C7.

IRT Review

Gently lifting the talus bone in the ankle should not cause a strong indicator muscle to inhibit. Likewise, touching the area of an old injury, such as a broken bone, or old scar, should not cause an indicator to weaken. If there is weakness, then there is a local

problem to address. However, therapy localizing (TL) an area of old trauma and simultaneously lifting the talus will often cause muscle inhibition in a previously facilitated muscle. Treatment simply requires the patient to TL the area of injury while the doctor gently tractions the talus inferior.

The diagnostic procedure for head and neck injuries requires extending the head on the neck. This should not cause muscle inhibition unless there is a local problem in the upper cervical area. Touching the area of injury along with head extension will cause a facilitated muscle to inhibit if there is an old injury still reactive in the nervous system. Gently flexing the head on the neck, or even lightly lifting the occiput while the patient contacts the area of trauma (above T1) resolves this pattern.

Test Kits and Magnet

The application of IRT to functional hormone imbalances is quite useful. This procedure requires that you have samples of the different hormones. Dr. Chris Smith has an excellent hormone test kit (www.epigenetics-international.com), which was used in developing these procedures. Life-Work Potential (www.lifeworkpotential.com) also sells hormone test kits. Dr. Michael Lebowitz also carries the Life-Work Potential hormone kit (michaellebowitzdc.com). The hormones are placed under the south pole of a magnet for testing. Supreme Nutrition Products sell the magnets. (www.coconutoil-online.com/SNProducts.htm)

Head and Neck Hormones

The first scan uses the 'all hormone' vial (Dr. Chris Smith) under the south pole of a magnet. If you don't have the 'all hormone' vial, use test vials for the pineal, pituitary, hypothalamus, thyroid and parathyroid. Test a facilitated indicator muscle while the patient extends her head. If the muscle remains strong, then there is nothing to do. If the muscle inhibits, it indicates that a hormone in the head, or neck, is functionally imbalanced. Next, with the head in extension, test the individual vials for pineal, pituitary, hypothalamus, thyroid, and parathyroid. At least one will cause an indicator muscle to inhibit, and possibly all will test positive. Then test each of the hormones for the involved organs to see which ones have a positive response while the head is in extension. For example, you might find only one hypothalamus hormone, or you might find 7 that inhibit the muscle.

Once you find the hormones that test weak with the head in extension, return the head to the neutral position. There should be no muscle inhibition this way. Test each hormone individually while looking for a place on the head, or neck, that brings back the muscle inhibition. Often this will be an area of previous trauma, but it could be anywhere. Test each hormone this way. You might find that all the hormones weaken with a TL to one area, but there might be different locations for different hormones. It is possible that there could be multiple locations for one hormone, but the author has not yet observed this.

Treat by gently flexing the atlanto-occipital junction while the patient touches the area on the head, or neck. The hormones are under the magnet. Now recheck the head hormones.

You might find that there are some new ones that show up. Find and fix them in the same manner.

Lower Glandular Hormones

A similar procedure works for the hormones below the neck. Place the 'all hormone' vial under the magnet and challenge an intact muscle while you lift the talus. If you don't have the 'all hormone' vial, then use test vials for the different organs (pancreas, thymus, adrenal, gonads). If there is inhibition, then have the patient touch the Chapman's Reflex (CR) for each endocrine organ below the thyroid to see which one neutralizes the talus lift weakness. Next, test the individual hormone(s) from the involved organ to find the ones that inhibit a test muscle with lifting the talus. Have the patient TL to the Chapman's Reflex to the organ while you gently traction each talus inferior. The hormones are under the magnet. For instance, if the adrenal CR neutralized the talus challenge, test cortisol, aldosterone, and DHEA. Do the IRT correction with a TL to the Sartorius CR with the hormones that test positive.

Thyroid and Parathyroid Hormones

Thyroid hormones (T3, T4, and Calcitonin) and parathyroid hormone, respond better to the upper IRT pattern. Generally, the cranial IRT is used for the head and neck, whereas the talus IRT is for the rest of the body. Since the thyroid and parathyroid are located in the lower anterior neck, they qualify for the head IRT correction. When you have the patient extend the neck to evaluate pineal, pituitary, and hypothalamus hormones, you need to also include the thyroid and parathyroid. Once the head is in a neutral position, check the lower cervical spine, in addition to the skull, for a location that brings back the muscle inhibition.

Recheck

It is important to go back and recheck after each treatment to see if there are other hormones that need resetting. In one patient, only the pineal showed positive, so the head IRT was performed along with his contact to the left temporal bone. Melatonin was under the magnet. After the correction, both the hypothalamus and pituitary showed positive (inhibited indicator muscle). Some of these hormones required the head IRT while he contacted C2 on the left. The rest of the hormones required the head IRT while he touched his occiput. Then, with the all-hormone vial under the magnet, lifting his talus revealed muscle inhibition neutralizing to the testes. He needed the talus IRT with androstenedione, androstenediol, DHT, and testosterone under the magnet while he held a TL to the piriformis/gluteus maximus CRs. Finally, he needed IRT to the sartorius/gracilis CRs with cortisol and aldosterone under the magnet. The patient felt very relaxed and centered following this hormonal reset. It was then possible to find a complex gut pattern that had remained elusive prior to this technique.

Another patient showed muscle inhibition with the head in extension with Thyroid Releasing Hormone (TRH-hypothalamus), and Thyroid Stimulating Hormone (TSH-pituitary). Only after doing IRT with these hormones and a contact to the top of the head, did she show the need for IRT with Thyroxin and a TL to the teres minor CR.

Hormone Combination

Once you have balanced the individual hormones, the real detective work begins. Now you can explore the relationship between hormones. For instance, test ACTH with cortisol, or LH with the three estrogens. This will evaluate the feedback loops between the master glands in the head and their target hormones. Any combination is possible.

Begin with the test vials for the pineal, pituitary, hypothalamus, thyroid and parathyroid under the magnet with the head in extension. A challenge muscle should test facilitated as all head hormones should already be corrected. Have the patient TL to the CRs of the gonads, adrenals, pancreas, and thymus. If a facilitated muscle inhibits with one of these CRs, test the vials one at a time to see which head gland is active. Then find the individual hormones in that gland that maintains the inhibition. Bring the patient's head back to the neutral position and find the place on the head or neck that brings back the muscle inhibition. Finally, find which individual hormones in the lower gland are active and maintain the muscle inhibition.

You should have the positive hormones for the head and body endocrine glands under the magnet. For instance, it might be the pituitary hormones TSH and LH and the thymus hormone thymosin. Perform IRT to the atlanto-occipital junction while the patient holds the positive TL on the head and a TL to the thymus CR (infraspinatus). You need at least two TLs to bring out the imbalance associated with the hormone combination. Correction is with the cranial IRT. You might need to do the correction once for each CR as the patient only has two hands. Now go back and check with the head in extension and there should be no muscle inhibition from the hormone combination.

It is important to keep checking the combinations until no more show up. You might need to do the IRT correction for multiple hormone combinations. Any combination of hormones is possible. On a recent patient, the following hormone combinations were found along with these TLs:

Melatonin + E1, E2, E3; TL to upper occiput and CR to ovaries
LH + E1, E2, E3; TL right temporal bone and CR to ovaries
LHRH + E1, E2, E3; TL to upper occiput and CR to ovaries
TSH + E1, E2, E3; TL to left occiput and CR to ovaries
T3, T4 + E1, E2, E3; TL to C5-6 and CR to ovaries
T3, T4 + Cortisol; TL to C5-6 and CR to ovaries and adrenals

(LH-Luteinizing Hormone; LHRH-Luteinizing Hormone Releasing Hormone; E1-Estrone; E2-Estradiol; E3-Estriol; TSH-Thyroid Stimulating Hormone)

A patient who had recently fractured several ribs needed cranial IRT to the right sphenoid and the CR to the infraspinatus (thymus) with parathyroid hormone and thymosin under the magnet. She also showed a need for the cranial IRT with a TL to the right sphenoid and the CR of the Sartorius muscle. Calcitonin for the thyroid and cortisol for the adrenal were under the magnet.

Hormones and the Gut

Interesting patterns emerge when you investigate the combination of hormones and the vagus nerve. With the head in extension, place the all hormone vial, or the vials for the pineal, pituitary, hypothalamus, thyroid and parathyroid along with the vagus nerve vial. If a test muscle inhibits, check to see which head or neck organ, along with the vagus nerve vial, is the cause of the inhibition. Then find the specific hormone(s) involved. Bring the head back to neutral and find the active TL on the head, or neck. Next, check the various organ CRs to find which one neutralizes the inhibition. These are generally organs that receive vagal stimulation. Test the CRs for the stomach, gall bladder, small intestine, large intestine, ileocecal valve, kidney, bladder, and heart. Now, the hormone(s) and the vagus vial under the magnet, and the head in a neutral position, a TL to the spot on the head and to the CR of the involved organ will produce inhibition in the muscle test. Do IRT to the atlanto-occipital area to clear the pattern. It is interesting that the thyroid hormones, T3 and T4, are frequently found with this pattern.

The same holds true for the lower hormones and vagus vial with lifting the talus. Find the positive endocrine organ (below the neck), and the involved vagal organ. Hold the TL to both organ CRs with the hormone(s) and vagal vials under the magnet while you perform the talus IRT.

Hormones and Trauma

It can be very useful to have someone recall a physical or emotional trauma while you evaluate these hormonal/IRT patterns. Often, functional hormonal imbalances show up with emotional recall. Have the patient maintain focus on the memory while you perform the various steps listed in the summary at the end of the paper. People report feeling very clear and centered after this type of treatment.

Nutrition

This author has not seen biochemical solutions to these patterns. Since they are corrected with IRT, it implies that these are trauma releases, or resets, in the body. However, after correcting functional hormonal blocks with these procedures, hidden nutritional issues do become apparent. Many patterns that were not apparent might now be quite visible. For instance, one patient with all the signs, symptoms, and blood work indicating thyroid imbalance never showed a teres minor weakness until the functional hormonal blocks were cleared with IRT.

Summary:

Upper Endocrine Hormones

1. Test a strong muscle with the head in extension. Then add under a magnet, a vial of each of the following organs: Pineal, Pituitary, Hypothalamus, Thyroid, and Parathyroid.
2. If a glandular vial causes the indicator muscle to inhibit, test the individual hormones for each of the glands that tested positive. You may find more than one organ and possibly multiple hormones.
3. Return the head to the neutral position. Place one hormone at a time under the magnet, and find a location on the head or neck that brings back the inhibition of

the indicator muscle. You might find all hormones respond to one TL, or there may be several places that react to different hormones.

4. Perform IRT to the atlanto-occipital junction with the positive TL and the hormone(s) under the magnet. If multiple hormones correspond to one TL on the head, they can all be corrected at the same time.

Lower Endocrine Hormones

1. Test a strong muscle while lifting one of the talus bones. It should test strong. Place vials for the lower endocrine organs (gonads, adrenals, pancreas, thymus) under the magnet.
2. If one, or more, inhibits the muscle, test for the individual hormones for each gland.
3. Have the patient TL to the Chapman's reflex of the positive organ with the hormones under the magnet and perform IRT to the talus bones.

Hormone Combinations

1. The patient places her head in extension. Then add under a magnet, vials for all of the following organs: Pineal, Pituitary, Hypothalamus, Thyroid, and Parathyroid. Challenge a strong muscle while the patient TLs, one at a time, to the CRs of the gonads, adrenals, pancreas, and thymus.
2. If you find a positive TL to a CR, have the patient maintain this contact and find which gland in the head/neck is positive and then find the individual hormone(s) involved.
3. Then return the patient's head to the neutral position. Find a place on the head, or neck, that brings back the muscle weakness.
4. Find the specific hormone(s) of the organ, that the patient is therapy localizing, which maintains the muscle inhibition.
5. The patient TLs to the positive head location and the positive CR. With the hormone(s) under the magnet, perform IRT to the atlanto-occipital junction.

Hormones and the Vagus Nerve

1. The patient places her head in extension. Then add under a magnet, vials for all of the following organs: Pineal, Pituitary, Hypothalamus, Thyroid, Parathyroid and a vial for the Vagus Nerve.
2. If a test muscle inhibits, figure out the specific organ, and then the individual hormone(s) that maintain the muscle inhibition.
6. The patient returns her head to the neutral position. Find a place on the head, or neck, that brings back the muscle weakness.
3. Test the CRs for the appropriate organs (stomach, gall bladder, small and large intestine, heart, kidney, bladder) to find the one that brings the muscle back into facilitation.
4. The patient TLs to the positive head location and the positive CR. With the hormone(s) and Vagus under the magnet, perform IRT to the atlanto-occipital junction.

5. Also check the hormones of the gonads, adrenals, pancreas, and thymus with the Vagus Nerve vial and treat. IRT to the talus with TL to the CR and the hormones and Vagus Nerve vial under the magnet.

Conclusion

Dr. Schmitt teaches the importance of doing certain clearing and balancing procedures to help organize the body so that we can trust what we find in muscle testing. Starting with a global approach before becoming more specific has definite advantages. It allows us to remove chronic adaptive 'noise' that might distort our view of the patient's real condition. Doing IRT on injuries, fixing switching, balancing the small intestine from sugar or bad fats all serve to clear the patient's nervous system so that we can ask questions of a more organized system. The hormonal IRT described here is highly recommended as a part of the initial clearing on a patient. Anyone who has had even a mild head injury, and that is most people, needs to have the hormones of the head evaluated in this manner. This procedure will often reveal many patterns that were hidden behind hormonal blockages. A large majority of patients show the need for hormonal IRT balancing.

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Hormones and IRT
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Sound, the Forgotten Stressor

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Abstract

Sound is the overlooked factor that I titled the forgotten stressor in this paper. Hans Selye, MD had missed it even though he spent his entire life studying stress, and even Goodheart and Walther still listed four types of stress as being, Physical, Chemical, Thermal, and Emotion.^{1,2,3} Being a musician and playing professionally in NYC from eighteen though twenty-five made me acutely aware of this stressor.

Introduction

Being exposed to Hans Selye's, ideas in his book *The Stress of Life*, I learned this observation came to him early in his career as a medical student in the German University of Prague in 1925. He states shortly after completing his basic courses in anatomy, physiology, and biochemistry he recognized the "characteristic signs", which might help in the diagnosis of disease. He soon realized that only a few signs and symptoms are actually characteristic of any one disease but rather are common to many, or perhaps even to all.⁴ Like Goodheart's statement of "why is that?", Selye would say "why is it?" He would ask himself how could such widely different-diseases producing agents as their cause measles, scarlet fever, or flu, share with a number of drugs, allergies, etc., the property of evoking the nonspecific manifestations that became known as stress.

Selye's defines stress in the medical sense, as the rate of wear and tear in the body. Early on he was greatly handicapped because we had no objective, measurable indices to access it and at that point it took another twenty year to be able to be accurately appraised. His work became what is known as the "syndrome of just being sick", or "sick and tired of being sick and tired as it is known today."⁵

Even though this has been my interest for more than 40 years it wasn't until January 30, 2016 when my wife and I attend a patient and friend's grandson's Bar Mitzvah. All was great until we arrived at the evening part of the festivities, which was being held at an event center. We arrived late and gave thanks for that, because we did not know what was about to be thrust upon us. The party was supposed to start at 7:00 PM and go to 11:00 PM, certainly enough exposure time to produce some hearing loss.

When we arrived at the event center we were greeted by music so loud that it could be heard outside the vestibule which had two sets of doors and was at least eight feet deep. We entered into the lounge area of this high tech establishment to be accosted to a noise level of at least 85 dB, which is considered to be that of New York City rush hour traffic experienced inside a car. At this point the music was tolerable, but it was difficult to talk to one another without shouting or leaning in close.

The full effect was not experienced until about 8:15 PM when we were asked to go into the main party room. Let me step back and give you an idea of how large the facility is;

its advertising on the website stated it was a total of 10,000 sq. ft. The lounge area was at least 2,500 square feet, and the main reception room was about 4,000 square feet. Its advertisement stated to could have up to 450 guests present. Its other structural feature making it a sound chamber was the tile floor in the lounge and wood floor in the party room. Ceiling height was at least 20 feet and the wall did not go all the way to the ceiling. All the HVAC duct work for the heating and cooling systems was exposed and the audio speaker systems were attached to the ceiling and pointing down at the tables and the dance floor. I hope you can forgive me for my graphic description, but you will not be able to understand this paper without this information.

Now for the pièce de résistance of this celebration we were asked to go into the main party room where the round dinner tables that seated eight and surrounded the dance floor on three sides. The tables set in the usual manner, except for a little pouches that contained a pair of silicone ear plug protectors for each person, this should have been a hint of what was to come. This celebration had a least 150 guests, which included all the friends of the guest of honor. The music being supplied by a D J, who must have lost his hearing long ago judging the volume level that had been set at what I estimate a level of 90dB to as high of 115dB. I did not have an audio volume meter so this is my educated guess of the sound level on my part. Needless to say, we left the party very early.

Discussion

The sound levels, which I'm quoting from, are listed in a Decibel (Loudness) Comparison Chart, which I will include later in this paper. For the time being I am listing starting at 90dB-as a train whistle at 500 feet, or truck traffic, 95dB as a jackhammer at 50 feet, also a subway train at 200 feet. The next is level at which sustained exposure may result in hearing loss which is the very levels mention 90dB to 95dB.⁶

The next area I want to mention is Sound Pressure (SPL) and Permissible Exposure Time for Noise-Guidelines for Level and Duration (Time), these are taken from the following Governmental agencies. NIOSH-National Institute for Occupational Safety and Health, CDC-Centers for Disease Control and Prevention and finally OSHA-Occupational Safety and Health Administration. Simply stated for every 3dB sound pressure level (SPL) over 85dB, the permissible exposure time is cut in half-before damage to our hearing can occur. I will have the charts included in this paper.⁷

NIOSH-CDC-OSHA SOUND LEVELS⁸

Sound Pressure Level	Sound Pressure	Permissible Exposure Time
115 dB	11.2 Pa	0.45875 minutes.=30 seconds
112 dB	7.96 Pa	0.9375 min.=1 Minute
109 dB	5.64 Pa	1.875 min.=2 minutes
106 dB	3.99 Pa	3.75 minutes=4 minutes
103 dB	2.83 Pa	7.5 minutes

100 dB	2.00 Pa	15 minutes
97 dB	1.42 Pa	30 minutes
94 dB	1.00 Pa	1 hour
91 dB	0.71 Pa	2 hours
88 dB	0.50 Pa	4 hours
85 dB	0.36	8 hours
82 dB	0.25	16 hours

Environmental Noise⁹

Wisper Quiet Library at 6'	30 dB
Normal conversation at 3'	60-65 dB
Telephone dial tone	80 dB
City Traffic (inside car)	85 dB
Train whistle at 500'	90 dB
Jackhammer at 50'	95 dB
Subway train at 200'	95 dB
Level at which sustained exposure may result in hearing loss.	90-95 dB
Hand Drill	98 dB
Power Mower at 3'	107 dB
Snowmobile, Motorcycle	100 dB
Power saw at 3'	110 dB
Sandblasting, Loud Rock Concert	115 dB
Pain begins	125 dB
Pneumatic riveter at 4'	125 dB
Even short exposure can cause permanent damage-Loudest recommended exposure <u>WITH</u> hearing loss.	140 dB
Jet engine at 100'	140 dB
12 Gauge Shotgun Blast	165 dB
Safety airbag	170 dB
Howitzer cannon	175 dB
Rocket launch	180 dB
Death of hearing tissue	
Loudest sound possible Sound wave become shock wave	194 dB

Warnings: Earbuds and intra-aural transducers can result in sustained high volume levels that cause irreversible damage to the inner because of the high sound pressure which is fed to the inner ear because of the high pressure which is fed directly into the sensitive ear canal. Users of MP3 players usually listen to music through headphones louder than at home. This I have witnessed many times at the gym and even on the street, when I can

hear the music being played at distances of 5 to 10 feet away from the source and know what song it is. We have all probably experienced this while driving and coming up to a red light even when the windows are closed to be jolted with the bass and volume are so loud that we know the song and may even start singing to it. While the views express may not be viewed as true. Noise must be accepted as a public health issue and can cause the following: hearing loss, psychophysiological problems such as depression and emotional issues such as rage and anger. Other proven factors such as sleep disturbances, cardiovascular problems, and performance reduction may be expected.

Daily Permissible Noise Level Exposure¹¹	
Hours per day	Sound Level
8	90 dB
6	92 dB
4	95 dB
3	97 dB
2	100 dB
1.5	102 dB
1	105 dB
.5	110 dB

Perceptions of Increases in Decibel Level¹²

Imperceptible Change	1 dB
Barely Perceptible Change	3 dB
Clearly Noticeable Change	5 dB
About Twice as Loud	10 dB
About Four Times as Loud	20 dB

Sound Levels of Music¹³

Normal piano practice	60-70 dB
Fortissimo Singer, 3'	70 dB
Chamber music, small auditorium	75-85 dB
Piano Fortissimo	84-103 dB
Violin	82-92 dB
Cello	85-111 dB
Oboe	95-112 dB
Flute	93-103 dB
Piccolo	90-106 dB
Clarinet	85-114 dB
French horn	90-106 dB
Trombone	85-114 dB
Tympani & bass drum	106 dB

Walkman-MP3 Player on 5/10	94 dB
Symphonic music peak	120-137 dB
Amplifier, rock, 4-6'	120 dB
Rock music peak	150 dB

All these charts come from information obtained from different websites that contain information obtained from NIOSH, OSHA, and CDC. Some information worth mentioning are the following: One-third of the total power of a 75-piece orchestra comes from the bass drum. High frequency sounds of 2,000 to 4,000 Hz are the most damaging, and the uppermost octave of the piccolo is 2,048 to 4,096 Hz.

1. Aging causes gradual hearing loss, mostly in the high frequencies. Speech reception is not seriously impaired until there is about 30 dB loss; by that time server damage may have occurred.
2. Hypertension and various psychological difficulties can be related to noise exposure.
3. The incidence of hearing loss in classical musicians has been estimated at 4 to 43 %, in rock musicians 13 to 30 %.
4. Recent NIOSH studies of sound levels from weapons fires have shown that they may range from a low of 144 dB SPL for small caliber weapons such as a 0.22 caliber rifle to as high as a 172 dB SPL for a 0.357 caliber revolver. Double ear protection is recommended for shooters, combining soft, insertable ear plugs and external ear muffs.¹⁴

Quick Statistics (Compiled by the National Institute on Deafness and Other Communication Disorders).^{15,16}

1. Approximately 15% of American adults (37.5 million) aged 18 and over report some trouble hearing.
2. Men are more likely than women to report having hearing loss.
3. One in eight people in the United States or 13%, which makes 30 million aged 12 years or older has hearing loss in both ears, based on standard hearing examinations.
4. About 2% of adults age 45 to 54 have disabling hearing loss. The rate increase to 8.5% for adult's age 55 to 64. Nearly 25% of those age 65 to 74 and 50% of those who are 75 and older have disabling hearing loss.

5. The NIDCD estimates that approximately 15% of Americans or 26 million people between the ages of 20 and 69 have high frequency hearing loss due to exposure to noise at work or during leisure activities.

Stress

As I mentioned earlier in this paper, Selye's observation about stress have proven correct and were broken down into four areas. 1. Physical such as long hours of work, 2. Chemical such as imbalances in diet excessive coffee, sugar, etc. 3. Thermal overheating or overchilling. 4. Emotional stress such worrying about money or health, ect. 5. Acoustical which I point out to be the forgotten stressor particular in today society. Any of these unto themselves will lead to the General Adaptation Syndrome with it first stage of Alarm Reaction a generalized call to arms to defense mechanism. However in today society we get all five every day in the week, so we go to the second stage Resistance in which the body continues fight on a prolonged basis and lead to adrenal hypertrophy. Most of us move in to the third stage of Exhaustion, in which we find chronic health problems, nutritional deficiencies and emotional problems.

Conclusion

Recognizing that acoustical stress exists in all of our lives is an important factor to prevent chronic health problems of hearing loss, which will become an additional stress factor that will make life more difficult. All the tables that were present show the source and the degree of danger of hearing loss that can be avoid with a little effort on our part to recognize the existence in our environment and taking measures to avoid irreversible damage. Another simple solution that is available on I-Phone or Smart Phone is a dB Volume Meter (Sound Meter), which will allow you to avoid dangerous sound levels. These sound levels are of danger to individuals of all ages, which can damage the sensitive structures of the inner ear and cause Permanent or temporary noise-induced hearing loss (NIHL).

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Sound, the Forgotten Stressor
Paul T. Sprieser, D.C., DIBAK

Division III



Constructive Review Papers

Mandibular Sling and Its Association with Therapy Localization Overload Phenomena

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Abstract

The anatomy of the mandibular sling is quite simple. Being composed of just two muscle of mastication. Masseter and the Internal Pterygoid. The existence of a specific malfunction in this instance must be differentiated from standard type of TMJD, with reactive muscle of mastication.

Both may be present simultaneously and when this is the case it creates the Therapy Localization Overload Phenomena (TLOP).

Introduction

The mandibular sling was described by Vincent A. Hochberg, DC, in the Collected Papers of ICAK:

“A Procedure for Balancing the Mandibular Sling and TMJ Articulation”.¹ The paper’s abstract stated that this system outline for TL and correction of most TMJ problems. The examination was done with the patient sitting, which is usually different in chiropractic AK practice because the patient is supine leaving the hands free to TL the jaw joint and use the hips abductor muscle of gluteus medius or tensor fascia lata as indicator muscles. Testing in the sitting position limits the indicator to be used and the position of the doctor in relation to the patient and to TL to one side of the jaw at a time. The sitting position seem much more suited to using AK in dentistry. My observation of the mandibular sling dysfunction came about after reading Dr. Hochberg’s paper and I wrote the paper after collecting data from my observation in the Collected Paper of ICAK, winter 1978. The TL overload phenomena was discovered in 1976 while examining patients who showed positive ileocecal valve syndrome but could not be challenged as either open or closed. Many of these patients would also show the presence of both category # 1 and #2 at the same time. This created confusion because it prevents the diagnosis for both of these clinical conditions.^{2,3}

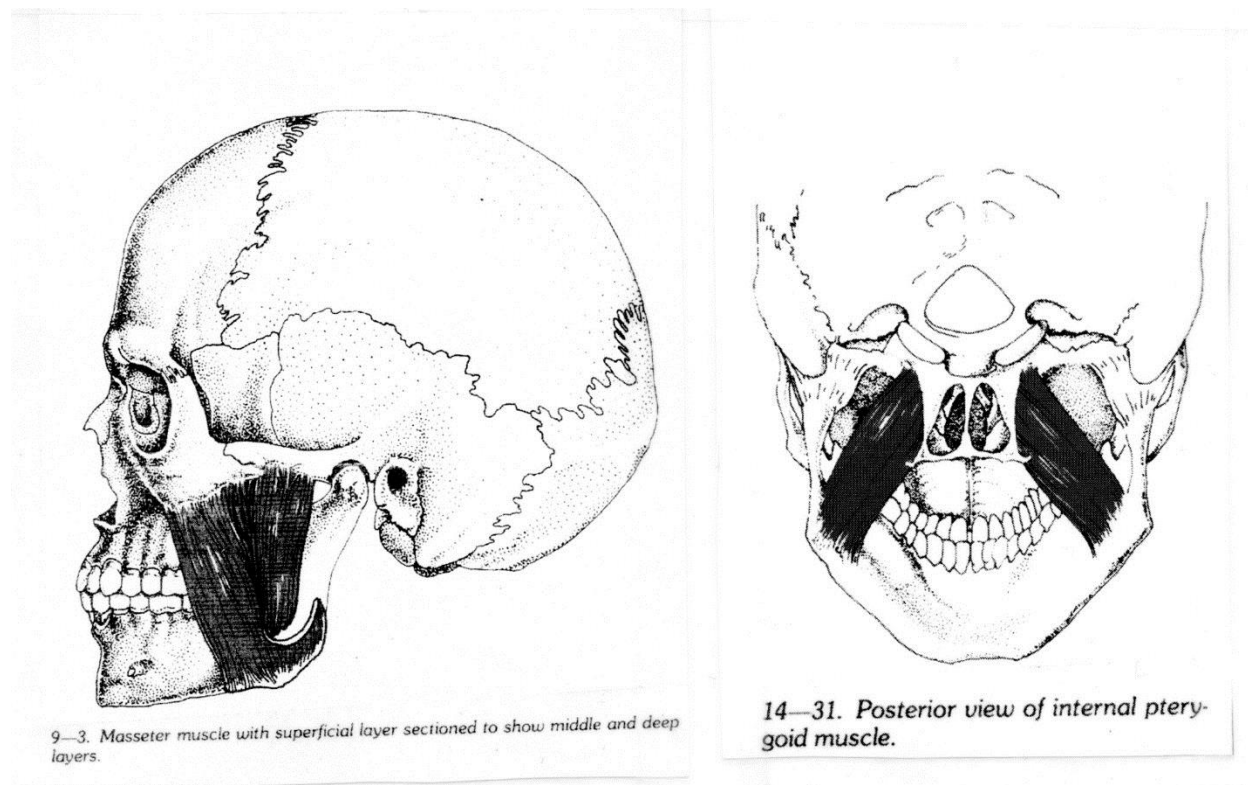
Discussion

I collected data for about two years until I had enough cases to present my findings in the winter 1978, ICAK-Collected papers. When I came upon the ICV malfunction but could not get a challenge of open and closed and I often found in this group of patients both simultaneously have both the pelvic category one and two present. I checked with my teachers of AK, Drs. Cordaro,

Deutsch, and Rodriguez but they had no suggestion. I was finally able to track it down to the TMJD and then later on to the Mandibular Sling presence.

The mandibular sling is discussed by Walther as the masseter and internal pterygoid muscles are so arranged that they suspend the angle of the mandible in sling. This arrangement allows the muscle to guide temporomandibular joint excursive motion in all direction except posterior. This allows interaction of these muscles, along with others, give this joint great structural latitude.⁴

TMJ-SLING



Illustrations are taken from *Applied Kinesiology, Volume II: Head, Neck and Jaw Pain and Dysfunction-The Stomatognathic System*, David S. Walther, DC, SYSTEMS DC, Pueblo, Colorado 81004, and ICAK-USA approval.

Hochberg TL is to the superior ramus of the jaw with three fingers of the ipsilateral hand with occasionally head turned right or left will elicit a positive TL. Remember this was being done with the patient in the seated position. My findings were different because the patient was supine during the testing and the TL was directly over the temporomandibular joint, which is also covering three acupuncture points T-21, Si-19, and GB-21,⁵ when three fingers are being used to TL. No muscles are being activated during the TL and respiratory challenge usually

inspiration will neutralize the positive TL. The TL is checked to see what side the pattern is on most commonly it is one side, but occasionally bilateral have been found. The ramus of the jaw on that side will show a positive TL done with only the index finger to get a better vector position to make the correction.

The side of the positive TMJ Sling will cause a strong indicator muscle to weaken with TL and the activation of muscles of mastication will not change this finding. Therefore the action of open, closing, chewing, retraction, protrusion, and right and left lateralization will all be weak making it impossible to treat. Since the positive TL is there from the start the activation of the muscles and their action should negate the weakness and this does not happen.

Recently during December 2015, I came upon three cases where the TLOP had effected the respiratory challenge for the Sphenobasilar fault. I was checking for the fault because of its association with stress and Hypoadrenia conditions. I got a positive response of a weakening of the indicator muscle of the TFL, but was unable to determine if it was inspiration or expiration assisted I had never come up this phenomena before. It suddenly occurred to me it may be connected to the TMJ Sling pattern.

I asked the patients to TL the TMJ and got a weakness on contact in two cases on both sides and the third case showed on the right. No muscle activation was occurring at this point. I had the patient TL the ramus of the jaw found the vector point I then made a thumb contact and thrust forward this correct the TLOP and allow respiratory challenge to occur.

At this point I decided I had to find what the cause of the phenomena and what seemed to be the most logical reason with the two muscle of the sling of the masseter and internal pterygoid are the source of this phenomena.

Procedure and Methodology

Each patient was tested for the presence of a pelvic category, ICV syndrome, TMJ dysfunction and Sphenobasilar fault all find were recorded. The muscles of mastication that were going to be challenged using Origin and Insertion (O&I) and Spindle Cell (SC) therapy both for strengthening and weakening.⁶ I began this on the two most accessible muscle Masseter and Temporalis, because the O & I and SC could be easily reached.⁷ The Pterygoid muscle is very difficult to reach and is usually very painful making the task difficult if not impossible to two finger on the spindle of either lateral or medial muscles. To reach the O & I for the lateral pterygoid only the inferior head could be reached. The medial pterygoid the O & I might be able to be reached but getting two finger would be nearly impossible.

I started with the Temporalis muscle both strengthen and weakening and go not response. When I went to the Masseter weakening had no effect but strengthen caused the Therapy Localization Overload Phenomena (TLOP) on every patient. At this point in the study I have managed to produce this TLOP pattern in 50 out of 50 patients tested, but I will not be certain till a get at least 100 or more patients.

I would believe this would also happen on the medial pterygoid muscle but the difficulty in reaching the origin has a specific danger of breaking the Hamulus and so I decided not to try the technique on any of the patient I have tested.

I found that I could negate this pattern by just using the O & I and Spindle to weaken the muscle instead of using the anterior thrust on the positive TL point on the ramus of the jaw. Just a quick review of this technique the O & I is the Golgi tendon organs are pressed toward the center and the spindle cell are pulled apart in center to strengthen. To weaken the Golgi tendon organs are pulled apart simultaneously and the Spindle are pressed together.

Conclusion

I believe this TLOP pattern is produced an over activity in the mandibular sling muscles, somewhat similar to Sheldon Deal observation of a muscle that is turned on and cannot be turned off.

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