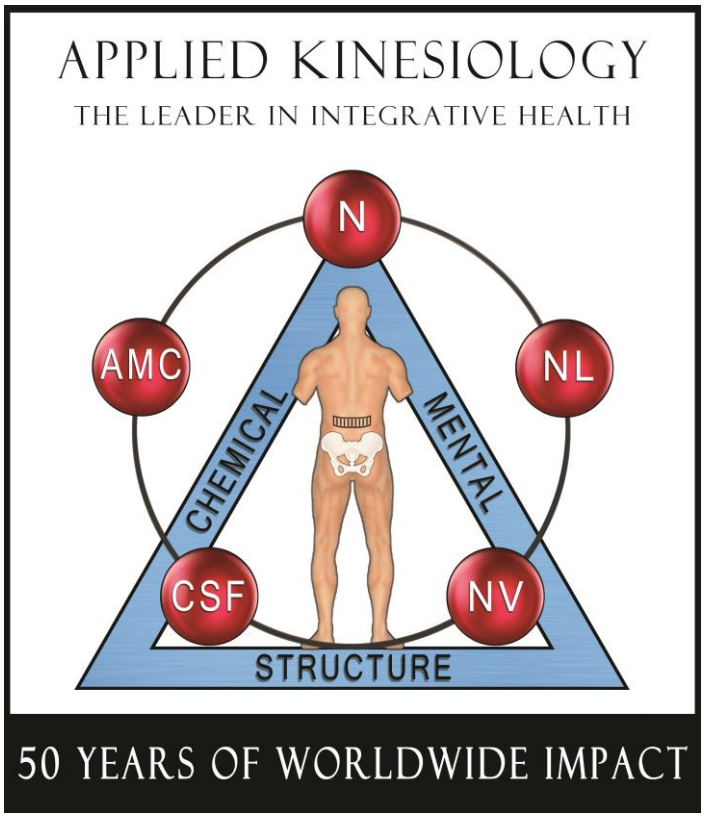

INTERNATIONAL COLLEGE OF APPLIED KINESIOLOGY U.S.A.

Experimental Observations of Members of the ICAK

Volume 1, 2014-2015

Fifty-Sixth Collection of the Proceedings of the Annual Meeting

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

Experimental Observations of the Members of the ICAK

Volume I, 2014-2015

Proceedings of the Annual Meeting

Professional Applied Kinesiology™

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

Experimental Observations of the Members of the ICAK

Volume I, 2014-2015

Proceedings of the Annual Meeting

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Publications Staff:

Jennifer Palmer, Executive Director
Melissa Flett, Membership & Publications Manager

Message from the Chairman

R. Thomas Roselle, D.C., PAc, PAK, D.C.C.C.N., D.C.B.C.N.

For 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. Truly a gathering of academic eagles.

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

We look forward to seeing you at our 50th Anniversary Celebration in Washington, D.C.

Introduction

This fifty sixth collection of papers from members of the International College of Applied Kinesiology®-U.S.A. contains 23 papers written by 18 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.

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@dci-kansascity.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 tile. 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: www.soto-usa.org/Newsletter/DCInternetEdition/dc_internet_ed_vol_3_no3Abstrak/StructuredAbstracts.htm.

Below the abstract, provide, and identify as such, 3 to 10 key indexing terms or short phrases that will assist indexers in cross-indexing your article and that may be published

with the abstract. Use terms from the Index Medicus Medical Subject Headings (MeSH) as much as possible.

Text Pages

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

Please visit the following link online for helpful information on writing patient case reports:
www.soto-usa.org/Newsletter/DCInternetEdition/dc_internet_ed_vol_3_no3Abstrak/Green%20Johnson%20Case%20Reports.pdf

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

Introduction

Clearly state the purpose of the article. Summarize the rationale for the study or observation. Give only strictly pertinent references and do not review the subject extensively; the introduction should serve only to introduce what was done, 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, debilitative 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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John Erdmann, D.C., DIBAK, D.C.B.C.N.
Applied Chiropractic, 1555 Ayers Rd., Concord, CA 94521
Phone: 925-943-6219 | Email: health@johnerdmann.com

Division I

Informative Papers

Chronic Migraines and Chiropractic – A Case Review

Thomas R. Heath, D.C.

Abstract

An 18 year old male came to the office after suffering with migraines for three and one half years. With PAK and QA protocols his migraines were completely relieved after four visits.

Key Indexing Terms
Migraines, PAK, Quintessential Applications, Cranial Adjustment, IRT (Injury Recall Technique)

Introduction
After seeking medical care the patient was prescribed medication that provided temporary relief for migraine headaches. He began to take "preventive medication" which helped to alleviate the headaches, but he did not want to continue this medication for a lifetime. The migraines were every other day initially. After traditional chiropractic care, the migraines were reduced to once every two weeks. If he stretched the visits out to three weeks, he would get a migraine. For a period of time he also received care from a chiropractic neurologist. Because of scheduling problems, he sought care from another chiropractor so he could maintain the biweekly schedule that provided the best relief he had gotten so far. It wasn't until he sought care in my office, using PAK, that his migraine problem was completely resolved.

Treatment/PAK Care
During the history taking it was determined that the migraines started after a soccer practice when the patient was hit squarely in the face with a soccer ball that was kicked from the sidelines. He also reported that he was known for "heading" the ball.
He had full cervical range of motion with no pain, with no positive orthopedic tests for the cervical spine. DTR were all +two. Pulse was 58 bpm, pulse oximeter revealed oxygen saturation to be 98%. His right hip was high and the left shoulder was high. His blood pressure was 118/70. Raglund's postural hypotension test revealed an eight point drop from supine to erect posture.

Arroyos test was negative, however a red light shown in both eyes showed a weak MMT. Counting backwards from 100 by seven's caused a weak MMT. Humming happy birthday caused no weakness. He did show bilateral quadriceps, bilateral psoas, bilateral hamstring and bilateral lower trapezius weakness. TL to K 27 did show a weakness that lead to a correction of the spleen neurolymphatic. Dorsal crossed K 27 was 4/5.
IRT was performed to the face with TL to his face. Multiple fixations throughout the spine were corrected. I think most importantly a right internal frontal was corrected.

At the second visit he reported feeling relief for two days and the headache returned. During this visit a left external cranial was corrected, multiple spinal adjustments and two fixations were corrected.

On the third visit, a left internal frontal cranial was adjusted with several spinal adjustments. He reported having no headaches between the second and third visits. At the fourth visit he reported having two days of headaches during final exam testing. Two other cranials were corrected along with a spinal adjustment. He was able to count backwards from 100 by seven's without a weak MMT.

Results

After the fourth visit he has gone up to eight weeks without a headache or a migraine. He reported that the only pain he had was a slight backache after a hockey game that was resolved the next day.

Conclusion

It is very important to do a complete and thorough history to determine when and how the patient's problems began. When I asked this young man when the problem started, he vividly remembered lining up to block a ball being kicked in from the sideline. I also believe it is important to have the patient ask family members to recall traumas that they may have forgotten, especially if they cannot recall anything themselves. This patient remembered at his fourth visit that he had another encounter with a soccer ball to the face in middle school.

After his description of being hit in the face by a soccer ball, I was immediately grateful to PAK and Quintessential Applications. I had the tools necessary to help this young man in a way that medicine and traditional chiropractic could not. Because of these invaluable techniques, this young man's migraines are now relegated to a memory.

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1. Walther, David, S., DC, Applied Kinesiology Synopsis, 2nd Edition, ICAK-U.S.A., Shawnee Mission, KS, 2000

2. McCord, KM, and Schmitt, WH, Quintessential Applications: A (K) Clinical Protocol 2nd Edition, St. Petersburg, Florida: Privately Published, 2009

Restoring a Normal Monthly Menstrual Cycle – A Case Study

Thomas R. Heath, D.C.

Abstract

Objective

To present a case of a young woman with an irregular menstrual cycle that was successfully corrected using AK methods.

Clinical Features

A 17 year old woman presented to the office with dysmenorrhea since menses onset at age 13, allergies, and chronic ear pain. While in daycare between ages eight weeks to one year, she was on "frequent consistent antibiotics" as management for the ear pain. She had multiple ear tubes placed and her tonsils and adenoids were removed twice. Since the age of 13, her menstrual cycle would skip every other month. During her history, her mother remembered that when the young lady was a child, she fell and hit her head on a plastic table. During the exam a small scar was noted at the nasion/glabella.

AK exam revealed a positive TL to the glabella, MMT revealed a bilaterally psoas 4/5, bilateral teres minor 4/5, bilateral gluteus medius 4/5, conception vessel 5 TL was 4/5, bilateral psoas 4/5, bilateral adductors 4/5 and bilateral piriformis 4/5. Palpation of the abdomen revealed sharp pain in the lower left quadrant at the level of the ovary. TL of the right ovary VRP tested 4/5. Hiatal hernia reflex tested 4/5.

Intervention and Outcome

Sphenoid compression fault and lumbar and pelvic subluxations were corrected. She had spinal and cranial corrections three times approximately four weeks apart. The following supplements were recommended: Black Currant Seed Oil (Biotics), Cytozyme O (Biotics), and Homeopathic Female Liquescence (Professional Health Products). Her menstrual cycle did not skip on the opposite month after the adjustments and the supplementation. Her cycle has been regular every four weeks for the past five years. The ear pain and "allergies" also cleared up and no longer caused pain or discomfort.

Conclusion

Forgotten falls and childhood injuries can have significant effects on health even a decade after the trauma. Functional AK testing provides us with the means for determining the involvement of the cranium and the need for supplementation.

Treatment of cranial and spinal subluxations with supplementation can be very effective tools to normalize hormonal imbalances, to provide relief for what could be a lifetime of problems.

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1. Walther, David, S., DC, Applied Kinesiology Synopsis, 2nd Edition, ICAK-U.S.A., Shawnee Mission, KS , ICAK-U.S.A., 2000

2. McCord, KM, and Schmitt, WH, Quintessential Applications: A (K) Clinical Protocol 2nd Edition, St. Petersburg, Florida: Privately Published, 2009

Migraines – A Case Study, Lessons Learned

H. Louis Obersteadt, D.C., DIBAK, D.C.B.C.N., A.C.U.

Abstract

During the consultation patients will often tell you indirectly what is causing their symptoms. However, after care is completed they may not remember the outcome as you recall.

Chief Complaint

Mr. D.H. presented himself in my office with a primary complaint of migraine headaches that started at the age of two. At the time of his initial visit he was 50 years old and appeared to be in good health. His secondary complaint was right shoulder pain that started after rotator cuff surgery in 2002. He also listed constant fatigue, sleepiness, weakness and being light headed with mild dizziness. His prescriptions included Omeprazole for acid reflux, Atenolol 500mg, and Botox shots to control his migraines. He experienced pain daily and said it affected his daily living. His pain could be worse at certain times of the day, but it was not consistent to a specific time. The migraines did not wake him at night but weather changes increased the intensity. He was knocked unconscious as a child during a Judo practice. He had a severe ankle sprain in his early teens. He was diagnosed with Pancreatitis approximately two years ago. His Gallbladder was removed in 2006 because the doctor said his "bile was too thick." The surgery did not improve his symptomatic complaints.

Lesson # 1

Dr. Goodheart said, "Listen and the patient will tell you what is wrong." He often followed that statement with, "See with eyes that see, hear with ears that hear, and feel with hands that feel." His pain pattern was bilateral over the parietal and upper temporal bones and bilateral at the occiput/C1 area at GB20. Early in the consultation I felt his migraines were related to the gallbladder or the GB meridian based on the location of the pain, the 2006 gallbladder surgery, and his skin was very white with a faint greenish tint.

Examination Objective Findings

Mr. D.H. was 5 foot 9 inches, weight 215, BP sitting 140/100, supine 140/90 and standing 138/80 and his pulse was 60. The cervical range of motion was restricted in flexion, left lateral flexion, and right and left rotation without pain. Dorsolumbar range of motion was essentially normal. Coughing and sneezing increased the headache pain. All other orthopedic and neurologic tests were within normal limits. He related that he was allergic to pollen and amoxicillin.

Manual muscle testing was normal at grade 5/5 for supraspinatus, latissimus dorsi, middle deltoid, teres minor, subscapularis, infaspinatus, triceps, biceps,

sternocleidomastoideus, pectoralis major sternal and pectoralis minor, gluteus medius, adductors, hamstrings, piriformis and gluteus maximus. Bilateral grade 4/5 inhibition was noted for the tensor fascia lata, rectus femoris, psoas, popliteus and sartorius. Injury recall was negative.

AcuGraph 3 was used to measure the meridian source points. Deficient meridians were: bilateral HT, SP, BL, GB and the right SI and ST. Excess meridians were: bilateral TE, LI, KI and left LU and PC. Splits were noted in the LU, PC, SI and ST. Recommended treatment protocol was LI 2 (LI high), HT 9 (HT low), TE 10 (TE high), SP 21 (4 Splits), KI 1 (KI high), SP2 (SP low), BL67 (BL low) and GB 43 (GB low). Blood lab analysis revealed low Lymphocytes at 21.6, high Monocytes at 10.0 and low vitamin D3 at 15.6. All other lab values were essentially normal. X-Rays revealed mild spondylosis at C5/6, vertebral body misaligns at C2PRI, C5PLS, C6PLS, C7PLS, T1PLS, and T2PLS. The patient stated that MRI and CAT scans had been done in the past and were negative.

Diagnosis

722.4 Degeneration of cervical intervertebral disc
723.3 Cervicalcranial syndrome
784.0 Headache
723.1 Cervicalgia
739.3 Nonallopathic lesions – lumbar/lumbosacral region
739.5 Nonallopathic lesions – pelvic/hip region
719.41 Shoulder pain

Treatment Plan

Eliminate migraine headaches, shoulder pain, and improve over all vitality. A plan of three times per week for three weeks, two times per week for four weeks and one time per week for four weeks was recommended. Nutritional support was recommended but he refused.

Treatment

My treatment plan was Chiropractic adjustments to the specific vertebra listed above and confirmed with palpation and challenge using intact muscles to confirm. Applied kinesiology reflex points to facilitate inhibited muscles listed above. Needle acupuncture to the points listed above. Interferential electrical stimulation was applied to the occipital and lower cervical region.

First visit consisted of adjusting the occipital fixation on the left that was indicated by the bilateral psoas inhibition and confirmed with palpation and superior challenge to the left occiput. That challenge facilitated the psoas muscles. C2 was adjusted on the right, C7 on the left, T7 on the right, L5 on the right and a PI Ilium on the right. All confirmed with palpation and challenging the vertebra in a specific direction using a fascilated muscle. Chapman's reflex for the sartorius facilitated the other inhibited muscles and it was manipulated. Going with the examination findings, pain pattern and inhibition of the popliteus and a gut feeling the gallbladder was involved. I also manipulated the Chapman

reflexes for the popliteus/gallbladder. Needle acupuncture was applied to the points listed above.

Results

Response to treatment was quick. His pain scale drawing dropped from seven to two on the second visit and remained there for six visits. He then went up to three on the seventh visit. After that visit the neck, lower back and headache was marked at zero. After that time he had two exacerbations and the pain scale was marked at two. He discontinued care before the end of the program.

His shoulder never improved staying at three on the pain scale drawing.

Conclusion

Lesson # 2

Dr Goodheart used to say "Happiness is good health and a short memory." I decided to use Mr. D.H. as a case study. I called to see how he was doing. When treating Mr. D.H. I thought I had hit a home run and he was excited about the outcome each time he came in. In the phone conversation he said he was doing great and said "the Botox did the trick." He said when he felt a headache coming on he would get a shot and he would be good for another three or four months. He had been on Botox four months prior to starting treatment with me and there had been no change. I questioned him about how he felt when he started with me and I was shocked that he didn't recall having pain everyday and that it interfered with his daily living.

Lesson # 3

I now do outcome assessment forms on all patients.

A Case Study – An AK Approach to the Treatment of TMJ Dysfunction in a 43 Year Old Female

Ilya M. Skolnikoff, D.C.

Abstract

Objective

This manuscript will review a case in which the successful diagnosis and treatment of TMJ dysfunction was completed using basic Applied Kinesiology methodologies. The purpose of this paper is to compare the AK approach to TMJ dysfunction to some of the other standard approaches to TMJ dysfunction as taught in chiropractic college and also practiced.

Clinical Features

The patient is a divorced, single, 43 year old female who experiences bilateral TMJ pain and also tension on the sides of the head both with and without chewing for nearly eight years. Her medical history includes two previous breast surgeries, both benign. Objective findings from the physical examination include a pain level of 5/10, decreased ROM of the jaw with the inability to fit three knuckles of the non-dominant hand into her mouth, and shooting breast pain. Based upon her history and physical examination multiple cranial faults, hypertonic muscles of mastication, an atlas subluxation, sacro-coccygeal subluxation, and Category I and II were diagnosed.

Intervention/Outcome

Treatment included AK procedures for the cranial faults, atlas, sacro-coccygeal area, TMJ muscles of mastication, and categories. Due to distance from the office as well as family responsibilities, the patient has since fallen out of care after her first treatment.

Conclusion

As compared to the traditional approach to treating the TMJ as taught in chiropractic school, the AK approach is far more efficacious because it is so all encompassing and thorough. Quick and long lasting results using the AK approach are to be expected.

Key Indexing Terms

Applied Kinesiology, Meninges, CSF, Afferent, Myofascial, Myofascial Pain Dysfunction Syndrome, Temporomandibular Joint

Introduction

Research has suggested that as many as 85% to 90% of individuals will develop TMJ related symptoms in their lifetime.[8] There is a tremendous amount of research that has been done on the TMJ. While much of this research comes from the dental profession,

there has also been a great deal of research done by chiropractors, acupuncturists, medical doctors, osteopaths, physical therapists, physiatrists and even massage therapists trained in craniosacral therapy or sacral occipital technique. Essentially, research and therapies involving the TMJ have been done by all of the professions that also perform musculoskeletal therapies. The most common cause of facial pain is Temporomandibular Joint and Muscle Disorder (TMJD). TMJD is the second most common musculoskeletal condition causing pain; it is second only to low back pain. This condition affects approximately 5 to 12% of the population, with an annual cost estimated at $4 billion. Approximately 75% of those with TMJ disorders will seek treatment. Among those seeking care, approximately 15% will develop chronic TMJD.[13] There is tremendous clinical value in being able to rapidly and effectively treat TMJD because there are so many people who experience the condition. In addition, because there are so many options and possibilities for treatment of the condition, it may be confusing to patients who are seeking out the most effective and affordable solution for their TMJD.

In order to contrast the efficiency and rapidity with which results may be obtained with different types of TMJ therapies, this case study has been based upon just one treatment visit. This has also been done to gain some sense of how effective the specific therapies used are at alleviating TMJD. Had there been other therapies used on other treatment visits, it would be more difficult to ascertain which therapy was responsible for the patient's improvements.

The AK Approach & Fascial Flush

Fascial Flush is one of the most important therapies used in Applied Kinesiology. Some Applied Kinesiologists believe that if the only therapies that they had available to themselves were origin and insertion technique, muscle spindle cell, golgi tendon organ, strain counterstrain, fascial flush, therapy localization, neuro lymphatic reflex points and neurovascular reflex points, that they would still be able to practice Applied Kinesiology.[3] Fascial Flush is one of the most important of these techniques as it acts to oxygenate the fascia to which it is applied and re-establish proper blood flow. Because muscles move bones and bones do not move muscles, by improving the function and integrity of the muscles, we are then also able to improve the anatomic relationship of one bone to another bone. When cranial bone function is balanced by affecting cranial respiratory function and the reciprocal tension membrane, dramatic positive shifts can be seen in human physiology. These shifts come from the resulting improvements in the meninges which some people believe to be the most integral part of the entire human organism. This way of thinking makes sense to this author as the meninges hold the CSF and spinal cord: the main source of afferent and efferent neurons. It seems likely that based upon the research that has been done the AK approach to TMJ dysfunction is more all-inclusive and effective in comparison to most of the other approaches available.
Dr. Janet G. Travell, M.D. was the first to develop the Fascial Technique and began using the term "Myofascial Trigger Point" in 1976 and in 1983 she published the reference "Myofascial Pain & Dysfunction: The Trigger Point Manual."[7, 15]

Dr. David S. Walther defines Fascial Flush using the following language: "Fascial release (flush) technique: deep massage applied to re-establish the normal interface relationship between fascia and muscle."[11]

Case Report – AK Approach to the TMJ
Clinical Features/Health History / Assessment
A divorced, single, 43 year old female special education teacher presents to the clinic on June 24, 2012 with bilateral TMJ pain and also tension on the sides of the head both with and without chewing for nearly eight years. She has been to several different physical therapists and chiropractors for help with this problem over the years. She is 5 foot 8 inches in height and weighs 168 pounds. She is in poor to moderate health with a history of two previous breast surgeries for benign tumors. Her first breast surgery was in December of 2009 on the left breast and the second was in January of 2012 on the same breast. Her left breast has shooting and cramping pain. A benign tumor was removed at the time of each surgery. Interestingly, although she described the breast pain as shooting, when questioned about the shooting pain, she was not able to explain where the pain was shooting to. She also experiences bilateral sharp pain at both the anterior inferior iliac spines as well as the posterior superior iliac spines. She also has bilateral pain in the superior portion of the inguinal ligaments that she describes as throbbing, swelling, stiff and sharp. Her pain in these areas had been there for approximately two years with no history of trauma. She describes all pains as being a 5/10 pain scale and all are of a chronic nature with no known causes except the left breast (previous surgeries). When asked about what makes the pain better or worse, she was not able to identify anything that would affect the pain other than NSAID's used after surgery.
The patient has a secondary complaint of often feeling bloated. Objective findings include the inability to fit three knuckles of the non-dominant hand into the mouth upon wide opening, orthostatic hypotension on the right, body temperature of 96.8 °F, oral pH of 6.4, inability to taste anything bitter or bad 10 seconds after placing zinc sulfate 7 hydrate on the tongue, and a right distal pulse point active (CV/GV deficiency). Right jaw deviation was observed with jaw opening. Muscle testing revealed very few properly functioning muscles. She had bilateral hip flexors under facilitated when the muscles of each leg were tested as a group. She was also found to have bilaterally under facilitated pectoralis major clavicular muscles and pectoralis major sternal muscles. Muscle tests were performed using Applied Kinesiology G2 muscle testing procedures.[11, 6] A goniometer was used to measure 65° of right hip abduction and 75° of left hip abduction.
This is a complex case. She describes her breast pain primarily as cramping and shooting. She describes the pain of the iliac crests and bilateral superior portion of the inguinal ligament as throbbing, swelling, stiff and sharp. She describes all pains as being a 5/10 pain scale and all are of a chronic nature with no known causes except the left breast. When asked about what makes the pain better or worse, she was not able to identify anything that would affect the pain other than NSAID's used after surgery.
It was found using AK methods of diagnosis that the patient had an incorrect eye glasses prescription. Without any glasses on, both iliopsoas muscles were found to be weak in the clear. When she drank some healthy spring water and then left some of this same spring water in her mouth, it was found that the bilaterally weak psoas muscles became bilaterally facilitated. The assumption is that she was dehydrated. The iliopsoas muscles

that were both facilitated with water in the mouth both became weak when the patient's glasses were placed on her head. A new eyeglasses prescription was recommended with the referral to a neural/behavioral optometrist.

Vitals and Functional Blood Pressure Test Results Prior to Treatment

Ht. – 5'7"
Oral temperature – 96.8 °F
Oral pH – 6.4
Zinc Tally – Fail (no taste)
Wt. – 163 lbs.
Pulse – 71 on the right and 69 on the left in seated position
Respiratory Rate – 14 bpm

Blood Pressure –	Seated:	R: 135/93	L: 113/92
	Standing:	R: 134/92	L: 132/88
	Supine:	R: 129/84	L: 124/86

Postural evaluation – High right occiput, high right shoulder, high right hip, and high right gluteal fold.

Differential Diagnosis

Assessment of the patient's bilateral TMJ pain and pain on both sides of the head led to the diagnosis of cruciate sutural fault, inspiration assist cranial fault on the left, expiration assist cranial fault on the right, sacral inspiration assist fault on the left, sacral expiration assist fault on the right, sphenobasilar inspiration assist on the left, sphenobasilar expiration assist on the right, a respiratory inspiration assist flexion restriction of the sacral-coccygeal joint on the left, a respiratory expiration assist extension restriction of the sacral-coccygeal joint on the right, left temporal bulge, right parietal descent, category I, glabella fault, ASLP atlas, interosseous cranial fault, small intestine dysfunction/malabsorption syndrome, myofascial pain dysfunction syndrome, TMJD, and a category II left PI and a category III with the high block being placed on the right. The differential diagnosis included: capsulitis of either side of the jaw, fracture, frank muscle or ligament tears, dental infection causing toothache, neurologic tooth, focal infection, other infections, cysts, whiplash injury and iatrogenic dental work. Because all aspects of the patient history and palpation and ROM of the jaw and other findings matched the diagnosis, confirmation of the correct diagnosis was relatively straightforward. Capsulitis as a primary diagnosis was ruled out because there were no audible or obvious clicks or pops with jaw opening or closing.[2] (However, there was some feeling of clicking/popping imbalance when fingers were placed inside the anterior portion of the external auditory meatus and the patient was asked to open and close their jaw. The imbalance palpated was minor.) There was no history of trauma to the jaw which ruled out a fracture and muscle/ligament tears. The pain on the sides of the head immediately improved and the correction lasted many days after treatment. Such an improvement would not be expected with a dental infection nor did an acute dental infection match the patient's history. The patient used individual fingers to TL the tooth gum line of each tooth; neurologic tooth was not found. Although a history of breast cysts would increase the likelihood of a focal infection, using methods described by Dr. Louisa Williams, no such focus could be found.[12] The patient did not have a history of a

whiplash injury and did not have excessive amounts of previous dental work or surgery done.

Holographic jaw (mandible) was not checked for and was not treated. Hyoid imbalances were checked at the end of the treatment and none were found.

Intervention/Outcome/Method for Case Study

Treatment involved AK procedures to the TMJ and cranium, particularly the left external pterygoid. Sacral and cranial therapies were also performed. The outcome was varied with significant improvements to the TMJ and only minor other improvements to the cranium and frequency of lateral head tension. The patient has since fallen out of care. It was found that her left masseter was tender to palpation with a discomfort level of 5/10. She also had tenderness over the mid-cervical region of 3/10. Initially, the cruciate suture was pulled apart on inspiration. After the procedure, the left masseter discomfort decreased to 2/10 and the mid-cervical discomfort decreased to 2/10 tenderness. It was also found that the patient could now fit three knuckles of her non-dominant hand into her mouth. Palpable tenderness in the mid-pupillary line on the frontal bone was found to be present with palpation and rated at 4/10. Inspiration assist was performed on the left side of the skull and expiration assist was performed on the right side of the skull. Palpable pain areas on the frontal bone in the mid-pupillary line were noted to decrease slightly to 2/10 after these procedures. Following these procedures it was found that the patient had a sacral inspiration assist fault on the left and an expiration assist fault on the right. Both faults were corrected using AK methods. Tenderness over the greater wing of the sphenoid of 5/10 was found bilaterally. Next, sphenobasilar inspiration assist was performed on the left side of the skull and sphenobasilar expiration assist was performed on the right side of the skull. Tenderness that had been found bilaterally over the greater wing of the sphenoid prior to the correction, decreased dramatically to 2/10 after the cranial correction. It was also found that there was an associated sacral coccygeal fixation that was corrected on each side using respiratory adjustments. Following these procedures, it was found that this patient also suffered from a Temporal Bulge on the left side of her skull. The correction was made and a decrease in palpable pain over the parieto-temporal junction was noted on the left side. Parietal Descent was diagnosed and treated on the right side. The lesion therapy localized with one hand TLing the anterior scalene and the other hand TLing the parietal bone on the same side. The weak in the clear anterior scalene would strengthen with 1/2 breath held out. After the correction the weak anterior scalene was strong in the clear. After making the correction an ASLP atlas was diagnosed and treated. Following the adjustment, a category I was found and corrected. It was also found that oral respiration caused a strong muscle to weaken. A Glabella fault was diagnosed and treated. The treatment was done with oral respiration. There was also an associated sacral fault that was found with bilaterally weak hamstrings. This fault was not corrected due to time constraints. It was found that the patient would have a strong indicator muscle weaken with breathing through one nostril. After correcting an interosseous cranial fault, the strong indicator muscle would no longer weaken with breathing in through one nostril.[6]

When the patient was asked to place the three fingers of each of her hands (enhanced therapy localization) on each side of her TMJ, a strong indicator muscle immediately weakened. It was not found that disc pathology was the primary cause of the weakening of the strong indicator muscle, but rather, the involvement of the small intestine meridian due to the TL of small intestine 19. When placed on the tongue, Okra Pepsin E3 from Standard Process (a supplement that supports small intestine function) negated the enhanced TL to the TMJ.

It was noted the patient's jaw would deviate to the right with jaw opening without TL. A hypertonic left external pterygoid muscle was diagnosed and fascial flush technique was applied to the muscle causing right jaw deviation to decrease dramatically. With the Okra Pepsin E3 still on her tongue, it was found that jaw opening still caused a strong indicator muscle to weaken. This weakening was negated with TL to the left posterior temporalis muscle. Fascial Flush technique was performed on the left posterior temporalis muscle. At this time it was found that the patient had a Category III with the high block on the right Anterior Inferior Iliac Spine for which she was blocked. It was then diagnosed that she had a left Posterior Inferior Ilium Category II for which she was blocked. Finally, a Category I was diagnosed and treated for the second time.

After these procedures were completed, the patient claimed that their jaw felt much better by saying: "My jaw feels great. What did you do? How did you do that?" Her oral temperature was retaken and found to have risen from 96.8°F to 97.4°F. Her oral pH did not change and was still 6.4. Her zinc tally taste test did not change; she still did not taste anything when the zinc sulfate 7 hydrate was placed in her mouth. Both hip flexors were still weak after treatment. Both the PMC and PMS muscles were found to have normal function after treatment.

Her functional blood pressure readings changed significantly after treatment:

Blood Pressure:	Seated:	R: 125/93	L: 122/92
	Standing:	R: 135/94	L: 132/92
	Supine:	R: 129/87	L: 127/89

Postural Evaluation post treatment: even occiputs, even shoulder height, even hips, even gluteal folds. A goniometer was used to measure changes ROM. The patient was now measured to have 80° of right hip abduction and 86° of left hip abduction post treatment.

Discussion

Traditional Chiropractic Approach vs. AK Approach to TMJD

All orthopedic and neurological tests are included in the AK chiropractic approach as well as the more traditional approach as taught in chiropractic colleges. The AK approach is all inclusive due to its open ended nature. The cranial nerves can be checked using neurological examinations. For example, the motor portions of the Trigeminal Nerve that innervate the masseter, pterygoids, and temporal muscles may be checked. The patient bites down, the doctor can then palpate the masseter and attempt to open the patient's jaw with their thumbs.[1] The shortcoming of this method is that because there

are a variety of cranial muscles involved with jaw closing, the doctor is not really able to isolate just a single muscle or cranial nerve on only one side of the skull. There is a jaw reflex test that may be done as well. This also checks trigeminal nerve function. The corneal reflexes can be checked as well. Absence of the corneal reflexes indicates a lesion of either the sensory portion of the trigeminal nerve or the motor component of the facial nerve. The pterygoid muscle may be tested by having the patient deviate their jaw laterally against the doctor's resistance.[1] Because either the internal pterygoid on the opposite side or posterior temporalis on the same side could be involved with jaw lateralization, the test is not specific enough. Furthermore, there could be any number of things causing the dysfunction in these scenarios mentioned (throughout any part of the distribution of one of the nerves) whereas with the AK approach we are able to isolate specific muscles, joints, nutrients, cranial faults, emotions, SOT categories, meridians, and other elements involved. We truly have a language that we can use to speak to the body with, rather than just checking a few things and then guessing what thing might be causing another thing to take place in the body without having the body confirm the suspicion.

According to Souza, problems with the TMJ include synovitis, capsulitis, disc (meniscal) derangement, tendinitis, arthritis, and associated myofascial involvement. The complexity arises when multiple factors with regard to biting (jaw closing/dentition) occur.[9] The craniomandibular index is used to determine the severity of a particular TMJD case, but it offers no therapeutic solution and so will not be discussed here as this paper is concerned with comparing different types of solutions for TMJD that are available to the public.[14] However, many patients who seek out help for their TMJD will go to a Qualified Medical Evaluator that uses the craniomandibular index to evaluate the severity of the TMJD and this is the end of the road in terms of the help that they will receive for their jaw dysfunction. The approach is to then watch and wait for things to get better.

The traditional approach to TMJD includes the following points:

- Dental status
- Visual examination of jaw opening and jaw closing
- Provocative tests done involving stretch (capsulitis), compression (synovitis), and contraction (myofascial)
- Palpation of the jaw
- X-rays, MRI[9]

For myofascial involvement, trigger point massage is done. With all due respect to this approach, it does not address the underlying structural, chemical and emotional causes of myofascial involvement. Muscle activity/hypertonicity is addressed with myofascial release.[9] This is a great structural approach, but is not nearly as specific or comprehensive and detailed as the AK approach. Compressive retrodiscal problems are traditionally addressed with a splint or by stretching and breaking up adhesions with short amplitude thrusts in some cases.[9] Due to a far more elaborate consideration of human anatomy, the primary respiratory mechanism, gait, the cranium, and other factors that are both directly and indirectly related to the TMJ, this type of approach with splints and

short amplitude thrusts is rarely, if ever, used in AK. Traditionally (traditional approach), some cases are referred out to dentists who specialize in TMJ problems. For example, this may be done if the jaw has acutely locked up or if the treatment of chronic pain is unsuccessful or in the case of fracture. The AK doctor will also refer out their TMJ patients to dentists. However, typically, the timing and specificity are very important. Patients of the AK practice will only be scheduled right after having dental work done in order to balance the muscles of mastication after any alterations have been made to the teeth.

Limitations – Further Research

As mentioned in the Introduction, this patient was only treated once. One could look at this in a number of different ways. You could say that the positive response to treatment was just a fluke and that I was lucky and fortunate with the patient who responded particularly well to the therapies. It is true that this could be the case. However, the patient had been experiencing her TMJ and lateral cranial pain for nearly eight years. We measured the changes in her health which included the ROM of her jaw, functional blood pressure and other findings before and after treatment. Another way to look at this case study would be to attempt to predict the magnitude of positive health benefits that the patient would have experienced were she to have received 12 or 24 separate treatments. It would be logical to deduce that she would have had countless more improvements in her health were she to have received a series of treatments. Since she was pain free and very happy with the functioning of her jaw at the end of her first treatment, a total resolution to the chief complaint had been reached at the end of the treatment.

Further research should be done. I propose two research projects. One project would involve a group of 60 patients with TMJD. 30 of the patients would receive TMJ therapies that used the traditional approach to the TMJ and the other 30 patients would receive AK therapies for their TMJ. The researcher would evaluate the results and compare the two groups using questionnaires given to the patient before and after each of 10 treatments as well as before starting care. The second project would involve two more groups of 30 patients each. This research project would be far more labor intensive. The first group of 30 patients would receive chiropractic care using the traditional approach to the TMJ that is taught in chiropractic school. The second group of 30 patients would receive chiropractic care using TMJ therapies taught through the ICAK. In order to eliminate bias or favoritism of one doctor over another and one doctor's approach over another, each of the patients would have to be from a different clinic. Researchers would have to observe treatment at each of these clinics in order to see how the treatment therapies varied. In addition, questionnaires would be given out in a similar manner to the first research project described. The reason that I am making these suggestions is that there are a number of generalizations that I have made regarding the effectiveness of AK over the traditional approach. While I am utilizing the best research methods and texts I have available at my disposal, it is possible that there are other popular therapies for the TMJ that I am not aware of that have just come out and are being utilized in traditional chiropractic practices. There is even the slight chance that these approaches are as effective as or more effective than AK. However, since I am a chiropractor and have met numerous chiropractors with all sorts of different backgrounds and levels of training, the chances of a non-AK approach using a plethora of methods of diagnosis and treatment

with a complete system of checks, balances and safe guards nearly identical to AK would be nearly impossible.

Please see Table 1 for a more complete comparison between the AK approach to TMJD and the more traditional approach to TMJD as taught in chiropractic school.

Conclusion

Using Applied Kinesiology to treat the TMJ is far more effective and comprehensive than using the traditional approach to the TMJ as taught in most chiropractic colleges. The main reason for this is that the AK approach incorporates the many causes of TMJ dysfunction rather than simply resolving symptoms. Because the AK approach is so effective, patients often respond very quickly to care.

The traditional chiropractic methods of examining and treating the TMJ are quite different from the approach of the applied kinesiologist. Likewise, AK practitioners get very different results with their therapies than do those doctors using the traditional approach. For further thought, please review "Limitations – Further Research" under "Discussion" section.

The traditional approach to the TMJ is rather complex and so the TMJ patient is often referred out to a specialist. The joint itself is an encapsulated, compound synovial joint.[11] The common problems that present with TMJ dysfunction are synovitis, capsulitis, disc derangement, tendinitis, arthritis and also myofascial involvement. Using an approach such as the craniomandibular index which requires 74 separate steps may be impractical in the clinical setting.[9]

The AK approach to the TMJ using MMT is rather profound when compared to other approaches not involving AK MMT. Not only does the AK approach include evaluation of all of the muscles of mastication and their muscle proprioceptors, but it also includes a powerful evaluation of the teeth, C1 and L5, gait, right and left brain imbalances, the five factors of the IVF, the holographic mandible, the coccyx, extremities, immune system imbalances, etc.[3] This author is claiming that the AK approach involves all of the possible causes of TMJ dysfunction while simultaneously providing therapeutic options for all of those causes of dysfunction diagnosed. It is a complete system of diagnosis and treatment involving a myriad of checks and balances. Because the applied kinesiologists are so well learned in regards to the different interrelationships of the body, they are sometimes able to provide effective therapies for jaw dysfunction without even touching the TMJ or TMJ associated muscles.

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Table 1 compares methods of diagnosis and treatment for the TMJ using a traditional approach to an AK approach. The traditional approach refers to that approach which is currently taught in chiropractic school. "TA" here will indicate "Traditional Approach." "Cc" refers to "chief complaint." "AK" will referred to the Applied Kinesiology approach to the problem indicated. "NA" represents "not applicable." "Tx" refers to "treatment." "Dx" will represents "diagnosis."

Table 1

Clinical Situation	**AK effect-iveness**	**TA effectiveness**	**Referral needed in AK vs. TA**	**Safety using AK vs. TA**	**Notes**
Achieving resolution to chief complaint on first tx.	Yes	Sometimes	AK = in most cases TA = in few cases	AK = safe TA = some osseous maneuvers may be unsafe	There are generalities mentioned here. It depends on what the cc is as to whether or not a referral may be needed or a resolution could be achieved after 1st tx.
Functional blood pressure testing, zinc test, oral pH and other testing used to measure progress	Yes	No	NA	NA	Other methods of treatment of the TMJ do not measure the effectiveness of tx on the rest of the body.
Dental status	Yes	Yes	AK = often TA =	AK = safe TA = tx done	A dental procedure may change a person's bite, the

			occasionally	out of order may lead to compli-cations & may be unsafe	patterning of muscles used, and also cause stress and subluxations to the TMJ. Balancing of the muscles of mastication should only be done right after dental work. TA does not mention this in the literature
Visual exam of jaw opening/closing	Yes	Yes	AK = no TA = no	AK = safe TA = safe	NA
Palpatory exam of jaw opening /closing	Yes	Yes	AK = yes TA = yes	AK = safe TA = safe	NA
Provocative tests done	No	Yes	AK = no TA = no	AK = test not done (except myofascial therapy called Fascial Flush) TA = not entirely safe	Provocative maneuvers such as stretching for capsulitis, compression for synovitis may not necessarily be safe. Both AK and TA use myofascial therapies which are relatively safe other than some possible bruising or a fractured styloid process which should heal without complication.
X-rays	Yes	Yes	AK = maybe	Neither	Many AK practices do not

			TA = unlikely	approach is safe.	take X-rays. Statistics are not available. X-rays are somewhat more common in the TA as the TA relies upon information from X-rays for both dx, tx, and monitoring progress.
MRI	Yes	Yes	AK = yes TA = yes	Both are relatively safe	An AK practice almost never needs an MRI for the TMJ. The TA also may not need it.
Decreased ROM	Yes	Yes – but may take multiple visits	AK = rarely TA = maybe	AK = yes TA = may cause further imbalances .	If the cause of decreased ROM is chemical or emotional or involves the coccyx, L5, internal or external pterygoid muscles, cranial faults or the hyoid, the TA does not offer any therapies to address these things.
TMJ pain with opening or closing	Yes	Yes – non-specific correction.	AK = no TA = maybe a dentist	AK = yes TA = yes	This is not referring to a locked open/closed jaw.
No improvement to TMJD with TA	Yes	No	AK = No TA = Yes	AK = yes TA = referral	The TA certainly has its limitations.

localized to the TMJ and TMJ muscles				dependent	
Grinding sounds with opening / closing.	Yes	Yes	AK = No TA = No	AK = Yes TA = Yes	
Capsulitis	Yes	Yes	AK = No TA = No	AK = Yes TA = pro-vocative tests are not entirely safe	
Synovitis	Yes	No = watch and wait	AK = No TA = No	AK = Yes TA = sometimes a splint is used which is unsafe.	AK can address the chemical and other causes of Synovitis while TA does not. If the TA uses a splint it can throw off the cranial bones and upset gait and cause a myriad of other difficulties.
Disc derangement with reduction	Yes	Yes, but very difficult to accomplish	AK = No TA = Maybe	AK = Yes TA = often unsafe	If disc derangement is chronic, it may be difficult to resolve using AK or TA.
Bruxism	Yes	No	AK = No, but maybe a night guard from dentist	AK = Yes TA = Yes	The cause of bruxism is normally emotional stress or liver toxicity. These things are not addressed with TA.

			TA = Yes		
Dr. Lawrence Jones' Strain Counterstrain	Yes	No	AK = No TA = Maybe	AK = Yes TA = Yes, but only if done properly	This technique is not a part of the TA.
Dr. Janet Travell's Fascial Flush	Yes	Yes, but less effective.	AK = No TA = Likely	AK = Yes TA = Yes	Travell's fascial technique as used in AK is very precise.
Primary Respiratory Mechanism	Yes	No	AK = No TA = Yes	AK = Yes TA = NA	The TA does not involve respiratory adjustments or cranial sacral therapies.
Acupuncture Meridian Connector	Yes	No	AK = No TA = Yes	AK = Yes TA = NA	The TA does not include Acupuncture training. A referral to an acupuncturist would be needed.
Nutrition not for pain	Yes	No	AK = No TA = Yes	AK = Yes TA = No	The TA does not include any training in functionally applied clinical nutrition. There is only minor training regarding general nutrition for pain and inflammation.
Herbs not for pain	Yes	No	AK = No TA = Yes	AK = Yes TA = No	Using the TA, herbs not used for pain would need to be prescribed by a specialist. The TA office would be unlikely to carry such herbs.

Homeopathy	Yes	No	AK = No TA = Yes	AK = Yes TA = No	The TA would need to refer the patient to a homeopath. Note that many AK doctors do not have an homeopathic pharmacy.
Emotional Therapies	Yes	No	AK = No TA = Yes	AK = Yes TA = NA	The TA would need to refer out to a specialist
Specific cranial & other nerves relating to the TMJ	Yes	Yes	AK = No TA = No	AK = Yes TA = Yes	Both approaches may test cranial nerve function. TA is somewhat less specific.
Osseous Adjustment	No	Yes	AK = No TA = No	AK = Yes TA = No	Some AK practices may choose to do osseous adjustments of the TMJ although it is not a part of the training. Recapturing of the disc is done with pulling the mandible apart, protruding the jaw, retruding the jaw, and then letting go. No thrusts are made.
Clicking & popping TMJ	Yes	Yes	AK = No TA = No	AK = Yes TA = No	TA uses tongue blades to relieve clicking and popping. The next step is a splint which is unsafe.
Open or closed	Yes	It is likely	AK = No	AK = Yes	A similar maneuver may be

locked jaw			TA = No	TA = Yes	used for both approaches. Either technique may need to make a referral if necessary. The AK approach is longer lasting, more comprehensive and specific.
Fracture	No	No	AK=Y TA=Y	AK & TA=NA	Referral is needed in both approaches.

[2, 9, 5, 11, 6]

Division II

Critical Review Papers

Levator Scapulae and Spinal Cord Compromise

John M. Corneal, D.C., DIBAK

Abstract

The levator scapulae, as its name implies, is an elevator of the scapula when contracted. The literature covers its elevation action and talks about a hypertonic state causing restriction of cervical spine rotation. Little is said however in considering a reversal of the origin and insertion, where the scapula is the origin and the upper cervical spine the insertion. This paper examines clinical observations of spinal cord compromise when evaluating such a condition, and offers clinical diagnostic and treatment protocols.

Key Indexing Terms

Applied Kinesiology, Levator Scapulae, Muscle Proprioceptor, Pincer Palpation, Spinal Cord Compromise

Introduction

The levator scapula, as its name implies, is an elevator of the scapula when contracted. Its origin is the transverse processes of C1-4 and traverses inferior and posterior to insert into the medial superior border of the scapula. (1) There are two bellies of the levator scapulae; one inserting at C1-2 and the other C2-3. (2) The literature covers its elevation action and talks about a hypertonic state causing restriction of cervical spine rotation.(1, 2, 3) Little is said however in consideration of origin-insertion reversal in which the scapula is the origin and the upper cervical spine the insertion. It has been observed that this action has much more significance in musculoskeletal function than has been considered. Thomas Myers, author of 'Anatomy Trains' and ICAK lecturer, in an article discussing origin/insertion reversal, states the muscle's alternate role is so important the muscle should be renamed the 'capitus-preventus-going-forwardus' muscle. (4) I would add another possible name: the 'cervical spine-preventus-going-forwardus' muscle. It is found, in the case of a unilateral conditional inhibition of the levator scapulae, the upper cervical spine will shift forward on the inhibited side and rotate away from the inhibited side. This mal-position will cause pressure on the spinal cord that is clinically demonstrable. In all cases there will be evidence of sensory, motor, and organ involvement, affecting both sides of the body in the torso and upper and lower extremities. If we visualize an inhibition of function of the left levator scapulae the upper cervical spine will be displaced to the anterior on the left and rotated to the right. Rotating the head and neck to the left will bring the cervical spine back towards the centerline and the left side will rotate posterior. In this position there is a reduction of spinal cord pressure and an improvement of the positive clinical findings. When turning the head to the right there is an increase of anteriority on the left and further rotational

mal-position to the right increasing spinal cord pressure and thus increasing the clinical symptoms. Because compromise of the spinal cord is in the upper cervical area, and thus affecting neurological function to most of the body, potential symptoms are unlimited.

Materials and Methods

The muscle test for the levator scapulae is both time consuming to perform and unreliable as an indicator of involvement. Frequently, a functionally involved muscle does not manual muscle test conditionally inhibited (3/5) when tested. A much more reliable and simple indicator is palpation of the origin and/or insertion. A functionally involved muscle will have palpatory tenderness over the origin and insertion. The lower belly of the levator scapulae is the involved segment over 95% of the time. Palpate the transverse attachment of the muscle and compare to the opposite side. Tenderness will indicate the involved side. Locate surface areas of sensory tenderness distal to the cervical spine like the popliteal fossa, insertion of the posterior tibialis, and/or a symptomatic area indicated by the patient. Palpate bilaterally. If the patient indicates these areas are tender, have the patient turn their head towards the side of levator scapulae involvement and re-palpate. Note if the tenderness is decreased. If it is, have the patient rotate the head opposite the side of involvement and note if the sensitivity increases. Next indentify muscles of the upper and lower extremity that manual muscle test 3/5. Again have the patient rotate the head into the side of involvement and observe whether the muscles now test 5/5. Also, using representative muscles that test 5/5, have the patient turn the head away from the side of involvement and observe whether the muscles now test 3/5. Finally, palpate an organ, the small intestines are the easiest, and observe any tenderness. Ask the patient to turn the head left and right checking for increased or decreased tenderness with head/neck rotation.

If there is a change in superficial dysesthesia, organ sensitivity, and motor strength, with head/neck rotation there is only one thing common to all three: the spinal cord. This means that there is an inhibition of neurological function in the levator scapulae allowing cervical mal-position, thus compromising the spinal cord below the upper cervical, pretty much covering the majority of the body.

The first treatment is directed towards evaluating and correcting the levator scapulae. Then there are a series of possible reactive muscles that require assessment. In most cases there will be one other muscle involved besides the levator scapulae. Sometimes there are two. In rare instances only the levator scapulae is involved or three or more reactive muscles besides the levator scapulae are involved. Most frequently the levator scapulae requires Golgi tendon therapy and sometimes strain/counterstrain and/or origin/insertion therapy. Use a cross fiber compression at the belly of the muscle as, described in a previous paper, to challenge the Golgi tendon. (5) Inhibition of a previous 5/5 indicator muscle would indicate the need for Golgi tendon therapy. A simple challenge of separation or approximation of the tendonous ends of the levator scapulae will indicate the direction of correction. If treated successfully the tenderness of the origin and insertion of the levator scapulae will be gone. Next have the patient contract the levator scapulae by having them lift the shoulder towards the ear. Again palpate for

tenderness. If it returns check the levator scapulae for strain/counterstrain or origin/insertion and treat accordingly. Again have the patient contract the muscle and confirm no tenderness. Next test the following muscles for reactivity on the side of levator scalpulae involvement: bicep, tricep, platysmus, and pectoralis major sternal. In severe cases the author observes paired injuries; bicep and tricep or, platysmus and pectoralis major sternal. Although our literature, when discussing reactive muscles, refers to the reactive muscle requiring spindle cell treatment, it is the author's experience that a reactive muscle only indicates there is an aberrant signal coming from the reactive muscles proprioceptors. This can involve golgi tendon, spindle cells or origin/insertion aberrance. In the case of the levator scapulae, the reactivity is almost always initiated by Golgi tendon. Each time a reactive muscle is corrected, the reactive muscle is then contracted and the levator scapulae origin/insertion is rechecked to confirm the tenderness is resolved.

Correction of the levator scapulae and its reactive muscles will result in a reposition of the upper cervical spine to its normal position and only rarely requires manual adjustment. After correction the initial positive clinical findings should be resolved.

Discussion

Functional injury of the levator scapulae is wide spread. Upwards of 85-90% of new patient evaluations indicate levator scapulae involvement and subsequent spinal cord compromise. If the patient has seen other practitioners performing cervical adjustments, they will tell you they do not want you to adjust their cervical spine. This can be explained by the direction of most cervical corrections being some form of posterior to anterior line of drive, thus increasing the mal-position of the cervical vertebrae and increasing the spinal cord compression.

The mechanism of injury appears centered in two scenarios: hyperflexion/hyperextension of the cervical spine (whiplash), or carrying something too heavy in the arm of the involved side. In the case of carrying the weight, it is attempting to pull the arm and scapula off the body. The levator scapulae, in conjunction with the upper trapezius and rhomboid have to counter this load and the levator scapulae appears to take the brunt of that load.

Treatment is overwhelmingly successful with most dysfunctions are corrected in one or two treatments.

Conclusion

Observation of a dysfunctional levator scapulae effects on the central nervous system function appears to have major significance in furthering functional neurology and Applied Kinesiology's ability to alleviate suffering. The observations presented have been under study for over five years. Hopefully others in the Applied Kinesiology

community will evaluate their own patient base and enhance the evaluation and treatment protocol presented.

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AK Interfaces with Quantum Physics and Quantum Biology:
Healing at Faster than Light Speed? Understanding the Discovery of "Space Conditioning"

Brent W. Davis, D.C.

Abstract

The applied kinesiology practitioner is often working with unseen influences that can be measured by muscular response testing, but whose origins may not be entirely located in our normal space/time framework. This may be the case when we utilize a process employing self-referential statements, in the field born from AK that is now commonly called Energy Psychology. (In progressive biology models that deal with quantum computing, it is posited that memory is stored in a "cloud" type setting and is accessed by the brain which acts as a transceiver.) As a part of this author's research on the potential mechanisms of action of uncut flower essences, as they relate to removing self-sabotaging beliefs stored in the unconscious mind, remarkable findings were unveiled from the perspective of holistic quantum physics and biology. Notable among these findings are (1) possible existence of something called "deltron substance," linked to intention, that potentiates change in a domain above our every day 4space (3D+time), where activity *preceding physical manifestation* occurs at superluminal (greater than light) speeds, and (2) the scientifically proven phenomenon of "space conditioning," explained herewith. Space conditioning has profound implications in the healing arts, and among other things, sheds light on the conundrum of AK (and other modality) inter-operator replicability.

Key Indexing Terms
Mind/Body Healing, Emotional Trauma Relief, Quantum Biology, Quantum Physics, Space Conditioning, Mind/Body Assessment, Uncut Flower Essence Therapy, Life Enhancement, Applied Kinesiology Psychometric Evaluation, Self-Referential Statements, Measurement of Subconscious Sabotage

Introduction
My last submission to the ICAK-U.S.A. Collected Papers was titled: *AK Screening Reveals An Astonishing Paradox In A Cohort of Holistically "Evolved" Subjects.* In that paper I discussed the results of my screening, with the assistance of Dr. Robin Garcia, 100 "off-the-street" holistically "evolved" participants (individuals who had tried many alternative holistic "clearing" therapies and practices) to discover the extent of limiting beliefs still resident within them. A surprising prevalence of limiting beliefs was discovered to still exist in this population by screening of self-referential statements, and

for the most part the limiting beliefs were removed by the lingual administration of a few extracts of frequencies from uncut flowers, prepared by a patented process I developed. (1)

What is striking to me, and what I showed during the presentation in PowerPoint slides, is that transformational forces in the uncut flower frequencies (administered to remove limiting beliefs) are so strong that in some patients I am able, over time, to document before and after bony changes in facial and cranial structure, absent any manual or other corrective procedures. Using identical aspect ratios in before and after photos (the distance between pupil centers is identical), on occasion, certain uncut flower frequencies can exert a strong enough transformational force so as to change bony structural alignment. (Notice in Fig. 1 marked changes in the before and after characteristics of the orbits and facial bones.) I postulated that for that to happen, forces were at work that I could not see, but that had to be operating in a different dimensional framework somehow tied to a vibrationally based regulatory system capable of altering physical structure. I hypothesized that specific uncut flower frequencies, by a "switching effect" can change the "address" to which our quantum brain is connected, linking it with a much larger information storage site. When that happens, our reality changes. We are drawing from a different information source.

The uncut flower essence female study participant below was completely versed in advanced holistic therapies (having been the editor of a wellness journal for ten years.) She made sure nothing in her routine was changed that could influence her state other than the test essences. She reported gradual bony changes in her facial structure over the two-month trial period. The male pictured below at day five of consuming the flower frequencies simply stated, "I am astonished at the transformation I feel." I have documented several other bony positional changes in facial structure occurring as a result of sole influence of the flower frequencies.

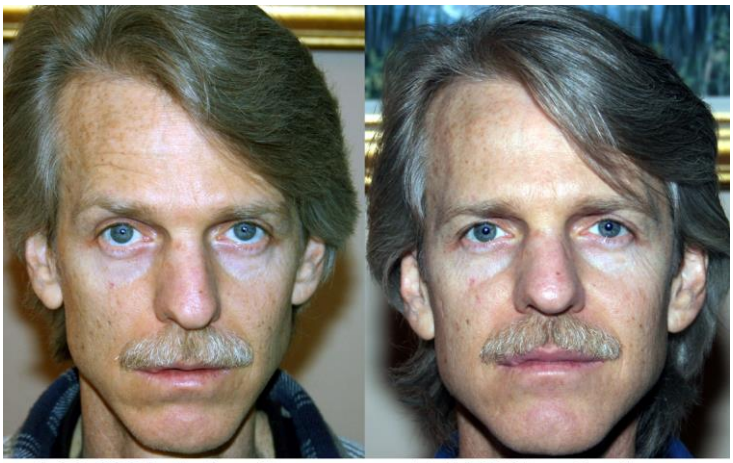
Fig. 1

2-23-08 - before flower frequencies

4-27-08 - after flower frequencies

NO OTHER THERAPEUTIC INTERVENTION

Fig. 2



5-03-2005 - before flower frequencies

5-17-2005 - after flower frequencies

NO OTHER THERAPEUTIC INTERVENTION

When we contemplate the meaning of certain self-referential statements, the implications can be very large. A test-phrase that emerged for the frequencies from one of the first flower essences I extracted was "No matter what action I take, I will be defeated." [(2)] In a person's reality, when that unconscious belief changes from true to untrue upon the lingual administration of test drops, some sort of significant information transfer has to have taken place. It is even more compelling to witness bony changes in facial characteristics taking place as a result of dosing with uncut flower frequencies. Something powerful is acting, but how?

To try to comprehend how this could be happening, my only option seemed to be taking the daunting challenge of attempting to understand, in a basic way, theories in quantum physics and quantum biology. That led me to two years of intensive research, and gave rise to the Section 2 Science part of my recently published book titled: THE FLORAL HAND OF GOD, *Secret Healing Codes of Flowers Revealed*. Here I will condense some key information from that book.

For a good part of the twentieth century, physicists strove to find a way to somehow unify laws of physics that apply to the macroscopic world in the domain of relativity theory, and laws that apply to the microscopic or subatomic world in the domain of quantum mechanics. Since our universe includes both vast and small components, it is reasonable to assume that there is continuity throughout, and that different sets of rules cannot exist for that which is vast (such as the far reaches of space), and that which is small. But that is exactly what was happening – different sets of rules exist for each domain!

to as a Theory of Everything (T.O.E.), to date no one has succeeded in the mainstream, institutional community.

When I dove into the work of the outstanding physicist and spiritual scientist, Dr. William Tiller, I realized that he had discovered keys that would contribute to a plausible T.O.E. I was delighted to find information that helped shed light on the "now-you-see-it-now-you-don't" phenomenon of limiting unconscious beliefs existing, and then suddenly disappearing.

In his profoundly significant (and too-little-known) texts[3-5] Dr. Tiller explains how, over several years, in his rigorous laboratory experiments he was able to solidly ***prove*** something that no scientist had done before him, that human qualities of consciousness and intention, acting at a distance, can significantly influence a well-designed target experiment in *physical reality*. (Previous to Dr. Tiller's work, many studies showed the influence of thought, at a distance on subjects, but had statistically significant margins for error.) I felt that Dr. Tiller's model was very likely applicable to what I was observing with the transformational effects of uncut flower essences. It seemed to me that Higher Intention was imbued as frequencies within certain flowers, and that that transformational force was being transferred from the essences to our body framework at a very high speed.

An uncut flower essence workshop was organized for me in Scottsdale, Arizona (where Dr. Tiller and his wife live) so that he could attend, witness, and sense in person what might be going on as I treated various participants with the semantic screening process combined with muscle testing. Due to Dr. Tiller's many years of work exploring the energetics of alternative medicine, he was completely familiar with the applied kinesiology muscle testing I was using and other energy medicine procedures.

I tested Dr. Tiller and his wife, Jean, with manual muscle testing and self-referential statements to find flower frequencies that might benefit them, and administered some. Dr. Tiller and his wife agreed to take the flower essences and to report back any shifts he and his wife might note. A month later, Dr. Tiller reported that beneficial shifts occurred for both him and his wife that would likely be related to the flower frequencies, and that provided a good rapport for future collaboration.

Dr. Tiller was kind enough eventually to instruct his laboratory manager, Dr. Walter Dibble, to analyze one of the powerful flower essences I have prepared, and the outcome of the analysis (forthcoming) clearly suggests that the uncut flower essence tested operates in a dimension beyond our normal space/time domain – a dimension where activity takes place at greater than light speed.

Dr. Tiller's theories of information transmission (depicted in Fig. 5) posit the existence of what he calls "deltron substance" which is a coupling agent that essentially transduces complex information from invisible R-space (reciprocal space) higher dimensional planes into D-space (direct space), our visible four dimensional plane of existence (characterized by the spatial Cartesian coordinate axes x, y, z and time – so-called "spacetime.")

A simple way of understanding the four components of normal spacetime is the following example, imagine that you are walking downtown to meet a friend for lunch at 1 pm on a rooftop restaurant. To arrive you will need to walk in two dimensions left and right along streets (x and y axes); then take an elevator up to the roof (z axis) at a particular time (t) to arrive at 1 pm.

Dr. Tiller acknowledged to me that "deltron" substance, activated by intention, contributes to a possible explanation of how transformational information can be transmitted from the reaches of vacuum space into the surface of a flower. Once that is understood, then it is a bit easier to envision how that information can be collected from the living flower with the process and apparatus I patented, and then later transferred to pure water that a person consumes. (NB - When I find special flowers with highly transformational ability, the "intention codes" for change are already present, preceding my arrival. I have to ask, where did those codes come from?)

From that point we can examine an exciting current model in energy based neuroscience that could explain how quantized information (i.e. information contained in a living flower) could produce rapid shifts in the emotion/mind complex.

Research Objectives

Two of the major objectives for my book that are relevant for summary here were to:

1. Create a model based on new era quantum physics that could explain to the holistically informed public how mind transformation could occur from flower frequencies; and how it could occur so rapidly.
2. Physically measure the action of my uncut flower essences by scientific means to show that there is something uncommon and extraordinary about them that could account for changes they initiate.

I am forever appreciative that I have the remarkable tools of applied kinesiology which helped me to navigate an investigation that otherwise would have been impossible.

Methods

1. To accomplish my first research objective I distilled into schematic form a summary of Dr. Tiller's amazing work (Fig. 5). Due to limitation of space I can only give the briefest explanation of the huge implications of this model.

It has been pointed out in several popular quantum physics books that one of the sticking points that just doesn't go away is the whole question of how quickly things can happen in our physical reality. If activity takes place at the speed of light or greater, several inconsistencies arise that disrupt mainstream physics theory, and as a result it has suffered an impasse in its evolution.

Dr. Tiller's insights take advantage of a former Nobel Laureate's work (DeBroglie), allowing him to create a model that enables the unification of relativity and quantum mechanics – one which posits the idea that for our physical universe to operate, activities have to take place at superluminal (greater than *c*) speeds.

In a personal communication to me Dr. Tiller succinctly summarized an essential point of his model:

> "Our research into psycho-energetics has shown that there are two unique levels of physical reality: our normal electric atom/molecule particle level with a spacetime reference frame (RF), plus a magnetic information wave level functioning at the physical vacuum level (that historically in metaphysics has been referred to as the "etheric"), with a type of reciprocal RF for viewing the phenomena of that domain. In nature, the latter [the magnetic information wave] is actually the precursor or template for the former, but it is not accessible to conventional instrumentation."

He then commented on the physical effects of my uncut flower essence extraction process:

> "Regarding your enhancement of Dr. Bach's flower essence preparation technique, I think you are on the right track, because it is the magnetic information wave essence of the living flower that you want, not so much the electric atom/molecule nature of the dead [cut] flower."

The appearance and disappearance of "information" when we witness the presence and absence of destructive beliefs via self-referential statement screening during a patient exam when therapeutic substance is administered, is very likely linked to a key feature incorporated in Dr. Tiller's work. I am referring to the anti-matter/matter photon cycle – the process of the cycling in and out of existence which occurs in the quantum vacuum (that apparently empty space all around us).

British physicist, Paul Dirac, (who received the Nobel Prize in Physics in 1933 with Erwin Schrödinger) felt that information movement in the Quantum Vacuum functions similar to the Bohr atomic model (Fig. 3) which is where he first theorized the existence of anti-matter – the substance that he postulated would have to fill the void of energy left when an electron moves from a lower atomic shell to a higher one.

Figure 4 addresses the "life" of photons as they seem to pop into and out of existence. This information provides important underpinnings in Dr. Tiller's "multidimensional simulator model," (Fig. 5 following), as an example of how photons (information) can pop into and out of existence during interactions between anti-matter, matter, and light. Information as photons can leave the vacuum (R-space –reciprocal space – the inverse of *x, y, z, t*) and manifest as mass and charge in D-space (direct space – our normal spacetime – in which we exist) and then the reverse can occur.

Fig. 3

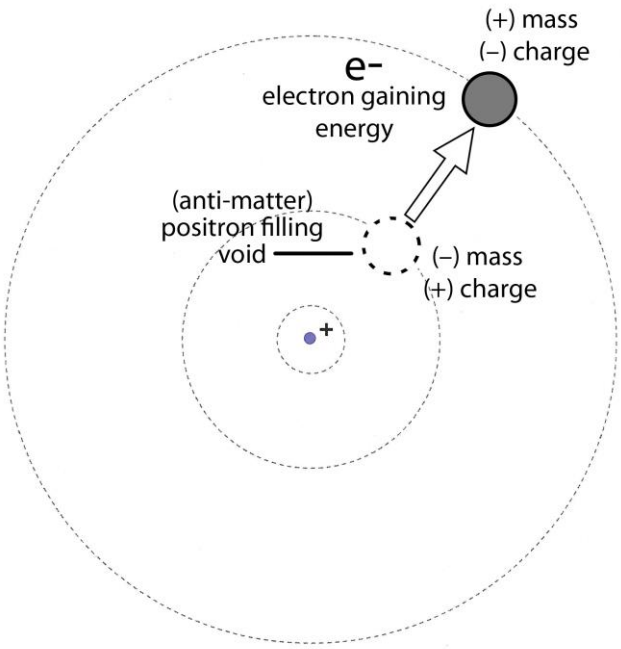
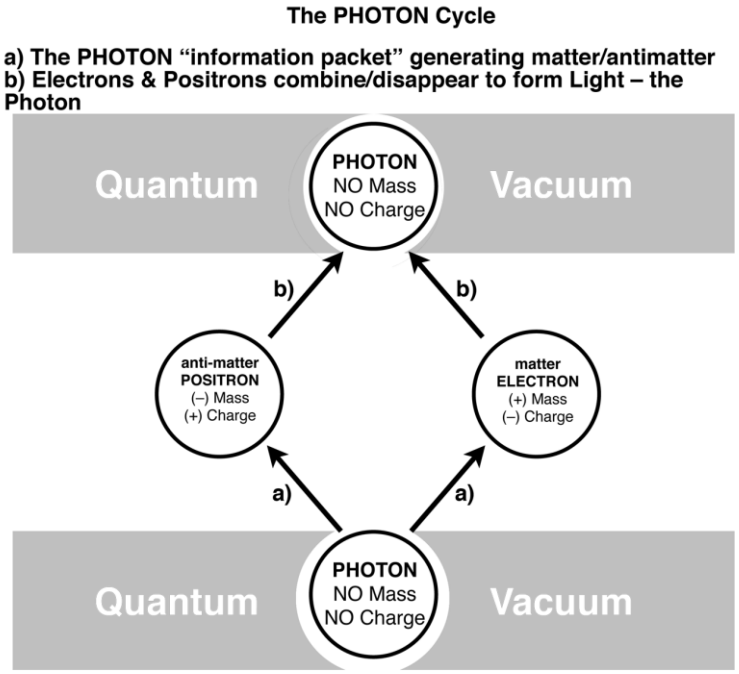


Fig. 4



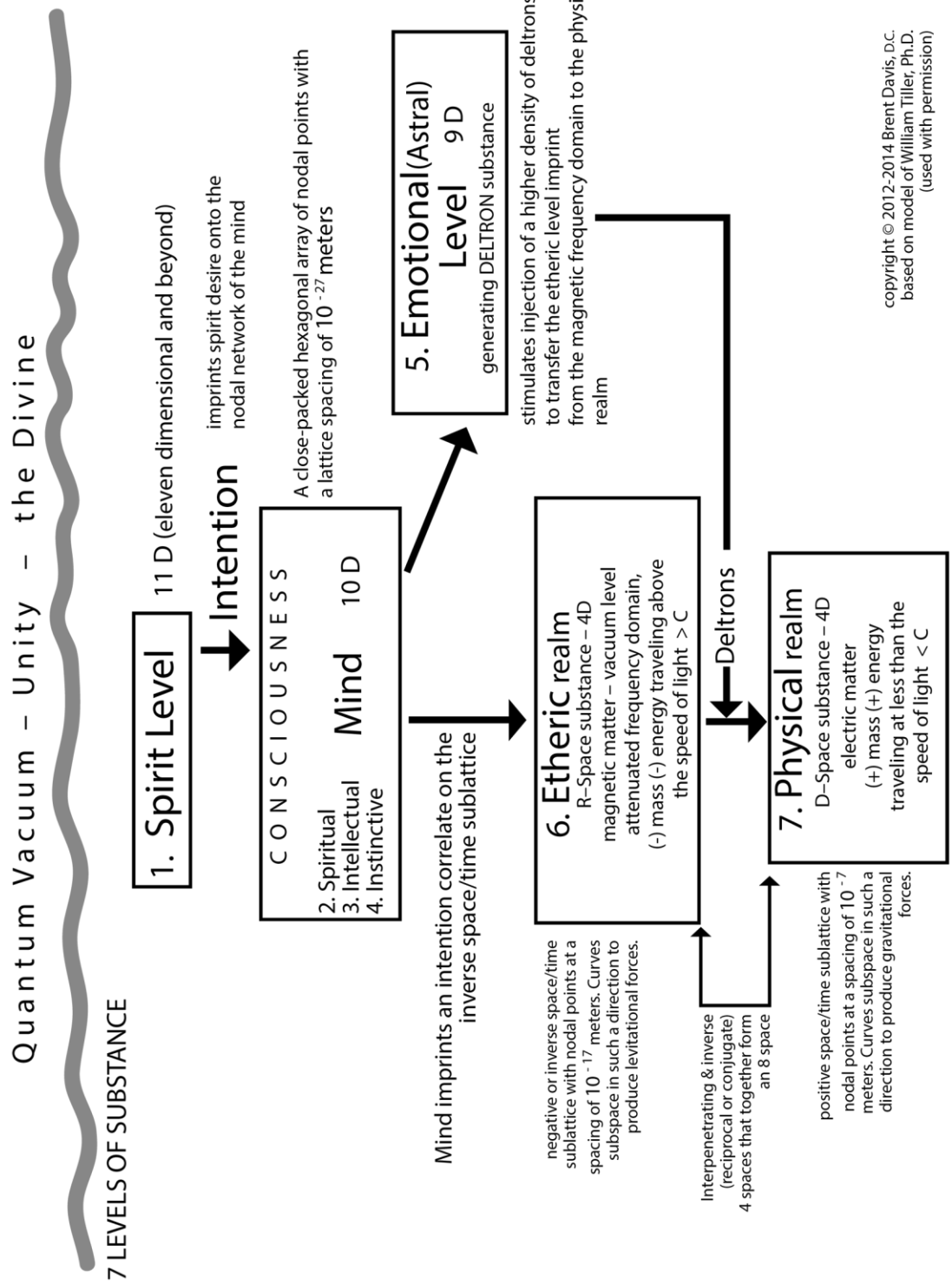
Considering the complexities of quantum physics, it is important not to lose sight of a key subject in this paper, and that is the presence and disappearance of limiting beliefs, which I will refer to as "information."

In her book *Punk Science*, Dr. Manjir Samanta-Laughton (a young British physician turned metaphysical cosmologist) explores Dr. Tiller's and other scientists' work and explains:

> "The quantum vacuum can be described… as a vast interconnecting network of light waves. It is in this form that we can best envisage how light can hold information. It is well known that when two waves meet they can intersect or overlap. The point where they overlap is called an interference point. It is these interference points that can hold vast amounts of information." … ["interference points" are the nodal point intersections depicted in Fig. 5.]
>
> "We can say that we live in and are connected to a vast interconnected ocean of consciousness: a web of thought. Having searched for the exact location of memory in the brain and not found it, does memory exist in the quantum vacuum (QV)? Is this the way we interact with consciousness? Is it around us and within us at the same time? We may not be the originators of our thoughts; they may all come from interconnectedness in the QV and simply come *through* our brains, which are now seen as organs of interpretation of the QV."

My premise relating to the powerful transformational energy of certain flowers is that they are absorbing light, coded with information from the QV, and then when that information is ingested via uncut flower essences, it infuses us, displacing or "overwriting" unhealthy information in the form of our self-sabotaging thoughts. It is so powerful in some cases that it perceptibly alters facial appearance.

Fig. 5 – Multidimensional Simulator Model



Methods (continued)
2. The methods of my second research objective are explored in the information below.

Dr. Tiller's experiments eventually proved at a large-scale level, i.e. at statistically significant levels above ambient "noise" (which was a problem in previous researchers' findings) that human intention can definitely influence material matter.

In order for his experiments to be carried out, Dr. Tiller and associates invented a capacitor-like device (called an "intention host device-IHD"). This device was able to hold specific human intention (generated with a single objective, by individuals with advanced meditative abilities) so that it could be moved about in a controlled way to different laboratory spaces where its influence could be measured on target experiments. He was able to show, for example, that human intention emitted from the IHD could reduce in vivo larval development time of the adult Drosophila fly by 15%-25% at $p<0.001$.

In the process of conducting analysis in these experiments, Dr. Tiller's very sensitive equipment detected subtle changes occurring in the space of the rooms where the experiments were taking place. It turns out that by measuring minute changes in factors such as the pH of water and variations in temperature in the experimental space, he found that intention changes something that, in the branch of physics called material sciences, is called "gauge symmetry."

In the glossary of his text, *Psychoenergetic Science*, Dr. Tiller described gauge theory and electromagnetic gauge symmetry state – very complicated concepts – in a way that is understandable to the non-physicist.

He wrote, "In general, gauge theories were constructed to relate the properties of the four known fundamental forces of nature (gravity, electromagnetism, the long-range nuclear forces, and the short-range nuclear forces) to the various symmetries of nature. … Electromagnetic (EM) gauge symmetry relates to the inner symmetry condition of a space relative to its electromagnetic nature. At present, the normal EM environment of our world is the U(1) gauge state where Maxwell's four equations, applied simultaneously, quantitatively define the entire range of electric/magnetic phenomena that can occur. The SU(2) state is a higher EM gauge symmetry state wherein both single electric charges (+ and –) coexist with single magnetic charges (N and S), and Maxwell's four equations must now be modified to quantitatively define the range of electric/magnetic phenomena that can develop in a space maintained at this EM gauge symmetry state."

Dr. Tiller's carefully constructed scientific experiments revealed that intention can change the gauge state in a carefully monitored physical space, raising it from the normal U(1) state to the higher SU(2).

> *When that occurs in a system it has profound implications because when a space is raised to the higher SU(2) gauge state it will have a higher thermodynamic free energy per unit volume. What that means is that the space will then have greater*

*coherence (a better state of integration) and decreased entropy (less decline of energy and LESS dis**organization of matter.)***

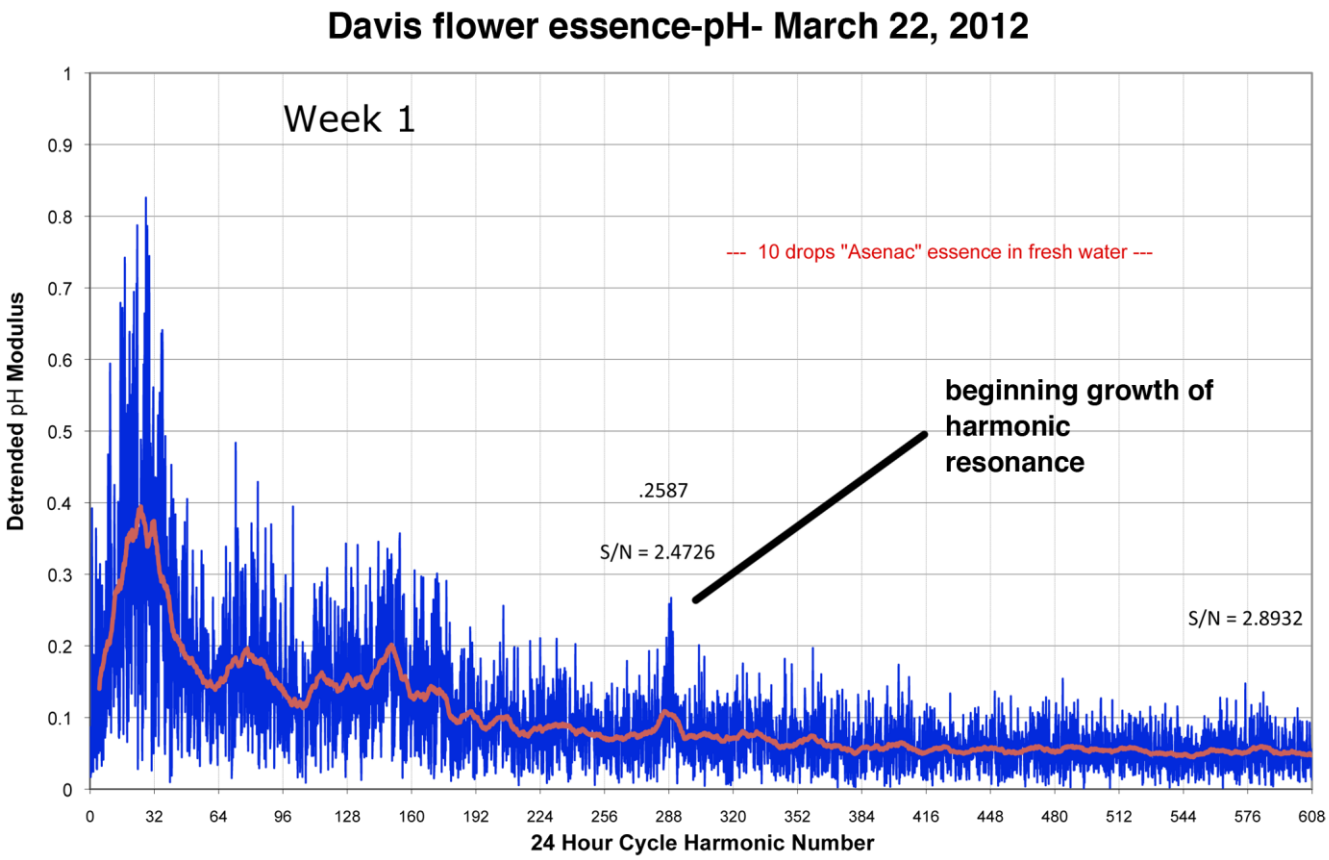
Whenever one can increase his coherence and decrease his entropy… it is a good thing!

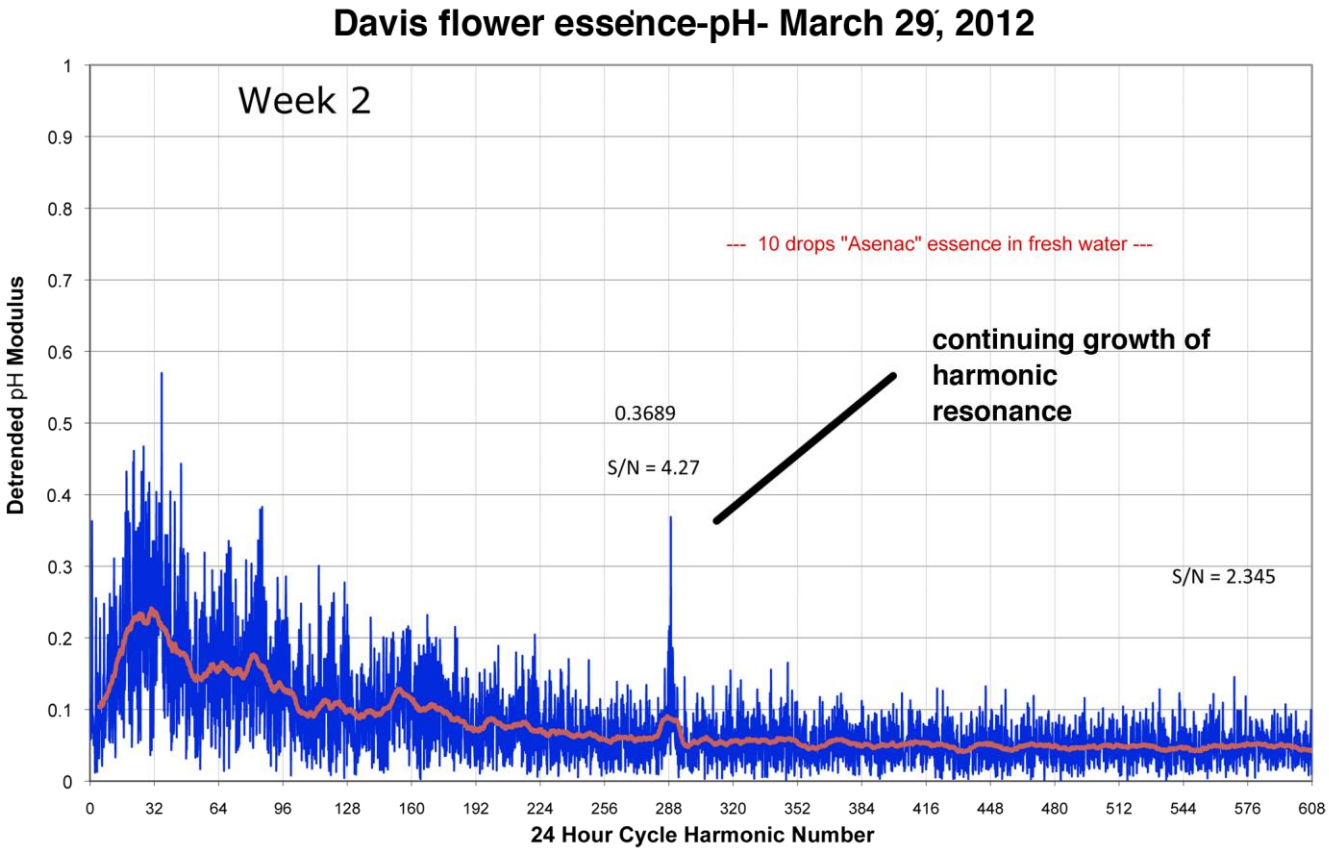
After removing the experimental "targets" from the space where Dr. Tiller was measuring the influence of intention from the IHD, he continued to monitor the space containing the IHD and found something profound that he had not anticipated the characteristics of the space gradually changed under the influence of the IHD over a three to six month period. Somehow intention had changed a basic symmetry state in nature, raising it from the U(1) normal gauge state to the thermodynamically more efficient SU(2) state. He postulated that the IHD intention broadcaster accessed magnetic monopole currents (in R-space, at the SU(2) level), to generate and broadcast magneto-electric (ME) waves that carry primary intention information that influences our physical reality in D-space. (Please refer to levels six and seven in Fig. 5.)

He referred to the profound phenomenon of intention altering a space as "space conditioning." In my opinion it is undoubtedly true that in the therapeutic space of our patient care offices, our intention is often altering therapeutic outcome, and that inextricably such occurrence contributes to variances in applied kinesiology inter-operator replicability. If we overlook that fact, we are not being scientific.

Results

The results of my research objective were a joy for me to discover. Dr. Tiller's laboratory director, Dr. Walter Dibble, measured the effect of placing one of my powerful uncut flower essences in their monitoring station to detect possible subtle influences from it. In a manner similar to the IHD experiments previously described, the uncut flower essence emitted an influence that gradually changed the whole space from the U(1) normal EM gauge state to the thermodynamically more efficient SU(2) EM gauge state. Observation of graphs one to three following allowed Tiller and Dibble to make that deduction based on their previous extensive studies. Over a period of weeks, a characteristic single peak grew in intensity, and this phenomenon correlates with results Dr. Tiller saw in his IHD experiments, signifying movement from U(1) to SU(2) EM gauge states. Practically what this means is that the uncut flower essence, simply by being present in a space, changed the character of the space resulting in: increased thermodynamic free energy, decreased entropy, and increased coherence.


Davis flower essence-pH- March 22, 2012
Week 1
--- 10 drops "Asenac" essence in fresh water ---
beginning growth of harmonic resonance
.2587
S/N = 2.4726
S/N = 2.8932
Detrended pH Modulus
24 Hour Cycle Harmonic Number
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
32
64
96
128
160
192
224
256
288
320
352
384
416
448
480
512
544
576
608


Davis flower essence-pH- March 29, 2012
Week 2
--- 10 drops "Asenac" essence in fresh water ---
continuing growth of harmonic resonance
0.3689
S/N = 4.27
S/N = 2.345
Detrended pH Modulus
24 Hour Cycle Harmonic Number
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
32
64
96
128
160
192
224
256
288
320
352
384
416
448
480
512
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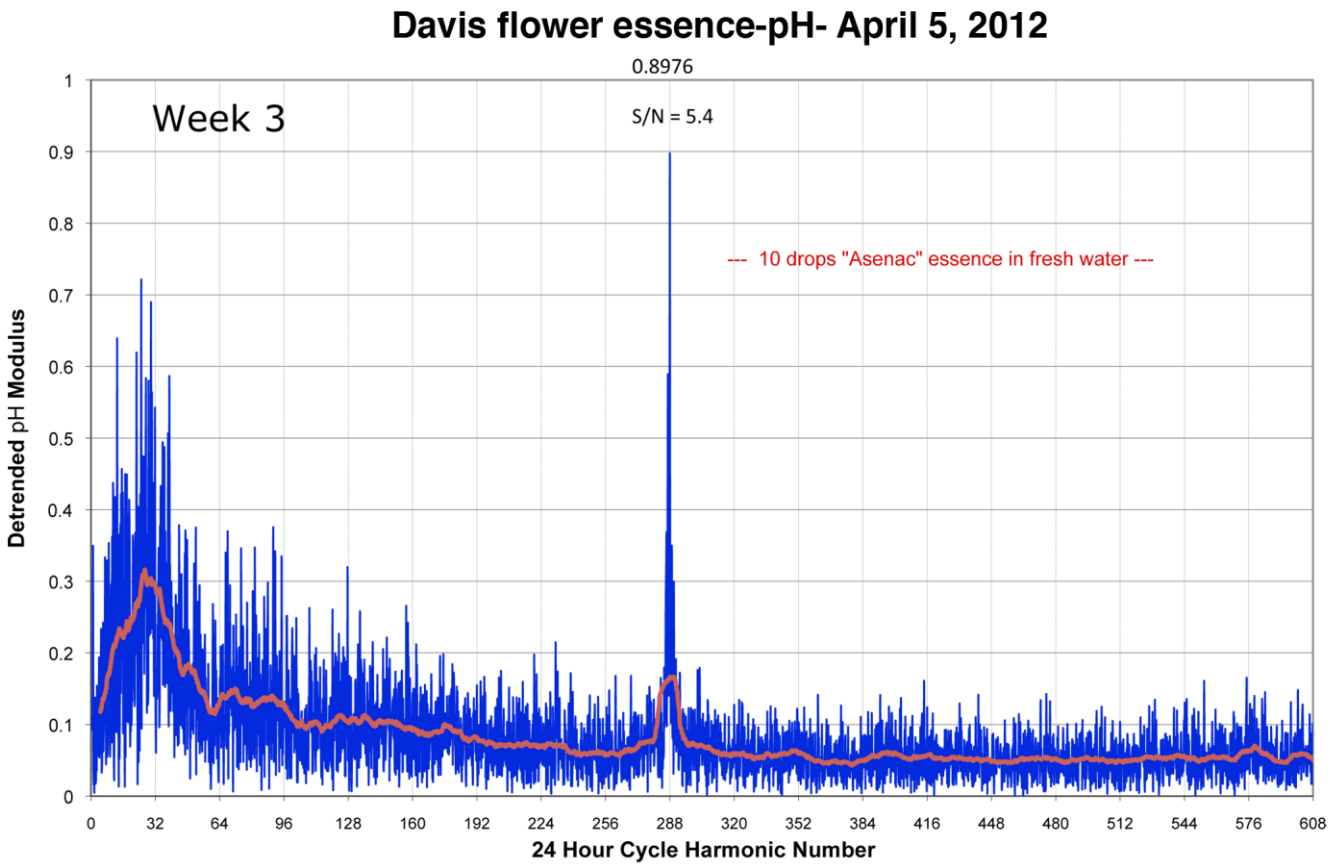
576
608



Discussion

The findings above contribute to a better understanding of how select uncut flower frequencies can induce a greater state of coherence in our patients, evident upon changes observed when we semantically screen before and after self-referential statements, and witness results that point to a more productive psychological outlook.

To understand the possible biological implications of placing energized uncut flower frequencies into a human being, I asked the brilliant molecular biologist, William Brown (who is intuitive and highly informed with respect to new era science and holistic therapies) to comment on possible modes of action once he experienced taking an essence preparation I formulated for him. What he wrote, in part, is the following:

> "The Intercellular Matrix is a vast consortium of extracellular and intracellular proteins that form an extensive and continuous network through every tissue of the biological system, linking together every nucleated cell in the body. Anatomically it is comprised of the basal lamina and connective tissue, which together forms an encasing that has traditionally been presented as the dividing border of the tissues of the body. However as functional studies have begun to elucidate, this network is far from being purely structural and compartmentalizing, and instead is an interface that, in association with the

immunological cells of the body, defines the function and architecture of the biological system.

Information encoded in light is transferred from the coherent water-biomolecule complexes within floral cells and is stored in the liquid-crystalline lattice of aqueous nanostructures. At the moment the aqueous nanostructures are introduced into the human biological system, the light is nearly instantaneously transferred to the coherent water-bio-molecule complexes within the human tissues. The light is quasi-instantaneously transmitted along the Intercellular Matrix directly to the DNA molecule, where decoding of the information contained within the electromagnetic transmission takes place."

Conclusion

Dr. Goodheart has been an inspiration to all of us that have practiced applied kinesiology for a long time, in part, I feel, due to his remarkable ability of using his intuition to guide him to plausible scientific explanations of what we see clinically but cannot easily understand. There is one scene in my memory that I have treasured since I last presented a paper at ICAK relating to my flower essence discoveries. Just as I left the podium and the next presenter was about to address the audience, with a great economy of words and a kindly, intent gaze, George looked straight into my eyes and said simply, "Brent… I think you have something here."

That has been my belief since then, and his comment provided more inspiration to fuel my passion for finding new transformational frequencies hidden in living flowers around the world.

I hope that applied kinesiology practitioners will assign greater priority to the detection of unhealthy beliefs by the process of screening self-referential statements (and that A.K. teachers will give greater emphasis to instruction of students so they may gain proficiency in that process.)

For with the knowledge that there is science to help explain how horribly disabling unconscious beliefs could seem to "magically" and instantaneously disappear, the practitioner is equipped with a level of confidence that helps his patients accept as real the grace of change.

References

1. Disclosure: In 2001 and 2002 Dr. Brent Davis received U.S. and international patents for a process that extracts flowers while they are uncut and living, defining a higher level of bio-coherence of flower essences as compared to conventional flower essence extraction methods. The resulting products, in the healthcare marketplace, are called FlorAlive® flower essences, and constitute the experimental material referred to in this paper.

2. Screening sheets for forty-nine flowers, with test phrases for each flower, are available by contacting floralive.com.

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Balancing Ionization

Sheldon C. Deal, D.C., N.M.D., DIBAK

Abstract

Herein lies a method of balancing positive and negative ions by the use of mineral supplementation. A distinction is made whether the problem is due to too many positive ions or not enough negative ions; conditions which were previously treated as the same problem. Or could it be the other way around, meaning too many negative ions or not enough positive ions. This balancing is accomplished by using four different kinds of minerals which include two types of calcium and two types of potassium.

Historical

It was Dr. George Goodheart who first made us aware of ionization as it pertains to applied kinesiology by his famous example of chronic clonic tonic intermittent torticollis. He stated that if he had the patient breathe in through one nostril only for one hundred or more times it would afford the patient a period of relief from this devastating condition. This was based on the conclusion that the right nostril specialized in positive ions and the left nostril specialized in negative ions. The treatment was very affective but of short durations because when the patient resumed breathing through both nostrils, the preponderance of one ion or the other was lost. At that time there were comments to the affect, it was not by accident that the human body was designed with two nostrils rather than one. When the comment was made that we would look funny if we only had one nostril, the person was reminded that we would not look funny if everybody one had one nostril instead of two, because we would not know it any other way.

In the field of otolaryngology it has been shown by instrumentation that the nasal cycle changes approximately every 20 minutes, meaning that we receive a preponderance of our air we breathe in through one nostril for 20 minutes and then it changes over to the other nostril for 20 minutes, etc., etc. This would explain why we all have had the experience of having one nostril occluded during an episode of acute rhinitis only to find that suddenly, with no apparent explanation, the occluded side opens up and the previous patent side becomes occluded. This research also showed that the amount of air passing through the nostril was <u>not</u> dependent on, nor in proportion to, the size of the lumen of that nostril. This same instrumentation showed that positive ions came through the right nostril and that negative ions came through the left nostril. Thus, it became established that the turbinates of the right nostril form an ionization chamber specializing in positive ions and the turbinates of the left nostril form an ionization chamber specializing in negative ions.

Observations

The above data is a good basis for why it is important for us to have a balance of positive and negative ions in our body to start with. There are many conditions in our world

where we are exposed to a predominance of either positive or negative ions. Such is a weather front moving through the area where we live, which is preceded by an abundance of positive ions and succeeded by an abundance of negative ions, or being around electrical equipment or internal combustion engines which give off an abundance of positive ions. If we have a balance of ions in our body to start with, then we are not bothered by a temporary exposure to a preponderance of one kind or another of ions. But if we have an imbalance of positive or negative ions to start with and then we are exposed to a condition such as described above, a preponderance of one kind or another of ions, we then become further imbalanced as the original condition becomes exaggerated.

Another interesting observation in the field of personology is that people who are predominantly negative in their habits, attitudes, and personality have a larger opening of the left nostril and people who are predominately positive in their habits, attitudes, and personality have a larger opening of the right nostril. The idea is that we need a balance in our lives and, therefore, we ideally should have equal sized nostrils.

In applied kinesiology it has been established that if a patient breathes in through the left nostril and out through the right nostril and this weakens a previously strong indicator muscle, that patient is low in positive ions. An interesting observation in this patient is that they will therapy localize with the palms against the body only. If the condition is reversed, meaning that breath in through the right nostril and out through the left nostril weakens a previously strong indicator muscle, that patient is low in negative ions and will therapy localize only with dorsum of the hand against the body.

So for therapy localization purposes only, it is important to establish whether or not there is an ionization problem in the patient. I have had a few patients who were low in negative and positive ions and, hence, would neither therapy localize palms up or palms down! When you fix this kind of patient that other doctors have failed on, you are a hero. The obvious advantage here is, if you will establish ionization first in your patient, then you do not have to therapy localize everything twice, meaning once palms up and once palms down.

I have had some remarkable success with patients who indicated to me that their symptoms came only when it rained or that they felt particularly elated or particularly depressed at the beginning of a storm or at the end of a storm, or that weather changes always made a difference in how they felt, just by checking and correcting ionization.

As mentioned earlier, the original correction for this condition was to have the patient breathe in through one nostril only according to which side they showed a need. More recent investigation shows that breathing in through the right nostril only activates the left brain and, thus, is conducive for stressing left brain activities and vice versa. Meaning breathing in through the left nostril only activates the right brain and is conducive for stressing right brain activities. The catch to all this is that it has a temporary effect only.

It was Dr. John Stoutenburg who established in the early 1970's that the taking of calcium would provide positive ions and that the taking of potassium would provide negative ions. The big advantage being that now the correction would last longer.

Once when I had presented the above evidence in a lecture at the University of California at Davis Medical School, I was asked why did that work since calcium and potassium were both positive ions. My answer was that since calcium had a valance of plus two and potassium had a valance of plus one; calcium was twice as positive as potassium and potassium was twice as negative as calcium, and, thus, the difference was a relative one. To date, I have not found a better answer and, therefore, I still use that same explanation.

Current Observations

Since I do a tremendous amount of work with nutrition in my office and I have been exposed to the work of Dr. Herschel Robertson from Higginsville, Missouri, I became aware that there is a difference between having too many negative ions or not enough positive ions, which previously was treated as the same condition.

This can be established kinesiologically by having the patient breathe in through one nostril only and testing your indicator muscle and then having the patient breathe out through one nostril only and testing your indicator muscle. Whereas before this was all one test. Now we can establish if the condition is due to too few positive ions (breathe out through the right nostril only) or is the condition due to too few negative ions (breathe out through the left nostril only.)

It has been established that one form of a particular mineral has a positive reaction in the body, whereas another form of the same mineral has a negative reaction in the body. It was on this basis that I established which form of the mineral to use by breaking down the ionization testing into about four parts. By following these methods I found that the condition of too many positive ions would respond to potassium gluconate, but would not respond to potassium citrate, for example. I found that the condition of too may negative ions would respond to calcium gluconate, but would not respond to calcium lactate, another example. I also found that the condition of too few positive ions would respond to calcium lactate, but would not respond to calcium gluconate, another example. I keep saying for example because there are other forms that will work also.

For the purpose of learning this phenomenon and using these principles in your office, I have devised the attached chart.

Conclusion

We now have a kinesiological method of more precisely balancing the ions in the body and the minerals used to do so not only bring about a lasting effect, but also greatly help to balance the patient's chemistry. We previously knew that the acid or negative calcium lactate was preferred if the urine pH was over 6.4 and that the alkaline or positive calcium gluconate was preferred if the urine pH was under 6.4. So now we have another

piece of the jigsaw puzzle to help us determine kinesiologically which calcium to use. Not only can we help our patients by choosing the correct form of calcium or potassium, we also help the assimilation of all their nutrients because we are changing the Ph of the body to a better level.

NASAL IONIZATION AND MINERAL BALANCE

Condition:	**Indicator muscle changes when patient breathes:**	**Corrected by:**
Excessive	In through the left nostril	*Positive Calciums:* Calcium Oxide Calcium Carbonate Calcium Gluconate
Deficient Positive Ions	Out through the right nostril	*Negative Calciums:* Calcium Lactate Di Calcium Phosphate
Excessive Positive Ions	In through the right nostril	*Positive Potassiums:* Potassium Oxide Potassium Carbonate Potassium Gluconate
Deficient Negative Ions	Out through the left nostril	*Negative Potassium:* Potassium Citrate Potassium Aspartate

The Fifteen Collateral Meridians

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

Abstract

The Fifteen Collateral Meridians are a network of channels which are both superficial and deep to the main channels. Functioning to balance yin and yang in the limbs, nourishing the fascia and deep tissues, connecting the right and left sides of the body as well as connecting the exterior and interior. The deep connecting channels also play a role in the manufacture and distribution of blood.

Traditional oriental medicine utilizes a history, observation, and palpation for diagnosis. Treatment may include needling luo (connecting) points, combining luo points with source points, pricking the collateral channels (venules), and/or herbal therapy. Applied Kinesiology protocol (as developed by this author) involves therapy localizing the pulse points with the corresponding colored lenses worn by the patient according to five element correlations. Treatment is directed at adjusting the appropriate elbow, knee, or atlas subluxation while wearing the associated color lens.

Introduction

The Collateral Meridians are a network of both superficial and deep collaterals spanning the entire surface of the body lying between the skin and muscles while also filling the body cavities related to the blood and blood vessels. The connecting channels cannot course thru the large joints of the body as the primary channels are able to do; therefore energy constriction often occurs there. The superficial collaterals correspond to defensive Qi while the deep connecting channels correspond to blood.

The collaterals function to defend, balance yin and yang in the extremities (therefore to change polarity), regulating energy flow to and from the head, nourishing skin, fascia, and the deep tissues with blood. They harmonize the left/right sides of the body and the exterior/interior as well.

Traditional acupuncture utilizes a thorough history noting exposure to wind, heat, dampness, physical trauma and emotional stressors. Observing the condition of the skin, venules, possible lesions, and finally by palpation for the texture of the skin.

Applied Kinesiology protocol utilizes therapy localization to the pulse points while wearing the associated color lens via the five element correlations. The associated muscle(s) will manually muscle test (MMT) weak in the clear only while wearing the appropriate lens. Without the lens the muscle dysfunction displays weakness via pincer palpation procedure. Correction of the appropriate elbow, knee, or atlas subluxation will negate the muscle dysfunction and positive therapy localization to the pulse points with the color lens being worn.

Discussion

The Collateral Meridians have a horizontal flow of energy rather than the vertical flow of the main channels. They form a complete network both superficial and deep. The superficial channels fill the space between skin and muscles. This is also the domain of fascia; which are collagenous fibers embedded in ground substance of amorphous semifluid gel. The superficial channels can be further divided into connecting channels and superficial minute channels. The deep connecting channels are related to blood vessels and blood. The main channels lie between the connecting channels and deep connecting channels. (See Figures 1 and 2)

The superficial connecting channels contain defensive qi, the main channels are nutritive qi, whereas the deep connecting channels are related to blood vessels and blood. The connecting channels transport qi from the internal organs to the main channels and from there to the entire body.

The collateral meridians balance yin and yang in the limbs, the extraordinary meridians balance yin and yang in the trunk absorbing excess qi from the main channels, whereas the divergent meridians balance yin and yang in the organs and head. This also implies that the collateral channels regulate polarity change in the limbs which occurs below the elbows and knees in the finger and toe tips. The collaterals nourish the areas of the body above and below the main channels. They are also protective in nature (superficial channels have defensive qi) and warming to the muscles. The collateral channels harmonize the exterior and interior as well as the left and right sides of the body. The deep connecting channels are related to blood vessels and the production of blood.

Although the Fifteen Collaterals are like a net covering the entire surface and interior of the body they cannot penetrate the large joints. (Figure 2) Therefore most qi stagnation occurs in the connecting channels. It is the superficial that are penetrated first by pathogenic factors, then the main channels, entering the deep connecting channels and finally into the internal organs. These pathogenic factors may include wind, dampness, cold, heat, trauma, and emotional stress. Excess or fullness of the collaterals is due to an external pathogenic factor or internal blood or qi stasis. All blood stasis occurs in the deep connecting channels. Deficiency or emptiness of a connecting channel is usually a chronic disease that has progressed to the internal organs or an internal deficiency of blood or qi. Blood stasis in the collateral meridians causes pain, swelling, and masses. Lumps are caused from an excess of qi and blood in the connecting meridians. A lump in the superficial collateral is a lipoma, a lump in the collateral proper is a cyst, whereas a lump in the deep collateral would be a carcinoma, adenoma, or myoma. All deep connecting channels act like a net filling the body cavities and are affected by stasis of the blood. Heat affecting the deep yang collateral meridians causes bleeding to proceed upwards; such as epistaxis, coughing up of blood, or vomiting of blood. Heat affecting the deep yin collateral meridians causing bleeding downwards; such as blood in the urine or stools, and abnormal menstrual blood. Cold affecting the collateral meridians is usually expressed by a cramping type symptom.

The lung collateral meridian departs from lung 7 and disperses into the thenar eminence. (Figure 3) Emotional conditions are associated with sadness and grief as well as the release of repressed feelings.

The heart connecting channel originates at heart 5 moving up the arm to the heart and travelling into the tongue and eye. (Figure 4) Pathology may include uterine bleeding and palpitations. Emotional-mental symptom correlations are fright, depression, sadness, anger, worry, and agitation.

The pericardium collateral begins at pericardium 6 flowing with the main meridian up the arm to the pericardium and then into the heart itself. (Figure 5) Known as the hinge of the hinge and/or the inner gate due to connecting all the yin channels and also the triple burner and pericardium meridians. Pericardium 6 has a tradition of helping relationship issues by assisting movement of the ethereal soul. It therefore is one of the premier mental-emotional points.

The lung, heart, and pericardium collateral meridians comprise the three yin connecting channels of the arm. Applied Kinesiology correction is adjustment of a specific elbow subluxation while wearing the associated color lens; violet for lung, red for heart, and red for pericardium.

The small intestine collateral meridian departs from small intestine 7 travelling up the arm along with the heart channel and dispersing in the shoulder. (Figure 6) Pathology may include muscle-tendon inflammation of the elbow. The mental-emotional considerations are confusion, indecision, anxiety, sadness, fear, and manic-depressive syndrome.

The large intestine collateral channel originates at large intestine 6 joining the lung meridian ascending the arm to the face decussating with one branch going to the ear and the other flowing to the temporal mandibular joint (TMJ) and teeth. (Figure 7) Epistaxis, teeth, and TMJ involvement are all considerations for pathology. Emotional issues may include mania, indecision, and confusion.

The triple burner collateral meridian starts at triple burner 5 and then flows up the arm to the shoulder dispersing in the center of the chest while connecting to the pericardium. (Figure 8) The tripe burner collateral meridian connects all the yang meridians as well as connecting the pericardium and triple burner meridians earning it the name hinge of the hinge and/or outer gate. Pathology may involve epistaxis.

These three yang collateral meridians of the arm; small intestine, large intestine, and triple burner connecting channels are treated via a specific correction of an elbow subluxation while wearing the appropriate color lens; red for small intestine, violet for large intestine, and red for triple burner.

The stomach collateral meridian originates at stomach 40 and then ascends the leg joining the spleen channel flowing up to the torso and finally to the neck where it decussates with

one branch going to the throat and the other flowing to the side of the head. (Figure 9) Goiter and/or neck pain may include the pathologies associated with disharmony of this collateral channel. Mental-emotional symptomatology are confusion and/or manic-depressive states.

The bladder connecting channel departs from bladder 58 circumnavigating the posterior aspect of the calf and then connecting with the bladder channel. (Figure 10) Pathology may include back pain, sciatica, stiffness, and/or bleeding hemorrhoids.

The gall bladder collateral meridian starts at gall bladder 37 descending the outer part of the leg connecting with the liver channel and dispersing into the dorsum of the foot. (Figure 11) Weakness of the ankles may be a clinical consideration.

The stomach, bladder, and gall bladder connecting channels comprise the three yang collaterals of the leg. Correction of a specific subluxation of the knee while wearing the associated lens; yellow for the stomach collateral, blue for the bladder connecting channel, and green for the gall bladder collateral will re-establish harmony in these meridians.

The spleen collateral begins at spleen 4 and then ascends the leg connecting with the stomach meridian and entering the abdomen flowing into the intestines and stomach. (Figure 12) Pathological considerations may include digestive and/or intestinal issues including blood in the stools. Symptoms of restlessness, insomnia, and/or manic-depressive states may be involved in the mental-emotional sphere.

The kidney connecting meridian starts at kidney 4 and then circles the heel connecting with the bladder channel ascending the inner leg into the abdomen to the pericardium; it then descends to disperse in the lumbar vertebrae. (Figure 13) Pathology may include lumbar pain, heart palpitations, uterine bleeding, and/or coughing up blood. Mental-emotional considerations may include anger, depression, fear, agitation, dementia, and/or mental retardation.

The liver collateral channel departs from liver 5 ascending up the inner leg connecting with the gall bladder meridian and dispersing in the genitals. (Figure 14) Pathology considerations may involve any reproductive organ symptom such as orchitis, urinary difficulty, vaginitis, vaginal discharge and/or bleeding as well as a feeling of a ‘lump in the throat.’ Mental-emotional symptoms may include worry, fear, mania, and depression.

The spleen, kidney, and liver collateral meridians form the three yin collaterals of the leg and are corrected via a specific adjustment of the knee while wearing the corresponding color lens; yellow for the spleen connecting channel, blue for kidney collateral, and green for the liver collateral channel.

The ren mai (also known as conception vessel) connecting meridian originates at ren mai 15 and disperses over the abdomen. (Figure 15) Tightness of the chest and/or coughing

up blood as well as heart palpitations are pathology considerations. Mental-emotional considerations may involve fear, worry, fright, and/or depression.

The du mai (also known as governing vessel) collateral channel starts at du mai 1 and bilaterally ascends the spine, dispersing in the scapular region and then ascending to the head and dispersing in the occiput and vertex of the skull. (Figure 16) Pathology may involve vomiting of blood. Emotional symptoms associated with the du mai collateral may include fright and/or mania.

The great spleen connecting channel originates at spleen 21 which then disperses throughout the chest. (Figure 17) Symptoms may include clumsiness, confusion, and dyslexia.

The two midline with the great spleen collateral meridians are brought back into harmony with proper correction of an atlas subluxation while wearing indigo lenses.

Applied Kinesiology (AK) utilizes therapy localization (TL) to the pulse points to access the meridian systems. Dr. George Goodheart discovered a fourth pulse point distal to the classic pulse point on the proximal thenar eminence. Therapy localization to these four pulse points with the patient wearing the associated color lens according to five element correlation (with the exceptions of the metal element – violet and the fourth pulse point – indigo) will access the fifteen collateral meridians. Therefore the color associations are as follows for the collateral channels: red for the fire element (heart- small intestine and pericardium-triple burner), yellow for the earth element (spleen-stomach), violet for the metal element (lung-large intestine), blue for the water element (kidney-bladder), green for the wood element (liver-gall bladder), and indigo for the two midline meridians (ren-mai and du mai) as well as the great spleen channel (these last three meridians are not part of the five elements).

The muscles associated to the meridians are the same as correlated originally by Dr. George Goodheart; however they will only display weakness upon manual muscle testing while the patient is wearing the associated color lens. If the color lenses are removed, the associated muscles will manually muscle test strong in the clear. If the muscles affiliated to the involved collateral meridians are subjected to pincer palpation then they will test weak upon manual muscle testing. (According to Goodheart's pincer palpation technic) This corresponds extremely well with the description and definition of both fascia and collateral meridians. Since fascia is both pervasive and continuous throughout the body as well as the collateral meridians being like a net covering the space between the skin and muscles. Correction involves adjusting the elbow for the upper extremity yin/yang collateral meridians, adjusting the knee for the lower extremity yin/yang collateral meridians, or the atlas for the two midline/great spleen collateral channels while the patient is wearing the associated color lenses. Determination of the extremity subluxation is diagnosed via therapy localization to the bone that will negate the manual muscle testing weakness, challenge protocol may then be utilized to determine the exact vector for the manual adjustment. Common subluxations of the elbow are a posterior radial head and medial olecranon, the knee subluxations may include a posterior tibia,

posterior fibula head, lateral tibia, laterally rotated tibia, and a patella displacement. The atlas is involved for the two midline or the great spleen collateral meridians; therapy localization with the thumb to the atlas on the appropriate side of laterality will negate the affiliated muscle weakness (via Goodheart's primary atlas technic). Post correction of the appropriate elbow, knee, or atlas subluxation while the patient wears the affiliated color lenses eliminates the muscle weakness patterns via manual muscle testing. In addition; the pulse points will no longer therapy localize with the color lenses and the associated collateral meridian muscles will not weaken to pincer palpation. Therefore, this protocol corrects the myofascial-gelosis patterns first described by Travel and later expanded upon by Goodheart.

Conclusion

The Fifteen Collateral Meridians may be accessed via therapy localization to the four pulse points while the patient is wearing the affiliated color lenses according to five element correlations (with the exception of the metal element and meridians associated to the fourth distal pulse point; those color correlations are violet and indigo respectively). The muscles correlated to the collateral meridians will manually muscle test weak while the patient is wearing the specific five element color lens; otherwise with the lenses removed the muscles display muscle testing weakness via pincer palpation protocol.

Correction of an elbow subluxation for the yin/yang upper extremity collateral meridians, or correction of a knee subluxation for the yin/yang lower extremity connecting channels, or correction of an atlas subluxation for the two midline/great spleen collateral channels while the patient wears the affiliated color lenses will restore yin/yang balance in the collateral channel system as well as eliminating the myofascial gelosis patterns. This helps to restore harmony and equilibrium to the body and mind of the patient.

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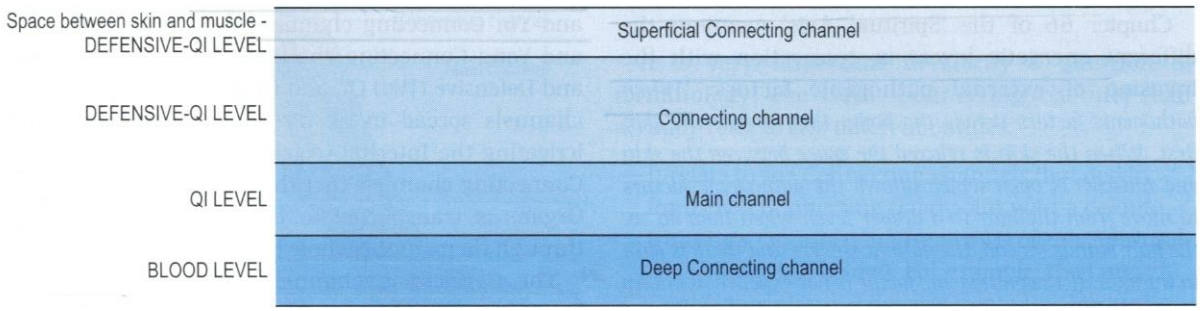
Figure One



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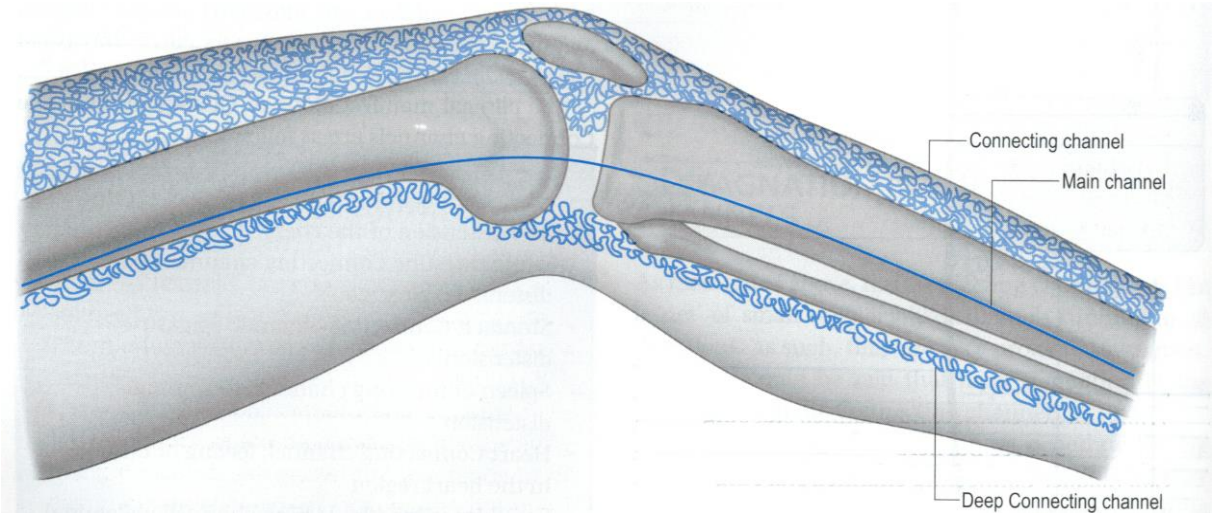

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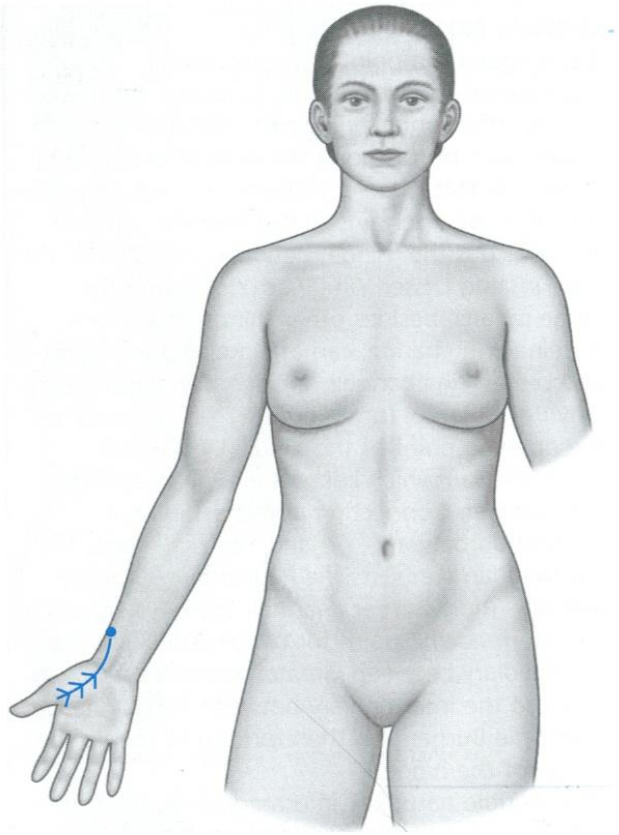

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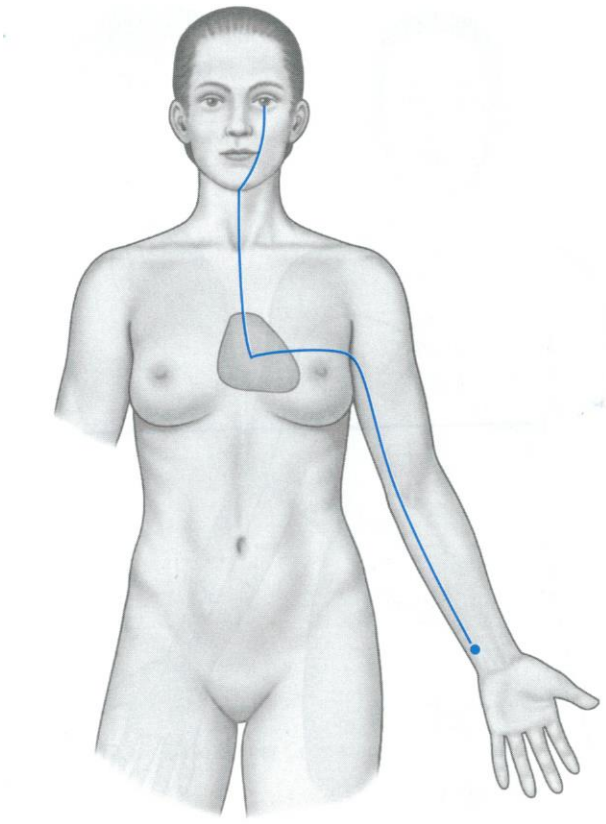

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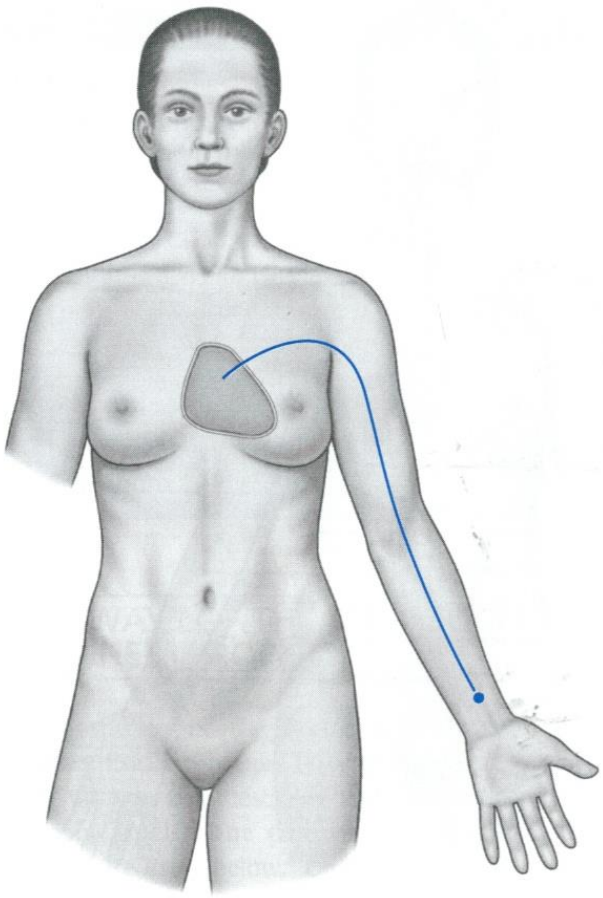

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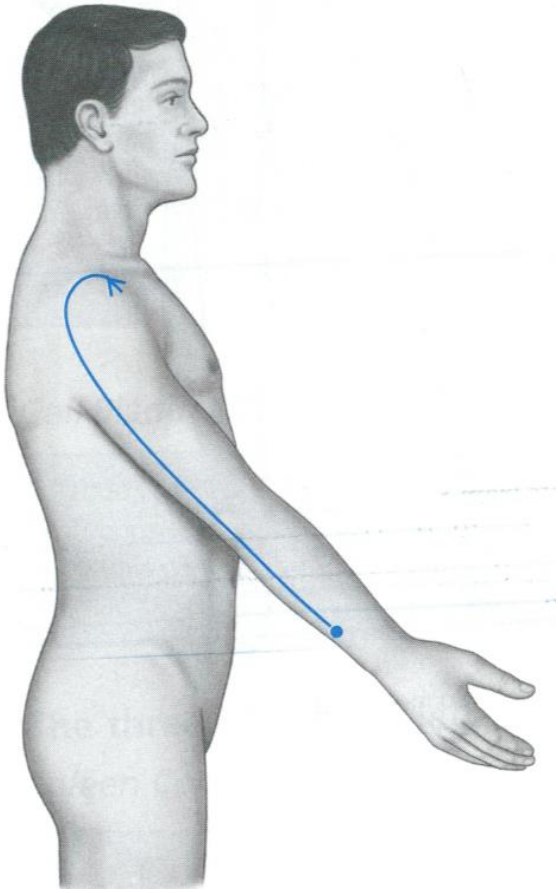

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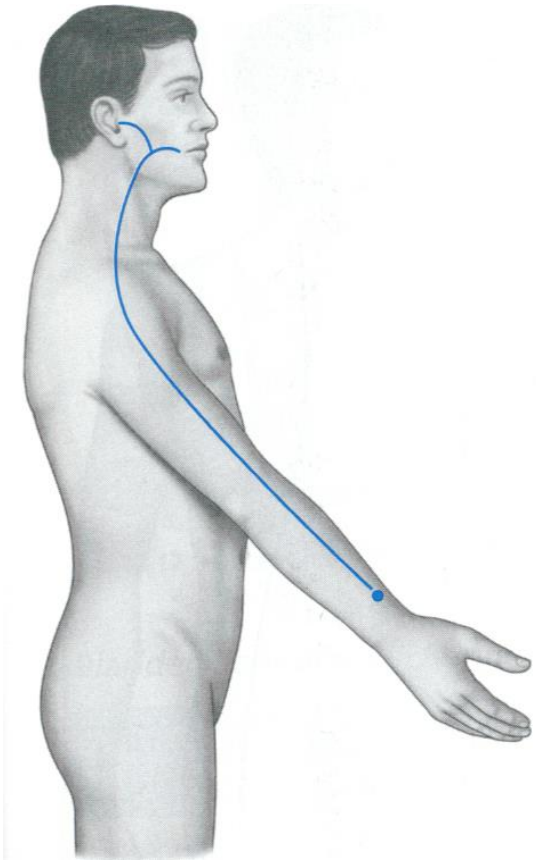

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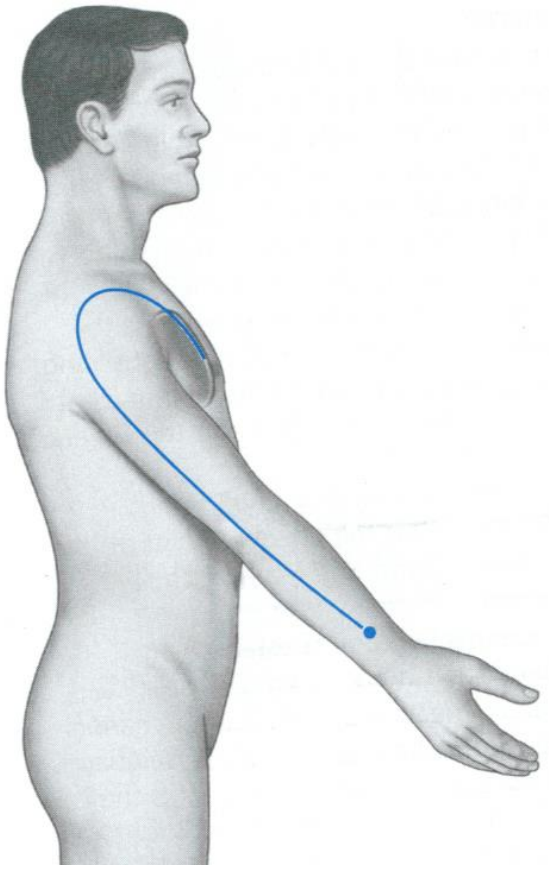

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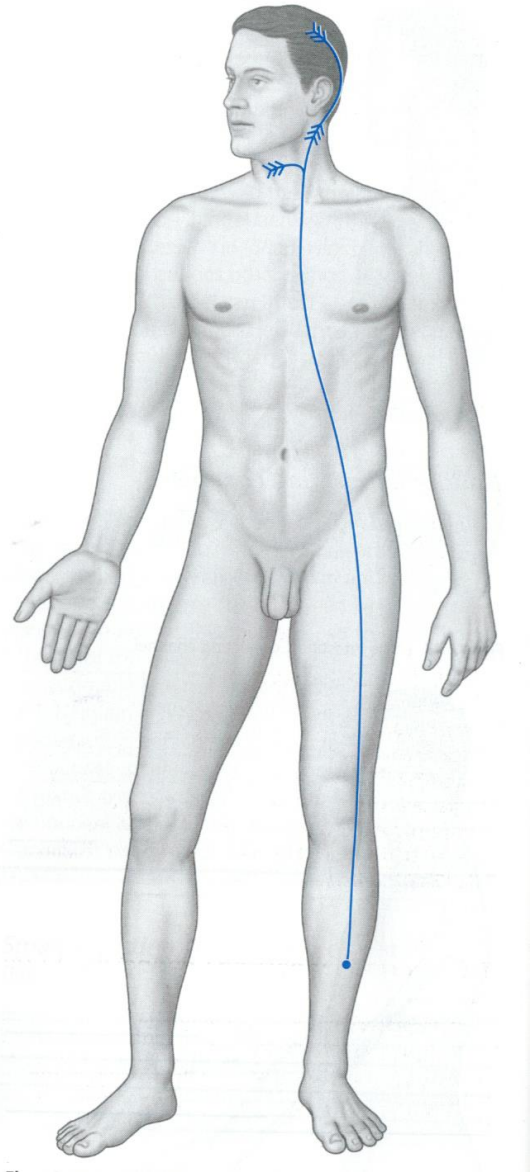

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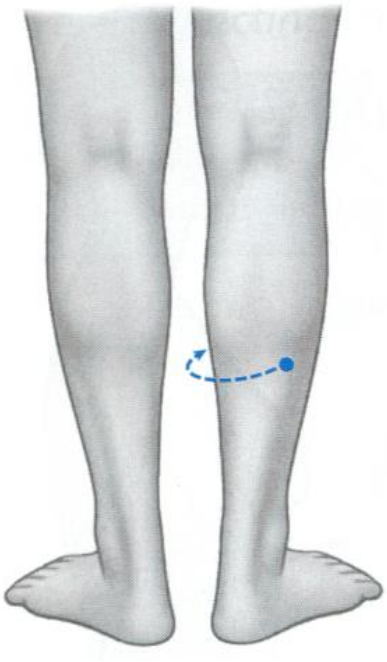

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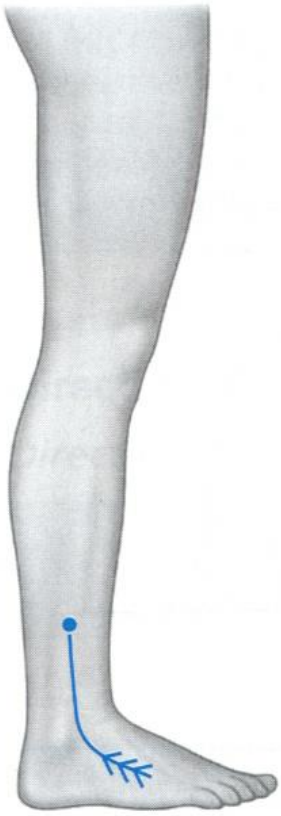

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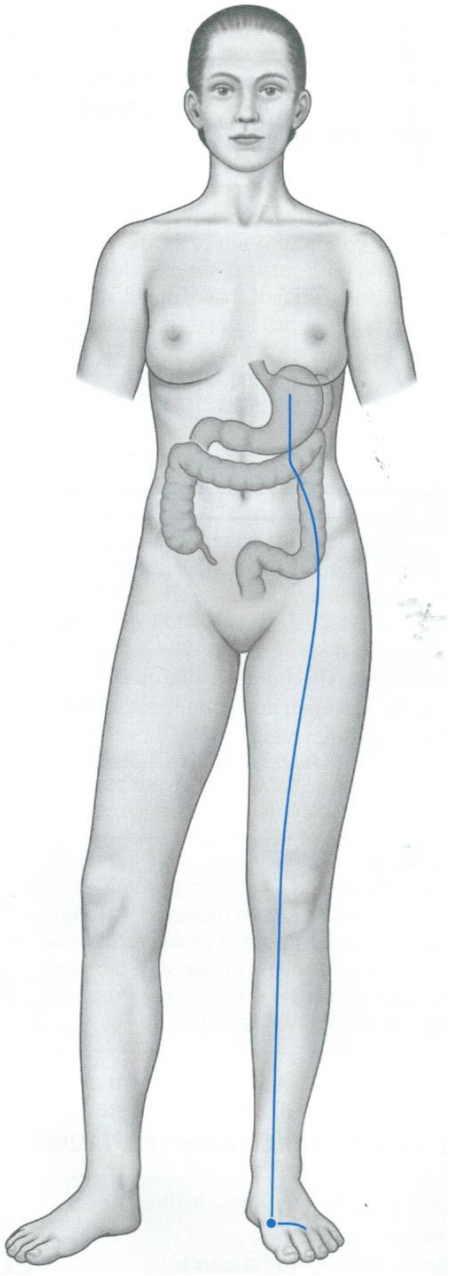

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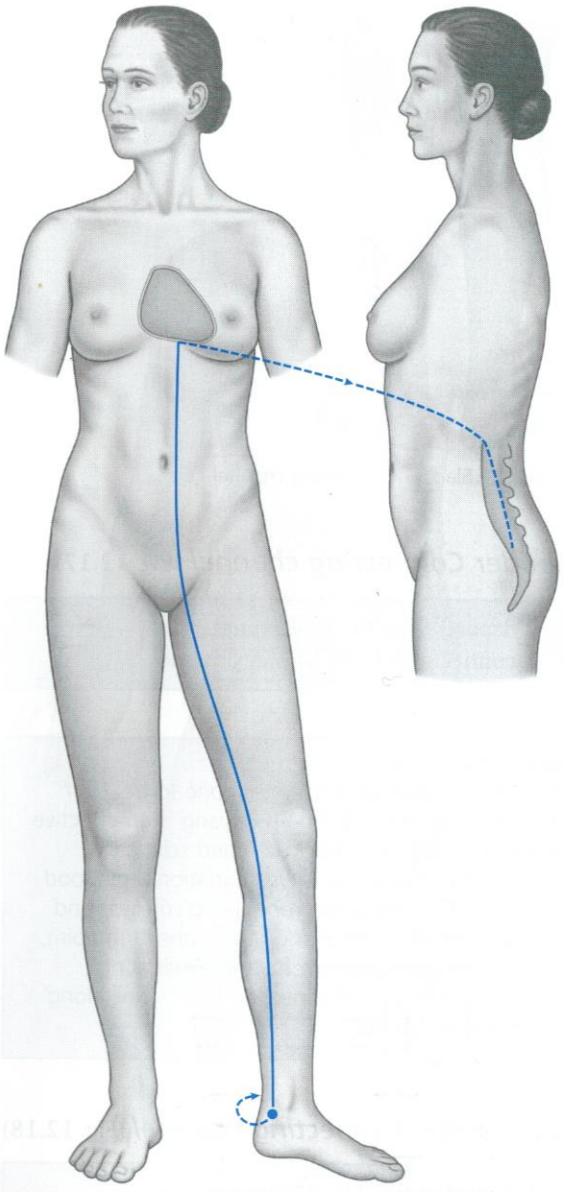

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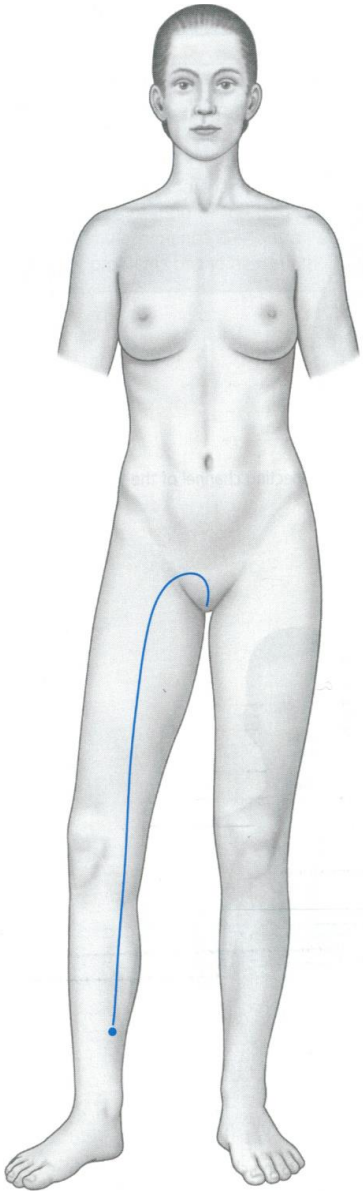

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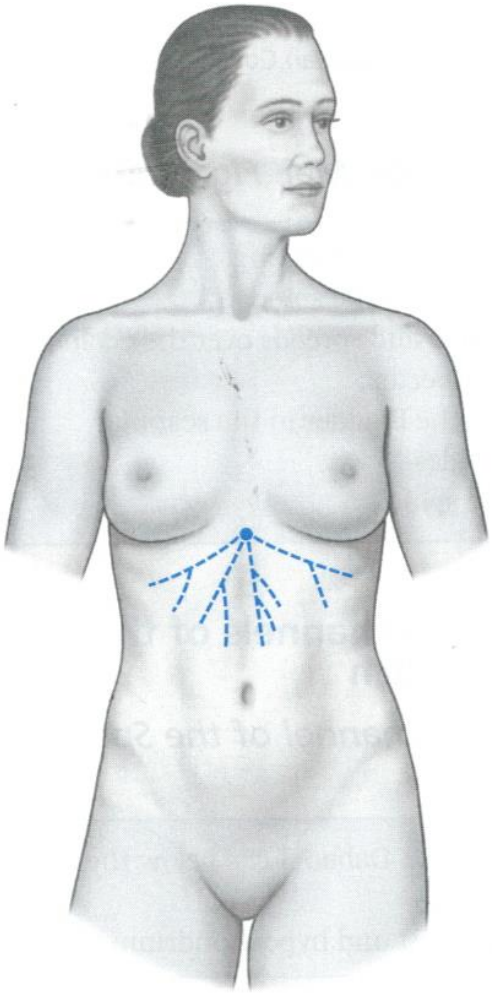

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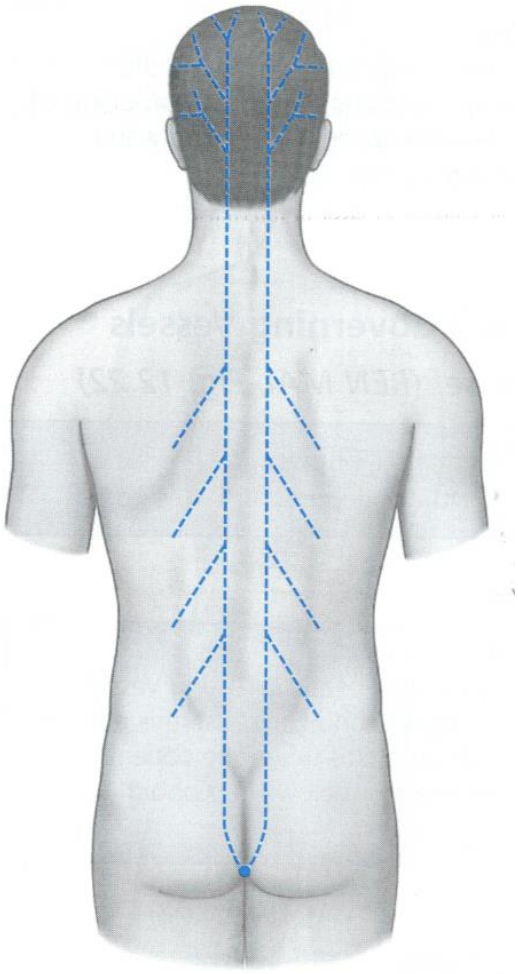

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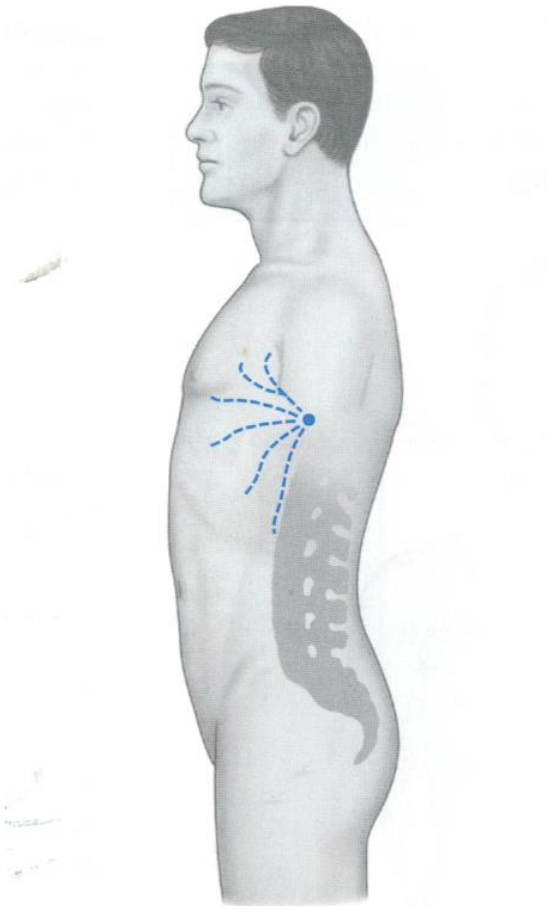

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German Quintessentials

Hans Garten, MED, DIBAK, D.A.C.N.B.

Abstract

This paper is a review of essential components of AK teaching and practice in Germany. These components help to determine the key lesion(s) in the first patient contact. In order to achieve this a set of screening procedures, which may have been slightly modified compared to ICAK-publishing's, are used.

In the initial exam hyporeactive muscles are used to prioritize structural and neurological dysfunctions and hyperreactive muscles are used to define metabolic, emotional and electromagnetic stressors.

Key Indexing Terms
Key Lesion, PNF, Autogenic Facilitation, Hyperreactivity, Hyporeactivity, Metabolic Stress, Emotional Stress, Electromagnetic Stress, Proprioceptive Disturbance

Introduction
Applied Kinesiology is a method used both for health problems of an orthopedic nature as well as internal medical problems.

The basic tool is evaluation of neuromuscular function as a baseline status and following diagnostic challenges.

The myriad of techniques described throughout the history of AK need to be integrated into an overall conceptual workflow in order to make the necessary corrections and make them sustainable.

This guarantees both efficient and successful practice management.

1. In the basic exam along with an orthopedic and postural exam muscle function is defined based upon postural data or the symptom area of the patient.
2. If there are hyperreactive muscles these guide towards metabolic, emotional or electromagnetic stressors. The specific screening tools are described further below.
3. Hyporeactive muscles may have their cause in mechanical stress as well as the before mentioned stressors. Autogenic facilitation of hyporeactive muscles is the tool described by Schmitt (1) to define the existence of injury areas which change the body's proprioceptive mechanisms and motor programs in an unpredictable manner.
4. These have to be cleared before any further segmental efforts. The latter can be prioritized according to the essential proprioceptive areas: cervical spine and TMJ, lower leg and feet, lumbopelvic area.

An important principle for prioritization tools is to use scientifically acceptable concepts and models. This includes avoidance of short cuts, which are widely applied in AK,

whenever these short cuts are based on personal conventions and definitions. These may be useful to the individual author of those models and his followers, yet may lack physiological, neurological or otherwise accepted foundation. To base AK protocols on the latter is considered essential for the continuing growth of AK.

Definitions

Muscle Reactions

Hyporeactive Muscles
These muscles are unable to maintain the test position in AK manual muscle testing, yet strengthen due to an appropriate challenge which temporarily eliminates the cause of the functional weakness (2).

Hypertonic muscles may test hyporeactive (see below).

Hyporeactivity is generally caused by nociception (pain inhibits muscles). Other stressors (chemical, emotional, electromagnetic) may cause hyporeactivity.

Weak muscles do not strengthen to any challenge, the weakness is a result of a pathological, permanent loss of function.

Hyperreactive Muscles
These muscles are able to maintain the test position, yet cannot be inhibited by spindle cell manipulation or stimulation of the sedation point of the associated meridian or placement of the north pole of a 3000 Gauss magnet over its spindle cells.

Hyperreactivity is generally caused by chemical, emotional, electromagnetic stressors, in some instances may be caused by mechanical stressors (TMJ, upper cervicals).

Hypertonic Muscles
They display an increased viscoelastic tone in palpation and an increased resistance to lengthening.

Hypertonic muscles with a myofascial syndrome typically test hyporeactive, because contraction elicits nociception.

CNS Disorders

In the general context of any AK practice the minimum is to establish:

Brain Hemisphere Imbalances
These cause hemibody skeletomuscular imbalances due to a Pseudo Pyramidal Patterns of Inhibition (PPPI) and visceromotor imbalances (hypersympathetic tone ipsilaterally) (3).

Cerebellar Imbalances
These cause postural imbalances and aberrant motor programs (dysmetric, dystactic) as well as hypotonic muscles ipsilaterally.

Cerebellar imbalances also cause oculomotor disturbances (saccadic dysmetria, saccadic pursuit).

Brainstem Imbalances
Imbalances of the vestibular nuclei due to aberrant unilateral input of vestibular, proprioceptive and visual afferents cause postural imbalances.

Imbalances of the oculomotor nuclei cause oculomotor problems, which contribute to postural problems.

Autogenic Facilitation

AF was described by Schmitt (1) and expanded by Weiss (4) and Garten (5).
The first described a putative manual elongation of spindle cells in a hyporeactive muscle that should strengthen that muscle if the cause lies within the muscle itself or in its specific segment (7 Factors of the Viscerosomatic System, 5 Factors of the IVF). AF is positive if the muscle becomes strong after this manipulation. If there is no strengthening (AF negative) the cause is an injury area, which needs Injury Recall Technique for therapy.

Weiss (4) described rubbing of the entire muscle structure from origin to insertion as mechanoreceptor challenge.

Garten (Garten 2012)(5) recommended facilitation of the muscle using repetitive eccentric or concentric contraction in an elongated position utilizing the physiology of the spindle cell according to PNF principles.

Injury Areas

Injury areas are regions with erroneous mechanoreceptor activity and silent or felt nociceptor activity, which caused neuroplastic changes of motor programs (1).
The concept is expanded to more metabolic, i.e. oftentimes toxic stressors which do the same (6).

The appropriate treatment is Injury Recall Technique, in some cases Neural Therapy (injection of local anesthetics).

Foci

These are areas of inflammatory nature (bacterial, viral or aseptic) which cause random effects and symptoms of neurological (including pain syndromes), motoric and metabolic nature (including immune deficiencies (7, 8)).

Injury Recall Technique

Was described by Schmitt (1) and expanded by Becker and Brunck (9).
This consists of elicitation of nociceptive activity at the site of the injury area and additional co-stressors like talus compression, neck extension, dural torque postures (Body into Distortion (10), Centering the Spine positions (11) (Schmitt 1996), Body into Reflex Position (BIR, Persisting Primitive Reflexes (12, 13) combined with some or all of the following: competitive stimulation of mechanoreceptors on the foot (talus flip) the neck (neck flexion, (1)), correction of myofascial meridians according to Myers, stimulation of Acu points on the head (B&E-Points [Schmitt], peripheral Acu points (14), NL-Reflex points.

Procedure

1. Basic Neuro exam to define CNS-imbalances
2. Postural evaluation static
    a. Levels of occiput, shoulders, pelvis
    b. Axes and rotation of legs and arms, angulation of joints, foot mechanics
    c. Head inclination and head scoliosis
        - Muscle tests according to signs of weakness, may (I) or may not (II) reveal hyporeaction
3. (I) Perform Autogenic Facilitation (mechanoreceptor stimulation inhibits nociceptive activity): PNF like contraction against elongation (concentric or eccentric) or rub the area of the entire muscle.
   (II) Take patient out of adaptive posture and retest posturally relevant muscles: Latissimus, mid and lower trapezius, SCM, anterior deltoid/serratus ant. On hyporeactive muscles perform AF.
4. Postural evaluation dynamic in case of extremity problems or if static postural exam does not reveal hyporeactive muscles.
    a. Arm swing
        - Flexors, extensors, hemispheric weakness
    b. Stride length
        - Flexors, extensors, hemispheric weakness (circumduction)
    c. Knee and ankle stabilization
        - Knee and ankle lateral and medial stabilizers
    d. Perform AF in hyporeactive muscles
5. Alternatively test symptom-associated muscles (related to orthopedic area, to organ/system in case of internal symptoms), on hyporeactive ones perform AF
6. Hyperreactive muscles, general hyperreactivity
    a. Focal testing

- Magnet screening in orofacial area, specific testing (TL and nosodes; with magnet augmentation on thumb) according to panoramic radiography.

b. Heavy metal testing
   - Silveramalgam D12 >n
   - Plumbum D12 >n
   - Arsenic D12 >n
   - Others

c. Dysbiosis-Testing
   - Candida D12 >n - Candida dysbiosis
   - Magnesium peroxide (Ozovit®) >n -anaerobic bacterial dysbiosis
   - Metronidazol, MicroDefense (PE) >n – protozoa
   - Mebendazole >n, Oxyuria D6, Ascaris D6, Taenia D6 >n – worms

d. Chronic bacterial infection
   - Borrelia D12 >n
   - Chlamydia D12 >n
   - Yersinia D12 >n

e. Intolerance testing
   - Histamine D12 >n
   - Kinine D12 >n

f. Inflammation
   - EPA >n
   - TNF-alpha D12 >n

g. Oxidative Stress
   - Antioxidants >n

h. Nitrosative Stress
   - Nitrotyrosine >d, B-complex>n

i. Emotional stress
   - TL ENV-Reflex points >n, >d, anamnesis

j. Electromagnetic stress
   - Challenge with electromagnetic stressor (cell phone) >d

If AF negative:

7. Rub possible injury areas/areas of disturbance/foci, find the one(s) which strengthen the hyporeactive muscles.
8. Perform IRT step one to three (at least)
9. In case of positive challenge in dental area: perform nosode testing: ostitis, granuloma, gangrenous pulpa each in D6.
   a. In case of ostitis, try IRT, retest one week later, if positive again, refer for further diagnostics, imaging, decoder dermography, etc. If positive: surgical treatment as high priority.
10. Retest hyporeactive muscles; may still be hyporeactive, but should be AF positive
11. Treat accordingly
    a. Primarily cervical and TMJ, feet and lower leg, lumbopelvic area in spinal problems.
    b. Primarily muscle imbalances; then extremity joint structures (ligaments, capsule, cartilage) locally and with Ligament Interlink (15).

c. Medications, supplements, visceral manipulations for internal problems, incl. hormonal imbalances.

Conclusion

The most goal orientated strategy to correct any heath problem is to work from generalized, systemic stressors towards local imbalances.

Generalized stressors may be subdivided into structural/neurological and metabolic categories.

The former need Injury Recall Technique (IRT) and neurological rehabilitation for therapy; the latter require a change in live style (diet), medication treatment (incl. supplements and homeopathy), as well as visceral manipulations.
Foci are to be considered a metabolic systemic stressor with high priority, which need surgical interventions (root canal, root resection, ostitis excochleation).

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Rehabilitation

David Leaf, D.C., DIBAK

Abstract

Rehabilitation for muscle injuries is a topic that has been overlooked since the inception of applied kinesiology. The paper will describe a method that been used for over 20 years with patients and professional athletes to speed muscle response to exercise.

After correcting any muscle inhibition, the topic of rehabilitation is often over looked. The patient may belong to a gym and go to a trainer with little to no knowledge of muscle function. Their training is more on how to perform specific movements or how to use machines to build muscles. Unfortunately, many see no response or are injured using their services.

Discussion

Since the early 1990's the following procedure has been used and taught in applied kinesiology classes. An example will be given at the end of the procedure description.

1. Correct the inhibited muscle that that it responds to normal muscle testing.
2. Determine the function of the muscle and the fiber type that you wish to rehabilitate.
3. Use either aerobic or anaerobic testing to determine the number or repetitions the subject can perform.
4. Treat using the appropriate procedures to attempt to increase the number of repetitions the person can perform.
5. Set the number of repetitions at 2/3 of the number the person can perform.
6. As a general rule this number can be increased every 10 days the person exercises.

For example, if the person can perform only four repetitions, then the patient is asked to perform sets of two to three.

If the muscle is severely atrophied, then activating specific muscles can perform facilitation of the muscle. For example, contraction of a distal muscle that performs in a similar manner in gait will facilitate the atrophied muscle. The tibialis anterior will facilitate the quadriceps.

Another option is to contract the opposing muscle in gait. In this case, the biceps contracts with the opposite quadriceps. This can easily be done using tubing or small hand weights.

While treating an athlete who had a medial collateral injury requiring surgery at the beginning of February, muscle rehabilitation was started in March. It was progressing slowly until the above procedure was used. A combination of activation of foot muscle

and opposite arm muscles speeded the recovery and he played a soccer game at the end of May, months ahead of schedule.

The same procedure has been used in cases of multiple sclerosis, stroke and in geriatric cases.

Conclusion

When you discuss this approach with patients or athletes and compare it to the idea that everyone must do 8, 12 or even 17 repetitions. It makes common sense to them and many times explains the failure that they have had with standard physical therapy or gym trainers.

Biofilms – A PAK Approach

Michael P. Lebowitz, D.C. and Jeffrey L. G. Robinson, D.C.

Abstract

Biofilms are a new discovery in treating the chronically ill patient. An Applied Kinesiology (AK) screening procedure is now available to help discern if they are an issue with your patients. Dietary modification along with ingestion or topical application of certain nutritional substances can help facilitate biofilm degradation thus exposing the pathogens which can then be eradicated with the appropriate remedies.

Objective

To describe and define what biofilms are, their implication in disease and possible treatments.

Methods

Narrative review of the literature.

Discussion

The importance of biofilms is presented, discussed and applications for treatments are considered. AK applications can give awareness to biofilm and possible stealth infections. Current treatments using only enzymes may effectively break down biofilms but without the concurrent use of anti-microbial may initiate clotting mechanisms that may pose harm to patient.

Conclusion

Biofilms are present in a large percentage of disease. Physician awareness and detection of biofilms will lead to more effective treatment outcomes.

Key Indexing Terms

Biofilms, Lyme, Candida, Plaque, Quorum Sensing, Enzymes

What Are Biofilms?

A biofilm is a negatively charged group of sticky cells which produce a matrix of extracellular polymeric substances. Biofilms, also referred to as "bacterial slime," are generally composed of extracellular DNA, proteins, polysaccharides, microbes, minerals, and heavy metals.

Biofilms are observed on most stable non-sterile surfaces in an aquatic environment. They are found in natural environments such as hot springs, rivers and streams, lakes, subterranean stromatolites, and tidal pools. They are also in man-made and industrial environments such as water and drainage pipes, sanitation systems, house-hold sinks, toilets, and showers, and even in the water tanks of nuclear power plants.

Dental plaque is an example of a biofilm. The “plaque” material that adheres to the teeth is made up of bacterial cells (mainly *Streptococcus mutans* and *Streptococcus sanguinis*), salivary polymers and bacterial extracellular products.

A biofilm can be comprised of multiple microbes; bacteria, virus, protozoa, parasites, and fungi that cohabitate and engage in "quorum sensing," an evolutionarily old form of bacterial communication. A Lyme Disease researcher in New York also demonstrated that *Borrelia* species not only produce biofilm, but can live in the community in any form (i.e., spirochete, L form, spheroblast, and cyst). Additionally, other zoonotic bacteria such as *Babesia, Bartonella, Ehrlichia, Anaplasma*, and *Mycoplasma* species inhabit these communities as well. The biofilm is used to both protect the bacteria from the hosts' immune system, while also serving as a nutritional reservoir in times of harsh environmental conditions. It's a very evolutionarily old and efficient way to ensure that many bacteria and other microbes survive, thrive and replicate.

Biofilms are said to be anchored at certain places by positively charged ions including: calcium, magnesium, mercury, lead, etc. This may be one of the reasons why when a patient undergoes heavy metal chelation, they often experience an exacerbation of symptoms. Chelation of minerals and metals essentially destabilizes the biofilm, rendering the inhabiting bacteria more vulnerable to the hosts' immune system and antimicrobials.

Biofilms have been found to be involved in large percentages of all infections in the body. Chronic sinusitis patients undergoing surgery present with biofilms most of the time. The NIH estimates that 80% of all human infections have biofilm involvement. Other infectious processes in which biofilms have been implicated include common problems such as urinary tract infections, catheter infections, middle-ear infections, endocarditis, infections in cystic fibrosis, and infections of permanent indwelling devices such as joint prostheses and heart valves. More recently it has been noted that bacterial biofilms may impair cutaneous wound healing and reduce topical antibacterial efficiency in healing or treating infected skin wounds. Biofilms can also be formed on the inert surfaces of implanted devices such as catheters, prosthetic cardiac valves and intrauterine devices.

Research has shown that sub-therapeutic levels of β-lactam antibiotics induce biofilm formation in *Staphylococcus aureus*. This sub-therapeutic level of antibiotic may result from the use of antibiotics as growth promoters in agriculture, or during the normal course of antibiotic therapy. The most prevalent fungal biofilm-forming pathogen is *Candida albicans*, which can cause both superficial and systemic infections.
Humans are host to various "friendly" bacteria, we carry them around with us in tissues and biofilms and they normally exist in balance within our bodies. The number of bacteria living within the body of the average healthy adult human is estimated to outnumber human cells ten to one. We need bacteria to create enzymes for various body processes, communicate with the immune system, prevent the growth of harmful species, produce vitamins (such as biotin and vitamin K), and produce needed hormones. It is not realistic to remove all the biofilms from the body. We are designed to live in harmony

with one another, unless infection and other problems create an imbalance. Humans are "symbiotes" with various organisms.

It is when Spirochetes/parasites/protozoa and strong antibiotics enter the picture that the normal, symbiotic biofilm arrangement in the body can most likely be tipped over the edge into more pathogenic ("bad") biofilm communities.

The goal then is to re-establish the healthy balance and symbiotic relationship to the natural biofilms and organisms in the body.

Cautions

One of the authors of this paper postulates that he ended up in the hospital with infection induced pulmonary emboli by degrading biofilms with certain proteolytic enzymes thus unknowingly releasing microbes that caused a hypercoagulable state. It is our belief that biofilms should only be treated with substances that not only degrade the biofilm but also have broad spectrum anti-microbial effects. At the same time the patient should be monitored to see if they are releasing any "new" microbes or toxic metals as a result of the degradation and these should be treated concurrently.

AK Application

With the advent of new test kits, it is possible to screen for Biofilms with Applied Kinesiology. Positive findings are very common in patients we have already cleared of dysbiosis as eliminating the dysbiosis may be a "false" negative as pathogens remain in "hiding" behind biofilms.

1. See if the biofilm vial (Supreme Nutrition 1-800-922-1744) causes either a "strong muscle" to "weaken" or become "hypertonic," If it does, it is a positive test.
2. See if the positive vials are negated by a mixture of the following essential oils and supplement as indicated: Piper nigrum, Rosmarinus officinalis, Syzygium aromaticum l., and Origanum compactum benth. Also test a mixure of Eucalyptus globules, Citrus reticulata blanco var tangerina, Boswellia carterii, and Thymus vulgaris and supplement as needed. These have been studied by one of the authors as a result of academic research coupled with clinical investigation with AK.
    a) Piper nigrum, Rosmarinus officinalis, Syzygium aromaticum l., and Origanum compactum benth - one drop three time/day (start with one drop daily topically)
    b) Eucalyptus globules, Citrus reticulata blanco var tangerina, Boswellia carterii, and Thymus vulgaris - one drop three times/day (start with one drop daily topically)

Be aware that some patients with massive biofilm formations may undergo Herxheimer reactions from this and need to have some detoxification protocols added.

Prevention/ Lifestyle and Treatment Considerations

1. Limit oils from diet, oils/fats have been felt to increase biofilm formation in some patients.
2. On some patients giving magnesium and B vitamins may encourage biofilm formation and they should be contraindicated when treating biofilms.
3. Don't neglect to clear dysbiosis, toxins, metals and food toxins to bring the most satisfactory results.

Conclusion

It is the author's opinions that screening for biofilms should routinely be done on chronic patients as well as screening for dysbiosis, food reactions, toxic metals and chemicals, nutrient deficiencies, etc. The few minutes of time it takes is well worth the information you will elicit and will positively influence the clinical outcome.

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Sternalis – An Anatomical Review and its AK Clinical Importance

R.H. McCulloch, D.C., DIBAK

According to the current literature the sternalis or rectus sternalis muscle is well known to anatomist and thoracic surgeons but poorly understood or even recognised by clinicians and radiologists (1).

Sternalis is a rare subcutaneous, inconsistent muscle oriented craniocauldally on the midline of anterior thoracic cage, superficial to the manubrium and running across the costal origins of the pectoralis major muscle (2).

It is prevalent in 5.8% Chinese (3), 1% Taiwanese (4), 4-8% Indian subjects (2), 6% Afro-Americans (2) and 0.69% in woman who have undergone a modified radical mastectomy (2). When using a MDCT scanner one study showed a prevalence of 10.5% (9).

It varies in shape and thickness (2). There is a Y shape (6), a bilateral strip (7, 1), and a unilateral strip (7).

My findings as an AK practitioner point to the sternalis muscle being a single strip of muscle running the length of the manubrium and sternum in a craniocauldal direction, with its origin on the superior/anterior manubrium and its insertion into the body of the xyphoid process as pictured in the diagram below (2). This finding is the position I use in the discussion.

Other variants of the Sternalis muscle.

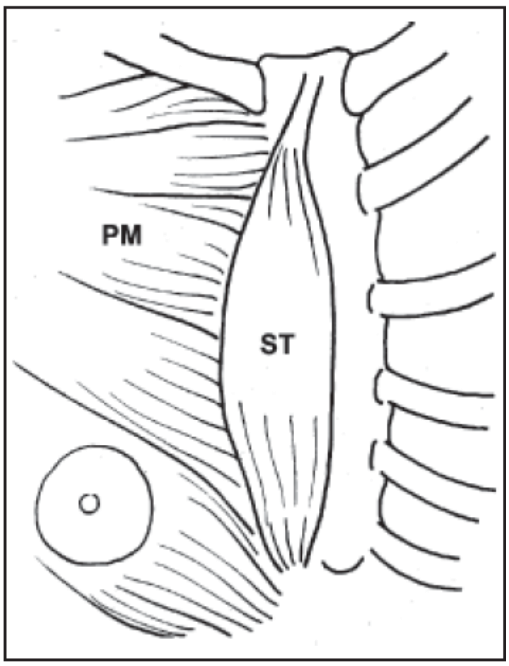
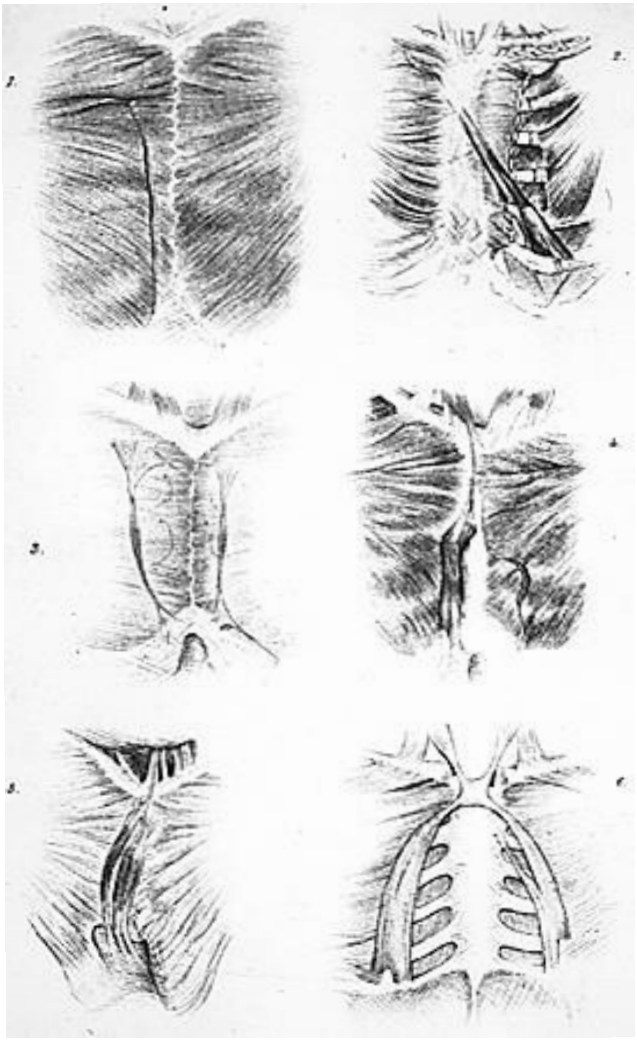


Fig-2: Diagrammatic illustration of the sternalis muscle (ST) and pectoralis major (PM).

The majority of investigations into the sternalis muscle have occurred during autopsies. The unavoidable limitation on sample size and population balance in cadaveric research might explain the great variation in prevalence. In addition, anatomical features such as morphology, location, size and course may change with fixed cadavers (3).

It is thought to arise from the Panniculus carnosum or the platysma muscle (5).
Other authors (2) claim that it arises from the sternocleidomastoid muscles and the rectus abdominus.

Nerve innervation is thought to be the costal nerves.



Discussion

I suggest that a possible explanation for the large disparity in the prevalence of the sternalis muscle between the research done on cadavers and my own clinical findings is as follows.

1. It is probable that in many people this muscle is very thin and may not be detected in the cadaver.
2. The anatomists aren't necessarily directly looking for such a thin muscle strip.
3. In "live" patients our refined and sensitive AK diagnostic approaches are more accurate at revealing this muscle.

As applied kinesiologists the possible nerve innervation of sternalis by cranial nerves VII and XI from its possible origins as part of the platysma and SCM muscles should be of interest as we have a deep understanding of the connection between cranial faults and the cranial nerves.

The heart is supported by two ligaments in the mediastinum, the sternopericardial ligament and the xyphocardial ligament attach to the posterior aspect of the manubrium and sternum/xyphoid process. Releasing the sternalis muscle and any fixation at the sternal angle will help the mechanical function of the heart.

Applied Kinesiology MMT for Sternalis Muscle and Findings
The testing procedure is indirect, much like that of the MMT for subclavius (10). Using a normotonic indicator muscle directly therapy localise the belly of sternalis. If the sternalis muscle is involved the indicator muscle will weaken.

However, observe the old proviso that the therapy localizing only tells you that there is a problem here but not what it is. At this point it is very important for the practitioner to differentiate between neurolymphatic areas (diaphragm), alarm point for the circulation sex meridian or some other factors that can give you a positive therapy localization. The differential diagnosis can be done by challenging the proprioceptors of the muscle.

The more effective approach to isolating sternalis muscle is through reactive muscle patterns. Using this approach will reveal how prevalent this muscle really is in patients. As high as 90% of my patients show very clear evidence of the presence of rectus sternalis. That is eight to nine times more than the literature records!

My findings show that sternalis is on the liver meridian and the organ association is also the liver with all the commensurate neurolymphatic/neurovascular points and nutrition (11).

Applied Kinesiology Treatments
The most effective treatment by far is the proprioceptive work e.g. spindle cell and golgi tendon release, strain/counter strain, fascial flush and percussion. Only occasionally neurolymphatic/neurovascular or nutrition.

Conditions Where Sternalis is Indicated
My findings indicate that the sternalis muscle is more associated with the structural side of the triad of health and proprioceptive injuries, so keeping that in mind, any form of trauma to the chest wall e.g. seatbelt injuries, contact sport (rugby, martial arts) and definitely include birth injuries here.

In asthmatic patients, alongside proprioceptive corrections of pectoralis minor, subclavius, diaphragm, transverse abdominus and sternocleidomastiod muscles, sternalis goes a long way into opening up and mobilizing the chest wall.

Sternalis is a regular feature of reactive muscle patterns. I feel probably due to birth trauma.

Due to the ligamental support of the heart to the manubrium and sternum, I would consider any heart condition.

Dorsal kiaphosis and its milder form 'round shoulders.'

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The Anterior Serratus – Abdominal Connection to Back Pain – A Case Study

Donald McDowall, D.C., MAppSC, DIBAK, F.A.C.C.

Abstract

Purpose
To present an unusual correlation of anterior serratus muscle inhibition with acute back pain.

Design
A case study design discussing the correlation, diagnoses and treatment of the anterior serratus/external abdominal oblique dysfunction.

Findings
The dysfunction between the interdigital connecting fibres of the serratus anterior and the external oblique abdominus muscles can contribute to acute back pain. It may be diagnosed with manual muscle testing and resolved using Applied Kinesiology methods to induce rapid results and an efficient patient outcome.

Limitations
Caution should be exercised when applying the observations of an individual case to others with similar back pain given the multiple causes possible. Bias may be evident in both the author's expectation of outcome, delivery of service and in the patient's presentation of history, injury and symptoms.

Practical Implications
A new trigger for acute back pain may exist. Using manual muscle testing methods to diagnose and optimise care may speed recovery. In this case, a failure of muscle facilitation was diagnosed in a clinical environment and treated manually without medication or exercise therapy.

Social Implications
These findings may translate to social benefits for the patient in the form of reduction of fear and anxiety from a disabling injury. Economic benefits for the patient and employer flow from reducing loss of time off from work.

Value
Evidence that the serratus anterior tendon insertion on the external abdominal oblique enthesis may fail leading to acute back pain is presented. Clinicians and therapists can easily use this diagnostic method and treatment modality.

Introduction
The lower attachments of the origin of the serratus anticus (SA) muscle may be overlooked in the search for the cause of shoulder instability. Understanding the interdigital fasiculae connection of this muscle with the external oblique abdominus (EOA) provides an additional link for creating more stability for the shoulder.

Shoulder problems are an enigma for many clinicians with difficult problems often resulting in prolonged physiotherapy or expensive surgery.[1,2] The case presented gives an interesting indication of the involvement of shoulder instability with back pain.

The first muscle tested by George Goodheart in 1964 was the serratus anticus.[3] Goodheart observed the winging of the scapula in a patient he was treating for a thyroid condition. The patient responded well to treatment for the thyroid condition but complained about the shoulder problem that Goodheart had struggled to fix.

Kendall's book *Muscle Testing and Function* provided a method for Goodheart to observe and diagnose muscle impairments in the shoulder. Instead of using physical therapy exercises for treatment Goodheart palpated nodules observed at the origin of the muscle tendon attachments on the ribs. The act of palpation caused the serratus to contract much to Goodheart's surprise. He stated "The correction of the flared scapula was remarkable." Goodheart theorised that he had stimulated micro avulsed tendon attachments of the serratus as he palpated.[4] Kendall described the correct function of the shoulder is dependant on the contraction and stability of the Serratus Anticus.[5] (Image from Kendall)


Picture: Flared right scapula

Inhibition of this muscle, for whatever reason, will create difficulty raising the shoulder above the head as well as recruitment of adjacent muscles Trapezeii and Levator Scapulae. Given the number of fasciculae that combine to contract this muscle, there is little wonder that there may be a variety of strain injuries affecting its function. Combinations of weight and duration of strain during normal lifting and reaching activities can soon overstretch and inhibit its function.[6]

Nijs, et al. describe these injuries as follows:

> "The muscular system is the major contributor to scapular positioning both at rest and during functional tasks. In the case of altered activity (delayed firing, inefficient recruitment, or increased tension and consequent shortening) of scapular muscles, scapular positioning is likely to become abnormal. Inappropriate control of scapular positioning has frequently been linked to shoulder and neck disorders.(6, 7, 8 and 9) Moreover, scientific evidence supporting abnormal scapular positioning in patients with shoulder impingement syndrome, 2 symptoms of shoulder impingement,(10 and 11) a traumatic shoulder instability,(12) multidirectional shoulder joint instability,(13) and shoulder pain after neck dissection in patients with cancer (14 and 15) is accumulating. One study has shown that physiotherapy (primarily exercise therapy targeting the scapulothoracic muscles) was superior over no treatment in patients with subacromial impingement syndrome.(16)" [7]

The resulting pain can cascade into a variety of syndromes creating over-contraction of the supportive and antagonist muscles including pectoral, deltoid, rotator, clavicular and cervical groups. Rib elevation may be compromised causing medial strain on the diaphragm and inferior strain on the abdominal muscles. This can then result in cardio-respiratory, digestive and back pain symptoms. It is not unusual for the sufferer to be medically examined for heart problems, GERD, inflammatory diseases, psychological or musculo skeletal pain.[8]

Facilitating the inhibited serratus anticus can involve using a variety of Applied Kinesiolgy (AK) methods designed to assist the proprioception, lymphatic, circulatory, respiratory and organ manipulation reflexes related to the muscle.[9]

Keeping the muscle function normal in all movements may be a more difficult challenge. Part of this process will involve assessing the integrity of the fascial attachments of the muscle origin as a base to work from.

Nijs, et al. further explain:

> "Many strategies for the assessment of scapular positioning are described in the scientific literature. However, most of these strategies apply expensive and specialized equipment (laboratory methods), making their applicability in clinical practice nearly impossible. From a clinical perspective, guidelines for a reliable and valid assessment of faulty scapular positioning in patients with shoulder pain are essentially lacking. There is a need to develop simple clinical indicators to allow clinicians to assess scapular kinematic behavior accurately.(2 and 5) These tests should be affordable, easy to perform, reliable, valid, and responsive to change."[7]

Manual muscle testing (MMT) may provide the criteria to make this assessment in an inexpensive, efficient clinical manner. AK therapy options may provide similar efficient, inexpensive patient compliant results.[10, 11]

Case Study

A 39 year old male, 183 cm and 120 kilo, working as a railway signal man with a 16 year history of occasional back pain that resolves with spinal manipulation attended the clinic in acute pain, graded at 9/10 (VAS). Patient symptoms included difficulty breathing, standing erect and pain in the right mid back and rib area. He presented antalgic to the right side, sweating and smelling of liniment. He said that he had been feeling fine since his last chiropractic check up 10 weeks prior. He said that two weeks prior to this visit, he felt slight pain in his right thigh, attended a medical physician and was told it was a strain and not to worry about it. There was no history of imaging. The pain left a few days later. The patient explained that the current problem began when he put on his trousers for work this morning (about two hours prior to his visit) and attempted to do them up by tightening his belt. He said he felt something "give" in his back. The pain doubled him up. His wife attempted to help by rubbing the pain area with liniment but it didn't do much.

Examination revealed normal reflexes for L2-S1. Digital pressure to the thoracic spine, lumbar spine or ribs produced no pain. Movement away from the side of pain exacerbated the pain. Pain lessened as the patient contracted his body to the right. No vertigo, radicular pain or emotional distress was observed. Pain perception was located to the right serratus, rhomboid and abdominal region. Further investigation indicated restricted movement of the ribs on the right side with inspiration and expiration indicating a diaphragm strain. T10-L2 were restricted bending to the right during motion palpation and were co incident with aggravating the pain. There was no indication of cyanosis. Manual muscle testing indicated inhibition of the right serratus anticus, spasm of the right rhomboid, inhibition of the right external abdominus oblique and the diaphragm.[5]

Treatment began with a palliative discussion of the injury and its relevance. Manual treatment began, with the patient's permission, by the resolution of the diaphragm strain with a compressive adjustment to the fundus of the stomach as described by Walther. [9] A reduction of pain and deeper breathing was observed. Therapy Localisation (TL) and directional challenge to the proprioceptive reflexes of the periosteal and fascial attachments of the serratus anticus (as described earlier in the paper) facilitated the lower attachment of the SA to the external abdominus oblique. Post MMT of the inhibited muscles indicated strengthening and improved support. The rhomboid pain self resolved following SA strengthening. The antalgic posture was still present when erect with pain returning when attempting to straighten. A right inhibited psoas was observed with erect MMT.

The psoas responded to strain-counterstrain technique[13] and manipulation of the T10-L2 fixation. Re-examination indicated no acute pain or antalgic posture. Movement was restored without restricted breathing. Slight pain remained on deep forced inspiration, which appeared to be located at the transverse process and rib head of T8. This pain was positive to deep palpation of the rib head indicting probable ligament inflammation. The patient described a post VAS score of 5/10 after treatment.[14]

Prognoses for this patient's injury is positive with resolution of pain complete in probably three days. A day off work was advised and palliative care involving walking, prone lying and cold packs during the day over the SA, EOA attachment. Re-examination to assess the need for supportive treatment within 24 hours was scheduled to assess any compensatory pain.[15,16]

Consultation and examination the following day indicated the patient felt well enough to return to work with a subjective decrease in pain to 4/10. The patient was no longer antalgic and described his symptoms as a generalised stiffness with tightening of the abdominal and chest muscles. All muscles subjected to MMT on the previous visit were facilitated with no signs of inhibition. Tendernous of the spinous processes of T12-L3 was observed. There was an indication for adjusting the L3 segment spinous right using challenge diagnoses. A side posture pull move with the patient lying on the right side was the preferred adjustment. Challenge to the T4-8 indicated a need for fixation release using an anterior adjusting thrust. This was done using manual caudal traction with anterior pressure. A tapping challenge to the treated vertebrae indicated the need for vibration. This was done using an Arthro-Stim instrument. Post pain evaluation after treatment was 2/10. Follow up care was advised for the next day.

Consultation for this third visit indicated that the patient was completing full duties at work. His subjective assessment of pain was for discomfort only with a 1/10 rating. Symptoms included slight low back stiffness with right thigh sensitivity to touch. MMT indicated that the original muscles had maintained their strength. No spinal tendernous was observed to digital pressure. Vertebral challenge of the whole spine was completed with the patient in a prone position. C2&C7, T6-10, L5 Posterior and the right sixth rib were indicted for subluxation adjustment. These were performed manually in the prone position with drop technic. The patient's subjective pain perception after treatment was 0/10. Assessment for stability of care was scheduled for one week.

A check up of all symptoms and findings was completed at one week. The patient had completed full work duties. No stiffness or pain was observed. MMT and vertebral examination failed to find any subluxation or muscle inhibition. Pain perception remained at 0/10.

An exam and review was completed at one month. The patient had completed full work duties. No stiffness or pain was observed. MMT and vertebral examination failed to find any subluxation or muscle inhibition. Pain perception remained at 0/10.

The patient was advised to use elastic topped trousers to prevent further injury.

Table 1: Summary of Key Changes for This Case

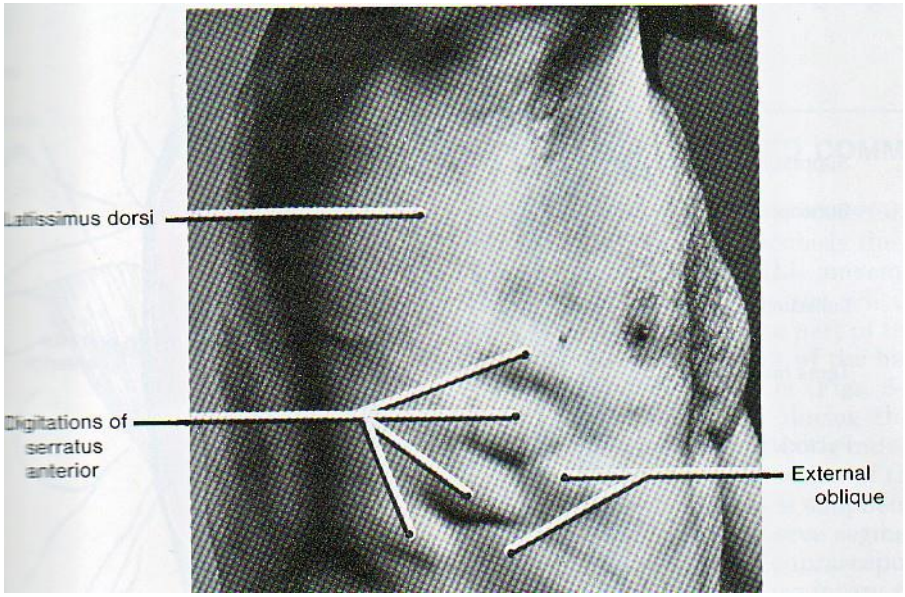
Patient Features	Treatment schedule	Major Findings	Pain Level before treatment	Treatment given each day	Pain Level After treatment
39 yr Male, 183cm, 120kgms	1st Day	Acute Pain, antalgic to R, dyspnea, sweating. No work.	9/10	Dia release, R SA/EAO, R Psoas Prop. T10-11 SMT	5/10
16 yr history LBP. No imaging history. Last visit 10 weeks prior to injury.	2nd Day	Return to work, light duties. No antalgia, muscle stiffness only, no muscle inhibition. Spinous pain of T12-L3. T4-8 fixation.	4/10	L3 PR SMT, T4-8 ant SMT. ArthroStim vib for T4-8.	2/10
Previous Medical care for thigh pain 2w prior. Dx=Strain. No Tx.	3rd Day	Full work duties. Slight LB stiffness, R lateral thigh sensitive. Full spine ROM subluxations at C2,7. T6-10, L5, rib 6.	1/10	SMT for C2,7, T6-10, L5, rib 6.	0/10
AK Exam = No spinal pain, Normal reflexes, Pain flexing to R. Pain with inspiration. Fixation of T10-12. MMT=Inh of R Rh, R AS, R EAO, Diaphragm.	1 Week and 1 Month	Full work duties. No findings of muscle inhibition, VS or fixation were observed.	0/10	No treatment given.	0/10

LBP=low back pain. Dx=diagnosis. Tx=Treatment. AK=Applied Kinesiology. MMT=manual muscle testing. Rh=Rhomboid muscle. AS=Anterior Serratus muscle. EAO= External Abdominus Oblique muscle. ROM=range of movement. SMT=spinal manipulative therapy. Vib=vibration.

Discussion

Anatomy of the Serratus Anticus

This is a thin muscular sheet also known as the serratus magnus, located between the ribs and the scapula, spreading over the lateral part of the chest. It arises by fleshy digitations from the outer surfaces and superior borders of the first eight or nine ribs, and from the aponeuroses covering the intervening Intercostales. Each digitation (except the first) arises from the corresponding rib; the first springs from the first and second ribs and from the fascia covering the first intercostal space. From this extensive attachment the fibres pass dorsalward, closely applied to the chest-wall, to the vertebral border of the scapula, and are inserted into its ventral surface in the following manner. The first digitation is inserted into a triangular area on the ventral surface of the superior angle. The next two digitations spread out to form a thin, triangular sheet, the base of which is directed dorsal ward and is inserted into nearly the whole length of the ventral surface of the vertebral border. The lower five or six digitations converge to form a fan shaped mass, the apex of which is inserted, by muscular and tendinous fibres, into a triangular impression on the ventral surface of the inferior angle. **The lower four slips interdigitate at their origins with the upper five slips of the Obliquus externus abdominis.**[12]



Picture: Serratus and Abdominus junction

Anterior abdominal wall. Upper part of the right external and internal oblique muscles

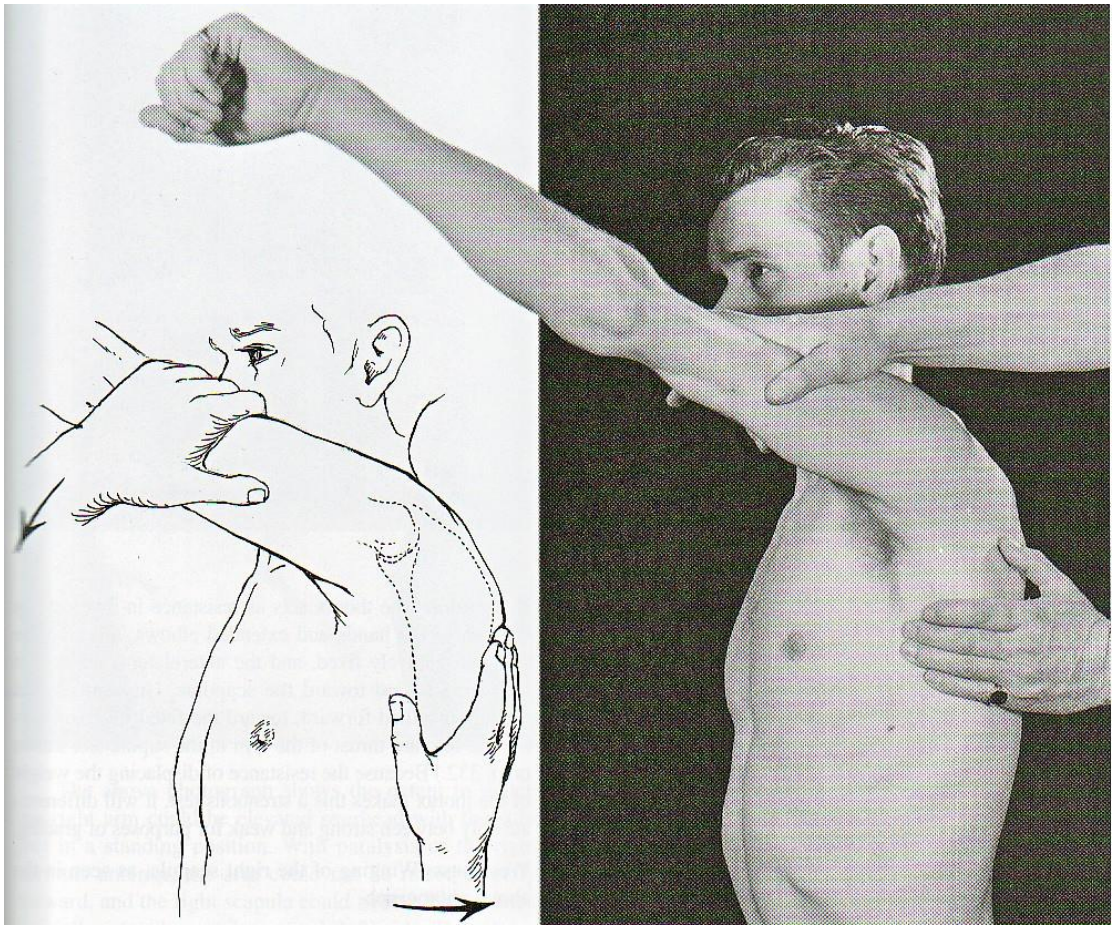
1 Serratus anterior digitation
2 External oblique
3 External oblique aponeurosis
4 Internal oblique aponeurosis
5 Rectus abdominis and tendinous intersection
6 Internal oblique
7 Tenth rib

The long thoracic nerve from the brachial plexus, containing fibres from the fifth, sixth, and seventh cervical nerves innervate this muscle.

Function of the Serratus Anticus
This muscle rotates the scapula, raising the point of the shoulder as in full flexion and abduction of the arm. It draws the scapula forward as in the act of pushing. The upper digitation may draw the scapula downward and forward; the lower digitations draw the scapula downward.[12]

Dysfunction of the Serratus Anticus
There is difficulty raising the arm in flexion, creating winging of the scapula. With marked weakness, the test position cannot be held. With moderate or slight weakness, the scapula cannot hold the position when pressure is applied on the arm. Because the rhomboids are direct antagonists of the serratus, they can become shortened. Stability of the lower fasiculae of the serratus can be compromised by inhibition of the EOA.[5]

Diagnosing inhibition of the Serratus Anticus
Strain, over stretching or micro avulsion of the tendons at the attachment of the SA and the EOA may cause inhibition of the SA and the cascade of symptoms previously described.[4]



1. Test the muscle. Check that the shoulder flexors are strong before the test begins. Position the arm at 120 to 130^{o} to stabilize the scapula in a position of abduction and lateral rotation, emphasize the upward rotation action of the SA in the abducted position.
2. Have the patient therapy localise (TL) the fibers that interdigitate with the EOA.
3. If the TL is positive and stimulates the inhibited SA the treatment is indicated.
4. Find the direction of treatment by using digital vectors along the length of both the serratus fasiculae and the abdominus attachment at the point of interdigitation that creates strengthening of the inhibited SA.

Treatment of the Serratus Anticus

1. Use firm digital pressure in the direction of positive challenge or vibration.
2. Retest the muscle. Strengthening to the manual pressure of the MMT indicates a loss of inhibition.

Results

The most common treatment for acute back pain after screening for pathology in the emergency department or private medical service would be to use pain medication, anti-inflammatory medication, advice to keep moving and some restricted activity.[17]

The patient's presentation could have involved a number of approaches to care ranging from an antalgic disc injury to a cardio respiratory condition. The patient did not complain of a shoulder problem yet the most obvious problem with this patient was restricted movement of the shoulder. All the symptoms during the first visit appeared related to the dysfunction of the shoulder and rib stabilizer muscles. It is possible the lateral thigh pain may have been a precursor for this acute injury given possible radicular pain sourced at the fixation of the T10-L2 with probable hypermobility with the adjacent segment of L3.

Strain injuries of this kind usually heal with the resolution of inflammation and function. This case was no exception. The patient may have "overstretched" his shoulder and rib stabilizer muscles as he "did up" his pants. It is probable that the muscles may have been inhibited before the injury occurred, given his history of previous back problems. Failure of the SA/EOA fast twitch reflexes may have been his undoing. The SA/EOA may not have been able to contract as quickly as was required and overstretched at the attachment. Speed of use can be a critical factor in the early morning when running late for work over facilitating the muscles coming out of a rest state.

Complications to this patient's recovery were addressed by advising the patient to carefully think through any rapid movement in the first 24 hours post care. Weight bearing aggravation of the injury can occur and will complicate recovery and may create deeper underlying structural instability before ligament healing is complete.

The patient's recovery from an acute pain with antalgic posture was remarkable in that he was able to return to work with limited duties the day following the injury and return to full duty within 48 hours without medication. The patient's perception of pain was just as remarkable in that he showed a 50% improvement in loss of pain

sequentially with each of the treatments. The third treatment resulted in a complete loss of pain.

The change in treatment for each visit was also interesting. The first visit involved acute pain management using MMT diagnoses and AK muscle reflex treatments including the traditional origin/insertion technic of Goodheart.[18]

Facilitating muscle action assisted SMT of the thoracic region. The second visit focused on resolving upper lumbar pain most probably caused by ligament strain. No muscle inhibition was observed on this visit. Yet the patient experienced "tightness" in his mid back. Examination indicated this "tightness" was related to vertebral fixation. This resolution of lumbar pain and loss of "tightness" was achieved using SMT for the involved vertebrae. Vibration with an ArthroStim instrument was used to assist CNS adaption to the SMT.[19] The third visit focused on the probable pre-existing condition of lumbar radiculopathy and less muscle inhibition. These symptoms resolved using SMT for the subluxations described.

It would seem that using the AK MMT approach to resolve the interdigital fasciculae strain between the SA and OEA in this patient syndrome increased the patient's ability to recover quickly and return to work within 24 hours of the injury. SMT during the next two visits reduced symptoms from probable collateral injury.

These findings are dependant on clinical observation and patient perception. Control of the patient's progress was voluntary with his own recognisance, which may have compliance limitations.

Conclusion

New relevance of the anatomy of the SA and the OEA illustrates a tendon interdigitation that may be a location of a probable cause of SA inhibition. MMT was found to be a useful method to assist diagnosis of acute back pain. The AK method of Origin/Insertion treatment of an inhibited SA may have reduced recovery time for this case of acute back pain.

This case adds evidence to the validation of the original observation of SA dysfunction resolved by Goodheart and its relationship to injuries affected by shoulder instability. Cases of acute back pain should be examined for SA inhibition.

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Fish Oil and its Influence on the Genetic Trait for APO E

Wendy Meyer, D.C.

Abstract

Objective
Can fish oil be used to determine if a patient has the genetic code for Alzheimer's disease.

Background
According to the book *The Perfect Gene Diet* by Pamela McDonald, if people with the genetic trait APO E 4 take fish oil, it increases LDL and decreases HDL. Approximately 30% of the population have the trait.

Methods
Patients were tested for an intact supraspinatus muscle and popliteus muscle. Patients are given fish oil on the tongue and the popliteus muscle is tested first to check for inhibition. It is assumed if the popliteus muscle changes, the patient may have a problem with fat metabolism and was corrected. The supraspinatus muscle is then checked for inhibition with fish oil. Approximately 30% of patients have muscle inhibition to the supraspinatus when fish oil is introduced. All patient's that reacted to fish oil did report a family member that had Alzheimer's disease.

Conclusion
Applied kinesiology may be able to determine if a patient has the genetic trait for APO E so further testing could be performed.

Key Indexing Terms
APO E, Alzheimer's Disease, Kinesiology, Fish Oil

Laser Treatment to the Brainstem for ADHD

Wendy Meyer, D.C.

Abstract

Objective
Can laser treatment to the brainstem affect ADHD symptomology

Methods
Prospective patients for the treatment were screened using an intact supraspinatus muscle test. Patients were asked to either look cephalad or caudal to see if the supraspinatus muscle became inhibited. A scalar laser on the brain setting was used on the brainstem with the patient laying down. Auricular points treated for 15 seconds were allergy (internal and external), immune point, detox point (liver), emotional point (limbic center), and circulation to the posterior brain. Treatment was performed until the supraspinatus muscle became facilitated.

Results
Most patients responded in one treatment. Patients that didn't respond and needed a second treatment had difficulty maintaining the eyes in the proper position. Once the eye were maintained during the entire treatment, no further treatments were required. Parents and teachers have seen immediate results in attention span and ability to sit in assigned seats at school.

Conclusion
Laser treatment to the brainstem and auricular therapy have made significant changes in ADHD symptoms.

Key Indexing Terms
Laser, ADHD, Kinesiology

Resolution of Hemifacial Spasms Post Iliocecal Valve and Valve of Houston Manipulation – A Case Study

Tyran G. Mincey, D.C., DIBAK

Abstract

Objective: To share a case history of an Ileocecal Valve Syndrome and a chief complaint of Hemifacial Spasms. This has only been encountered in a single patient but is of interest because of the distal location of the symptom. This presentation has eluded all conventional testing and analysis and reveals normal findings on standard medical examination procedures. Applied kinesiology examination revealed several clues that were seemingly unrelated. This forced us to treat the patient, not the problem, removing a barrier to a normal functioning body. Ileocecal Valve Dysfunction should be ruled out in all patients presenting with mystery and routine illness.

Key Indexing Terms
Chiropractic, Applied Kinesiology, Hemifacila Spasm, Manual Muscle Text, MMT, Nutrition, Physiological Phenomena, Functional Medicine, Large Intestine, Colon, Ileocecal Valve (ICV), Chlorophyll, Valve of Houston

Introduction
Facial conditions and paralysis belong to a wide spectrum of disorders and are most difficult to truly cure.

Cranial nerved impingement is possible on any cranial nerve based on the tortuous path they take through the cranial foramen.

Hemifacial Spasm is a disorder in which muscles of one side of the face twitch involuntarily. The disorder affects both men and women, but seems to impact elderly women more often. It is more prevalent in Asian populations and is believed to be caused by blood vessels impinging on cranial nerve VII- the facial nerve. It is located in the brain stem. This cranial controls motor activity to the face. As a result of being lesioned one possible outcome is spasm initially near and around the eyes which then results in eyelid spasm, progresses to the lower part of the face with spastic activity as an eventual sequalae in some cases, leaving the mouth pulled to one side.

Jargon relating to Ileocecal Valve, Valve of Houston, and Hemifacial Spasms.
The Ileocecal Valve, also abbreviated "ICV," is located at the junction of the ileum and cecum. It has been demonstrated to be a functional valve in that it opens and closes. The Valve of Houston also known as transverse rectal folds number three sometimes four and are less functional valve but function to support the weight of feces and prevent it moving into the sigmoid colon. "Open" means the opening is dilated and "closed" means the orifice is approximated or contracted so nothing can pass through. However, normal 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 inserts 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 clinician palpates this line for nodules that correspond with muscle and possible organ imbalance. Cranial nerve refers to nerves that exit the skull. Hemifascial means "half of the face."

Case Report
A 49 year old Caucasian woman presented with a chief complaint right orbital facial spasms. Using history and standard medical physical examination which includes testing of cranial nerves I-XII, no pathologic abnormalities were detected.

TS line revealed a conditionally inhibited right tensor Fascia Lata which strengthened on TL to both left and right abdominal lower quadrants. Specially, the area of the "Valve of Houston" and area of "ICV." The muscle was no longer conditionally inhibited after challenge to the valves by pulling it closed (pulled supero-medially). As per Walther in 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. Evaluation of the cranium revealed a right lambdodal suture fault. The patient was then put on Nutri-West's - Chloroplex 3 twice daily, this strengthened the TFL on gustatory challenge. She was then released and seen once weekly. During this time her symptoms decreased. The patient fully recovered within a one week time period.

Discussion

There are many different spin offs of standard Applied Kinesiology management of an Ileocecal Valve Syndrome. Our management consisted of following standards sets by the ICAK per Walther's Applied Kinesiology Synopsis. The standard indicator muscle is the right tensor Fascia Lata, the reflexes used were also standard.

While the Ileocecal Valve does not always give symptomatic pain at the anatomic location of the valve it must be differentiated from other conditions which might affect motor function of the muscles of the face and gastritis. Furthermore, differential diagnosis exists with a variety of problems that mimic hemifacial spasms such as stroke, unexplained halitosis, bowel movement appearance irregularities, small stool strands, balls, dark circles around eyes, estrogen dominance, extreme fatigue, croup, migratory gas pains, and headache. These problems must be considered and Valve Dysfunction should be ruled out after a search for pathology is fruitless.

In the case of this patient, the only symptom was intermittent spastic fascial twitches. The patient decided that AK methods should be used first prior to more aggressive care being performed. Frank pathology had been completely ruled out. Part of all work-up should have included an evaluation by an applied kinesiologist or an appropriate referral to one, after a life threatening illness was ruled out. Having an examination for Ileocecal Valve involvement is a practical approach which may add yet another angle to unexplained illness and dysfunction.

Conclusion

The Ileocecal Valve Syndrome represents a condition that has a broad and significant impact on a wide array of human biological functions, some seemingly unrelated. Clinicians must add standard management of this condition to their armamentarium after having appropriately ruled out more dangerous conditions that may have a similar presentation.

Acknowledgements are made to Nutri-West, Integrated Healthcare of Montclair LLC, and the ICAK.

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The Misery of Low Lipids: Choline Deficiency in Clinical Practice

Andrew L. Rostenberg, D.C.

Abstract

This paper presents a literature investigation into the causative factors behind choline deficiency, highlighting the biochemical pathways involved with phospholipid production, choline synthesis and choline absorption. An analysis is provided as to the roles which single nucleotide polymorphisms and estrogen hormone levels play in choline metabolism. Important clinical sequelae of choline deficiency and low lipids in general are also discussed.

Key Indexing Terms
Choline Deficiency, Single Nucleotide Polymorphisms, Fatty Liver, Cell Membrane, Low Cholesterol, Low Triglycerides, Depression, Infertility

Introduction

Choline is an important and fascinating nutrient that is critical for physical, chemical and mental health. It is a B vitamin-like compound necessary for membrane stability, myelin formation, bile acid production, neurotransmission and more. Without choline the body would be unable to absorb and process fats, myelin sheaths would degenerate and neurologic signals would be interrupted with serious, life-threatening consequences. It has often been said that our health depends first and foremost on the health of our cell walls. And if that is true then choline must be considered among the most important nutrients in the body since phosphatidylcholine, a choline-rich phospholipid molecule, is the most common building block of all the cell walls and membranes in our body.[1] Healthy cell walls are critical as they allow the body to keep what is supposed to be inside the cell separated from what needs to be kept outside the cell. And choline's unique properties make it essential for membrane function. Choline is such an important nutrient that the body has the ability to produce it *de novo* via the methylation-dependent enzyme PEMT. However, this important enzyme is susceptible to single nucleotide polymorphic variations (SNPs) which slow it down. The de novo synthesis of choline is also estrogen-dependent, since the PEMT enzyme cannot function without adequate levels of estrogen. Thus both genetics and sex hormones influence the production of this fascinating molecule.

After all, the human body is just a series of fatty walls or membranes separating bodies of water. From our skin, to our organs, and right down to the cell itself, each system within the body depends on the membrane for function and survival. Yet despite choline's importance in maintaining membrane homeostasis, choline deficiency is a major as-yet-unrecognized health problem. The reasons for choline deficiency are varied – low lipids, methylation imbalances, hormone deficiencies, genetic SNPs, poor gut health and

improper food selection. This paper will address the main causes of choline deficiency and the health implications of choline deficiency. As you will see, the choline connection is anything but a boring ride!

Low Lipids as a Common Cause of Choline Deficiency

Choline is an amazing molecule and one that is very important for optimum health. Choline is both absorbed from the diet and produced inside the body through the methylation process. Even though the body can make choline or absorb it from the diet, there are many common health challenges than can cause choline deficiencies. First among those challenges are phospholipid deficiencies. Because once the body has absorbed or created a molecule of choline, it must attach it to a molecule of phosphatidylethanolamine (PE) in order to form phosphatidylcholine (PC). There must be an ample of supply of TG in order for the body to make phosphospholipids, including PE. To better understand this "supply chain" relationship between dietary inputs and PC levels, please refer to the illustrations in Figures 1.1 and 1.2.

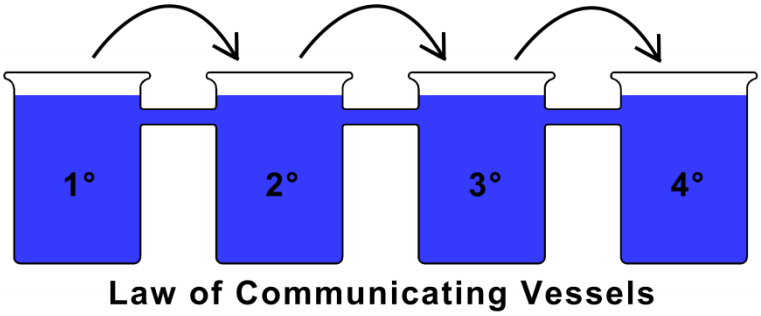

Figure 1.1 – The Law of Communicating Vessels – discovered by Blaise Pascal in the 17th Century, describes how liquid poured into communicating vessels will raise to the same height in each. This is a perfect metaphor for biochemical pathways. The primary vessel must be full or "saturated" with substrate before any products show up in the secondary vessel. Again, the secondary vessel must be saturated before the third vessel, third before the fourth, and so on.

When a person has low TGs they are going to produce fewer phospholipids, fewer molecules of PE and fewer molecules of PC. This is due to the fact that TGs act as the fatty backbone of every phospholipid molecule in the body.[2] Without adequate TG being produced, every single cell in the body will be forced to slow down building and repairing the cell wall. If the cell wall isn't repaired quickly enough, damage from inflammation may cause the cell to malfunction or even be destroyed. Thus this loss of TG production will cause a choline deficiency and will negatively impact multiple systems inside the body.

Every single cell requires large amounts of phospholipids, especially phosphatidylcholine, to build healthy cell walls and function normally. In fact, PC is the most important building block of the cell wall, and more than 90% of the body's choline is stored as phosphatidylcholine in the membranes of cells with only a small amount circulating as free choline.[3] The body places a premium on choline because it acts both

as a structural component and as a cofactor in important methylation reactions. The body stores choline inside the cell wall like a long-term methyl donor savings account. The body tries to manage without dipping into this savings, but under certain conditions, the body will be forced to make a withdrawal. Under conditions where folate is unavailable, choline is removed from the cell membranes, converted into betaine and used to recycle homocysteine via the BHMT enzyme.[3] This relationship illustrates how a primary folate deficiency will lead to a secondary choline deficiency, with broad consequence on neurological health and membrane stability. Without adequate TGs the body cannot store what choline is available in the cell wall, further compromising methylation resources and cell wall integrity. Simply producing choline inside the body will not guarantee phosphatidylcholine will be produced, that ultimately depends on whether TGs are available to produce PE. In this way the body's supplies of lipids, especially TGs, act as rate-limiting factors in the production and storage of choline. This point is illustrated more clearly in Figure 1.2 shown below.

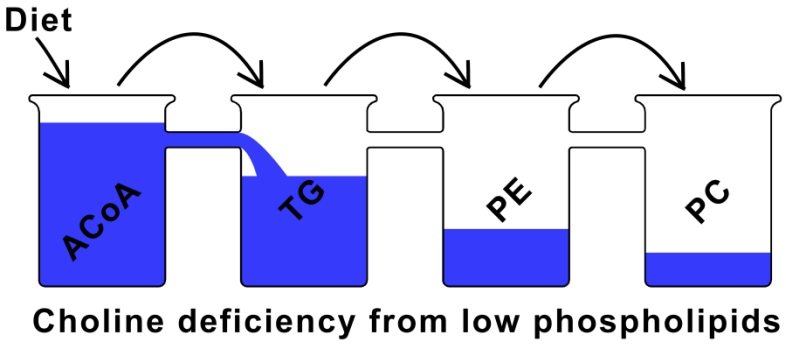

Figure 1.2 – Proposed mechanism showing choline deficiency arising from low lipids. Without adequate triglycerides and phospholipid levels there is not enough phosphatidylethanolamine available for phosphatidylcholine production. The law of communicating vessel highlights the impact that low lipids will have on global body choline stores. ACoA – Acetyl-CoA; TG – Triglycerides; PE – phosphatidylethanolamine; PC – phosphatidylecholine.

Besides TGs, cholesterol levels may also be depressed in persons with a choline deficiency. This is due to the fact that cholesterol and TG share a common biochemical starting point at the molecule Acetyl-CoA. Acetyl-CoA is found in every cell, is produced in the mitochondria and plays a major role in energy and growth.[4] Acetyl-CoA builds up in the cell when the cell burns sugar, protein or fat for energy. Low Acetyl-CoA levels mean a person is not eating or absorbing enough food from the GI tract and not enough energy is being burned in the cells. In other words they are suffering from hypoglycemia, and likely feel tired, weak, and lightheaded if meals are missed, etc. If there is not enough Acetyl-CoA to produce TG, there will not be enough to manufacture cholesterol either. Again, TG and cholesterol share the same biochemical starting point; low cholesterol and low TG often occur together. Meal skipping, poor digestion and improper food selection are the main causes of low lipids. Taking nutritional supplements with choline without fixing the dietary habits will create frustration and lackluster results. To raise cholesterol and TGs patients will need to eat more frequently than three meals per day. One meal every three hours is more helpful and is required to

boost the blood levels of glucose to the point where the glycolysis pathway becomes saturated. Only by saturating the glycolysis pathway will levels of Acetyl-CoA rise high enough to start replenishing both TG and Cholesterol levels. The solution to low cholesterol and TGs resides in frequent eating, eating fatty and cholesterol-rich foods and by avoiding excess HPA-axis activation.

The overall strategy to increase lipids back to normal range is to saturate the pathways involved with the production of cholesterol and triglycerides. Due to the law of communicating vessels (Figures 1.1 and 1.2) the upstream biochemical pathways, or pools, must be adequately saturated before any final products will show up downstream. If someone is starting from a deficient standpoint, they are going to need to absorb a lot more nutrients than most clinicians think is necessary in order to start seeing results. This is due to the fact that human biochemistry is not a 1+1 = 2 system. In fact, there are multiple steps and mechanisms at play with even the most basic processes inside the body. Even cholesterol production requires dozens of chemical reactions to produce a single molecule of cholesterol.[5] Only by making sure all these precursor pathways are working at their maximum speed will the body be able to cause levels to rise back to normal.

Summary of Low Lipids and Choline Deficiency:

- Anyone with low cholesterol, TG, or VLDL is at risk of choline deficiency.
- Statins and cholesterol-lowering drugs may cause a choline deficiency.
- Low TG is any blood test reading below 75 mg/dL.
- Low cholesterol is any blood test reading below 150 mg/dL.
- VLDL levels below 15 mg/dL suggest phospholipid deficiency.
- Phosphatidylcholine cannot be produced without adequate phospholipids and TGs.
- TG levels come from our diet, and are produced in the liver during post-prandial caloric excess.
- Cholesterol and TG synthesis both begin with the mitochondrial molecule Acetyl-CoA.
- Low cholesterol is dangerous and increases risk of the following:[6-13]
    - Male Infertility[6]
    - Female Infertility[7]
    - Depression[8]
    - Suicide[9]
    - Aggressive Behavior (many violent criminals are shown to have low cholesterol)[10]
    - Poor Memory[11]
    - Autism and Asperger's Disorder[12]
    - Alzheimer's Disease[13]

Keep in mind that the majority of people with a cholesterol problem in developed countries have high cholesterol, which indicates their cellular pathways are already over-saturated from excess fructose and other refined carbohydrates. The problem of excess cholesterol gets plenty of attention from doctors, drug companies and media campaigns.

Yet there are many who are suffering from low cholesterol and are getting poor treatment. This is due to ignorance on the part of doctors and clinicians and a misunderstanding of basic human biochemistry. Since choline is critical for neurological health, digestion, methylation, and more, anything that puts choline levels at risk also puts our health at risk. Low cholesterol and TG may not be an issue if it weren't for the detrimental effect it has on choline levels and cell wall function.

Estrogen and Choline Deficiency

Given the connection between low lipids and choline deficiency, it would be tempting to think that as long as someone has enough cholesterol and TG that they will be protected from choline deficiency. Unfortunately this is not the case. Having adequate lipids does indeed help support healthy choline levels, but it does not guarantee a person will avoid choline deficiency. The truth is that choline deficiency can come from more than one source. Both sex hormone levels and genetic SNPs may lead to a choline deficiency by influencing the PEMT enzyme, the enzyme responsible for synthesis of choline inside the body. Recent research now confirms how hormones and genetic polymorphisms play a major role in choline deficiency.

The body can make choline only one way; that is by methylating a molecule of phosphatidylethanolamine (PE) into a molecule of phosphatidylcholine (PC). The body's only method for accomplishing this is via the enzyme PEMT (phosphatidylethanolamine N-methyltransferase) which is found in the liver, brain, muscle, fat and other tissues.[14,15] As with other well-known methylation enzymes like MTHFR and COMT, the PEMT enzyme can have genetic SNPs that slow it down. When this enzyme slows down the body cannot make choline in high amounts and choline deficiency is more likely. But there is more to the story of PEMT than just polymorphisms. In addition to being slowed by SNPs, PEMT is also dependent upon the hormone estrogen for activation. [14, 16] What this means is that the PEMT enzyme, the body's only method of synthesizing choline, has not one <u>but two Achilles heals</u>.

As mentioned above, the sex hormone estrogen is intimately linked with the production of choline. Women have a biological advantage here as the premenopausal female body has much higher levels of estrogen than does the male body. When a woman becomes pregnant this advantage is taken to an extreme, as pregnancy increases estrogen levels over 30 times normal.[17] A successful pregnancy requires high amounts of nutrients delivered to the growing baby, especially choline. Since the mother's body is building a human being from scratch, there is an added burden on her biology to provide enough nutrition to her growing baby. Viewed from this perspective, the high estrogen levels during pregnancy can be seen to act like a biochemical insurance policy. Since the PEMT enzyme requires estrogen to function, pregnancy allows a woman to make extra choline for her developing child. Furthermore, the nervous system is the first system to form in utero and is a tissue that requires high levels of choline for proper development.[18, 3] Choline plays such an important role in cell membranes, myelin sheaths and nervous system tissue that the high estrogen levels during pregnancy help make sure the growing brain and nervous system is nourished. It is a genius system that assures the health and survival of the child.

Even though nature has conferred an advantage to females by providing them with higher estrogen levels, especially during pregnancy, this alone cannot protect against a lack of choline in the diet. All the estrogen in the world will not save a woman from choline deficiency if the gene responsible for producing choline is slowed down by a polymorphism. Genetic research has shown that the gene responsible for synthesizing choline, the PEMT gene, is susceptible to common polymorphisms which alter its function by slowing it down. In a recent study looking at a population in North Carolina, men and women of various ages were placed on a choline-deficient diet. They were followed closely for up to 42 days on a low choline diet consisting of less than 50mg per day. Throughout the study, the participants' liver function was continuously assessed for any sign of fatty liver and damage. After eating a choline deficient diet for just six weeks, 63% of participants developed liver dysfunction and choline blood levels dropped 30% in every single participant, including premenopausal females.[19] During this six week trial of low dietary choline the odds of developing liver dysfunction were 77% for men, 80% for postmenopausal women and just 44% for premenopausal women.[19] Based on what has been discussed so far about estrogen and choline, it makes sense that men and postmenopausal women would be more susceptible to developing fatty liver since they don't have high estrogen levels. Based on the fact that estrogen levels drive choline production, premenopausal women should have been protected from fatty liver since they make higher amounts of choline, but that was not the case. With dietary choline restricted to just 50 mg/day, approximately half of the premenopausal group also suffered liver dysfunction, suggesting that a choline deficient diet can even harm women with higher estrogen levels. In addition, blood tests revealed that premenopausal female experienced a 30% loss of choline on a low choline diet right along with everyone else. Despite the fact that higher estrogen levels allow fertile women to make more choline, many were not able to make enough to avoid problems. A PEMT gene polymorphism is the only mechanism that can explain how women with high estrogen levels are still susceptible to choline deficiency when placed on a low choline diet.

Just like many individuals in the population, some of the premenopausal women inherited one or two copies of the PEMT gene which slows down the production of choline. This study showed that fatty liver occurred in 80% of the premenopausal women with two copies of PEMT and in 43% with only one copy of PEMT.[20] What this means is that a premenopausal woman with two copies of the slowed PEMT gene has exactly the same risk of fatty liver as a postmenopausal woman. It is as if inheriting two copies of the PEMT gene effectively shuts off all estrogen-related choline production in the body. If a woman only has a single copy of the slowed PEMT gene, she will still have a roughly 50% chance of liver dysfunction on a low choline diet. Thus a single copy of the gene is only slightly better than two copies, as at least some estrogen-related choline production is preserved.

If having a PEMT gene can put one at risk for choline-related diseases like fatty liver, then it is important to know how common these genes are in population. We know that 74% of all women in the study had a SNP in the PEMT that made their PEMT enzyme unresponsive to estrogen.[21] This means that only 26% of women can make enough choline on a low choline diet and that ability depends on whether the woman is still

fertile or has entered menopause. In this way genetics can take away the biological advantage that high estrogen levels usually offer to premenopausal females. Women with these PEMT genes will be at risk for choline deficiency and liver damage just like all men and post-menopausal women; two groups who don't have enough estrogen to make choline regardless of their genes. Due to all the interference from the PEMT gene, dietary choline levels must be optimized for the vast majority of our population.

Summary of PEMT and Choline Deficiency:

- In humans, choline is only made by the PEMT enzyme.
- Estrogen is required for the PEMT enzyme to activate and function normally.
- Men and postmenopausal women have an elevated risk of choline deficiency due to low estrogen levels.
- The PEMT enzyme is commonly slowed down by polymorphisms, making it unresponsive to estrogen levels.
    - 74% of women have at least one copy of a slowed PEMT.
    - Homozygous carriers of PEMT have much higher risk of choline deficiency.
- Men, postmenopausal women, and premenopausal women with PEMT SNPs need to increase choline intake in the diet to offset elevated risk of liver dysfunction.

The take away here is that studies have recently shown that because of common genetic polymorphisms, choline deficiency is a widespread problem. Normally the hormone estrogen allows the body to make choline from scratch. However, genetic variation in the PEMT enzyme, estrogen levels and gender differences prevent most people from making adequate choline. Realistically then the only group in our population who is protected from choline deficiency are premenopausal females without a single copy of the slowed PEMT gene. Every single male, every single postmenopausal woman, and 74% of premenopausal woman all require daily intake of approximately 500 mg of choline to prevent fatty liver, organ damage, and the associated health problems.[19] If the body is already depleted, then levels that simply prevent deficiency won't be enough to replete the body. In these cases, higher daily doses of at least 1 gram or more are needed to replenish the tissues. Choline it seems must be absorbed from the diet in just about everyone except for the few young women who have a normal PEMT gene and can synthesize choline regardless of dietary intake.

Gut Dysbiosis and Choline Deficiency

In addition to the problems discussed above, there are yet other issues that may arise to cause a choline deficiency. So far we have touched on how low TG and cholesterol, low sex hormones, and genetic polymorphisms may cause a choline deficiency, but a digestive system issue can be the source of a choline deficiency all by itself. Even if someone has healthy lipid levels, excellent estrogen levels, and a normally functioning PEMT enzyme, they may still develop a choline deficiency due to gut-based problems. In other words, without a healthy gut all bets are off!

The body depends on healthy bacteria in the gut in order to absorb important vitamins and nutrients from the diet. To illustrate this point, we shall heed the words of Dr. Robert Rakowski, D.C., a brilliant clinician, chiropractor and natural medicine doctor. He states

that "good bugs eat toxins and poop vitamins; bad bugs eat vitamins and poop toxins." While that may seem like an oversimplification, it is absolutely true. In essence the gut is all about balance. When the gut is healthy, yeasts and other harmful organisms are held in check by the healthy bacteria. When the gut is healthy the bacteria in our colon assist us by providing nutrients needed for health. However, when the gut is stressed with antibiotics, surgeries, heavy metals, chronic illnesses, food sensitivities, etc., the good bacteria die off in large numbers. This allows the opportunistic yeasts and harmful bacteria to grow wild. These become the "parasitic" micro-organisms that can disrupt choline levels and cause a deficiency.

The main issue with choline deficiency and the gut has to do with the digestive process itself. It is not often appreciated that when we just swallow something it does not guarantee it will be absorbed into the body. Actually absorbing what we eat is a complex process and is often compromised in the general population. Remember from earlier discussions that choline is the most important nutrient for building a healthy cell wall. Due to the fact that bacteria also have cell walls, parasitic bacteria may steal choline from our diet and use it before it becomes available for the body. If this happens once and while, the consequences would be small. But due to the fact that many people have poor gut bacteria, this process of pathogenic bacteria stealing nutrition from the host is a major threat to human health. Or stated another way, poor gut health can rob you of choline and ultimately kill you. Figure 1.3 illustrates the pathways involved in choline-robbing bacteria, toxin production, and cardiovascular disease.

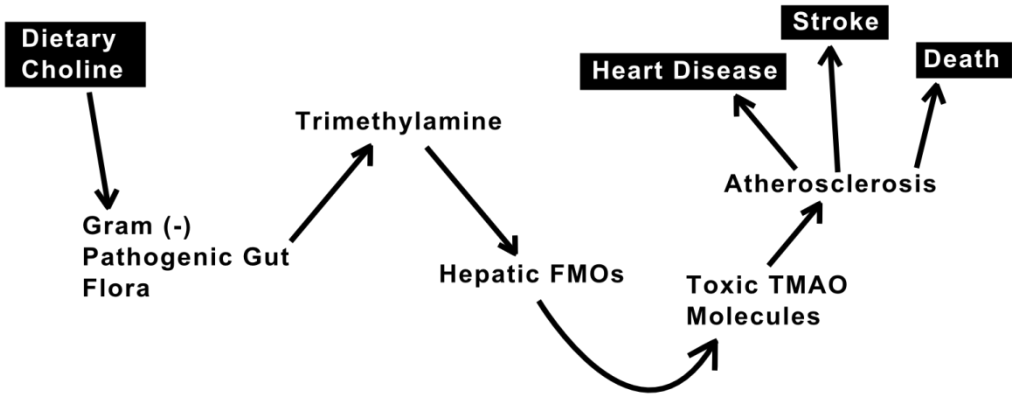

Figure 1.3 – Pathways showing conversion of dietary choline into trimethylamine by pathogenic gut bacteria. Hepatic enzymes convert trimethylamine into TMAO which is a known cause of atherosclerosis and the increased mortality and morbidity associated with cardiovascular disease. TMAO – trimethylamine-N-oxide; FMO - hepatic flavin monooxygenases.

To lend support to the idea that gut health influences choline levels, we turn to research. Recent studies prove that the microbes in our gut can cause obesity, inflammatory bowel disease, and other chronic health problems.[22, 23] The microbes that live in the gut also have a huge impact on our choline levels. For example many gram-negative gut bacteria that live in our colon consume choline from our diet and break it down into a toxin called trimethylamine (TMA).[24] They steal the choline we eat and pump out TMA which is absorbed by the liver where it gets converted into trimethylamine n-oxide (TMAO),

another toxic molecule. TMAO then circulates in the bloodstream where it is a known contributor to atherosclerosis, heart disease and stroke.[25] In this way, pathogenic gut bacteria can act as a parasite, stealing nutrition while simultaneously poisoning the host. This disturbing fact is yet more evidence that the key to health resides in the digestive tract.

Obviously if these bacteria are eating our nutrients before we are, it is going to affect how much nutrition we get from our diet. But that isn't all these bad bugs can do to harm us. When these same pathogenic bacteria enter the bloodstream through a leaky gut, other problems arise. Almost immediately, these bacteria are destroyed by the immune system but the fragments of the once-living bacteria are numerous. So numerous in fact that the "dead body" fragments of the bacteria which the immune system killed are a problem unto themselves. These dead bacteria pieces are called Lipopolysaccharides (LPS) and they are also related to inflammation and disease. The LPS toxins from these bacteria can lead to insulin resistance, diabetes, and even life-threatening illnesses like sepsis,[24,26,27] and all this from eating a piece of steak or a lobster tail! In essence, the bad bugs get us twice. First they steal our nutrients before we get a chance to use them. This can lead to choline deficiency since there is less choline for us to digest. Secondly they hurt us by irritating our immune system and creating systemic inflammation, especially in the brain. This can cause a loss of choline since inflammation increases homocysteine levels and choline is the most important methyl donor next to folate.

But don't give up your healthy animal-based diet just yet, for we can change our gut bacteria and prevent this problem altogether. In other words, the "who" or "what" that lives in our gut is a major player in our health and we have a great deal of control over that. If we have bad bacteria in our gut from poor diet, stress, anti-biotic therapy or any number of other common problems, we then become susceptible to disease even if we are taking the right vitamins. Without healthy gut bacteria, eating vitamins may actually trigger inflammation and cause metabolic disease.[28] This may explain why in some studies, eating choline-rich foods was associated with an increase in health problems. If the gut isn't taken care of and supported first, piling on supplements may not create the benefit that was intended, it may actually do harm. To prevent this we look to modulating the gut flora with probiotic administration. Probiotics not only help the gut, but they help prevent cardiovascular disease and diabetes by changing how we absorb our nutrition. We now know that probiotics prevent bad bacteria from stealing our choline and converting it into the disease-causing toxin TMAO.[29, 30] Probiotics not only make the gut function better, they prevent dangerous, systemic, inflammatory responses to nutrient-dense, animal-based food like choline. It is a fact that eating high choline diets can increase levels of TMAO and cause cardiovascular disease. But don't blame choline for a problem that resides in the gut.

Choline Deficiency and Fatty Liver

It is not surprising that rates of fatty liver are rising when we consider the extremely high prevalence of processed sugar, low-nutrient diets in our society. While this type of food is designed to be both addictive and profitable, it has left us with high rates of preventable disease. In fact, studies are now suggesting that at least 30% of the US

population is currently suffering from fatty liver disease.[28] This grave statistic hints at the widespread glycemic excess and choline deficiency in our modern diets. Our ancestors ate fresher, less processed, and more nutritious food that provided their bodies with higher levels of choline and other nutrients. Modern carbohydrate-based diets are devoid of nutrients but high in calories, which puts phenomenal pressure on the liver. Post-prandial excess from high glycemic loads will force the liver to convert glucose molecules into free fatty acids and then TGs. As TG levels increase inside the liver and muscle cell, there is a simultaneous loss of PC levels in those cells which leads to destruction of liver and muscle tissue.[19] If the liver cannot export TGs into circulation, it will be forced to hold on to the TG and store them inside the liver. When this process goes on too long, fatty liver disease develops.

Any dietary, lifestyle, or genetic challenge that causes choline deficiency will put the body at elevated risk of fatty liver disease. It is widely known that choline deficiency leads to fatty liver disease both in rodents and in humans.[31,32] This is due to the fact that phosphatidylcholine is required in order for the liver to form VLDL molecules and send fat and TGs into the circulation.[33] The liver can make TGs indefinitely but since TGs are hydrophobic (will not mix into water), they cannot enter the bloodstream without the phosphatidylcholine and other phospholipids necessary to form VLDL molecules.[2] These phospholipids allow TG to be soluble in water much like detergent helps oils dissolve into water, through the process of mycelization. Without choline, the liver simply cannot remove the TGs and they begin to accumulate inside the liver, starting the process of fatty liver disease.

Even though fatty liver is a major health problem and can damage the body, the body is still acting intelligently. This phenomenon of fatty liver is a perfect example of how the body always acts to protect the bloodstream at the expense of other tissues like the liver. First, the body has an incentive to convert glucose to TG to prevent tissue damage from hyperglycemia. Converting excess blood sugar into fat protects the rest of the body from excess inflammation and supplies long term energy storage for survival. Secondly, studies have now shown that TG accumulation in the liver may actually be protective since free fatty acids are more damaging to cells than TGs.[34] Third, if the liver were to allow TGs to enter the bloodstream unbound to a VLDL molecule it would be very dangerous as they would clump together, form clots and cause stroke or embolisms! Remember that the blood stream is a watery connective tissue and fats that don't dissolve in water would be life threatening if they entered the bloodstream. Oil and water do not mix, nor do triglycerides and blood. The body is smart enough to store fat in the liver rather than allow an embolism or stroke to occur and for that we should all be thankful.

Summary

Choline is a fundamental part of every individual cell and therefore plays a key role in supporting the triad of health. Since low phospholipids, low hormones, genetic polymorphisms, and imbalanced gut flora all conspire to cause choline deficiency, it should be clear that choline deficiency is a widespread problem getting too little attention. Given the relationship of methylation problems and chronic disease, choline

should be viewed as a first-line approach for supporting healthy methylation. Based on the best evidence available, choline deficiency is a common condition and millions of patients are likely affected. Therefore supporting choline levels through the biochemical pathways discussed above should incorporated more into clinical practice.

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Dural Torque or Dural Tension is the Main Causative Factor for Subluxation, Fixation, TMJ Dysfunction, Cranial Faults and Neurological Disorganization/Switching

Paul T. Sprieser, D.C., DIBAK

Abstract

Movement is a natural part of living. Hence, movement should benefit us rather then detract from our health. This paper will look at gait mechanism and the effect of uneven stride length as the main causative fact of dural torque. This in turn has an effect on the meninges of the spinal column and the cranium, producing subluxation, fixations, TMJ dysfunction and neurological disorganization or switching.

Introduction

Uneven stride length has been noted by many researchers over the past 50 years; Goodheart, Walther, Isogai, Robinson, Schwartz, Murray, Boenig, Selker, Ducroquet, and Sprieser.

Stride length is a term that is confused or used interchangeably with step length. Step length is defined as the distance between the heel strike of one foot and the heel strike of the opposite foot as a person walks. Stride length is then defined as the distance between the heel strikes of the same foot while walking. The pedometer is an instrument that measures the number of steps taken and referred to as stride length when it is actually the step length that it is measuring.

This has been measured in many ways, some more practical then others. One way is to view a patient walking from the side. Video taping while the patient walks on a treadmill. Others such as Ducroquet, had a long walkway constructed of Plexiglas, using cameras filming from in front, rear, sides, above and below which captured the foot patterns of waking and limping.[1] Goodheart would demonstrate this at seminars by having a volunteer stand with their back to a wall with heel touching and then take a natural length stride with the right leg and left arm moving. The volunteer was instructed not to look down at his feet and Goodheart would mark the stride length with a pen at the toe, this would be repeated with the opposite leg and arm and marked.[2]

Walther suggested the most efficient and quickest method to determine dural tension due to imbalanced stride is to place the DeJarnette block under the femoral head and acetabulum and the other block under the contralateral shoulder, which will place torsion into the trunk mimicking a stride.[3] If the dural torque is present one position will create a weakness to the indicator muscle. Then, ask the patient to place the palm of their hand under the area of the PSIS on the side of the leg that is on the block, this will neutralize the weakness confirming the side of the longer stride or step.

Gait became an interest of Goodheart in early 1970's from a book he had read on walking and limping. This information produced what became to be known as "Gait Reflexes," he stated in his article from Chiropractic Economics that gait, fundamentally is an automatic mechanism, and the facilitation and inhibition which normally take place in walking or locomotion.[4] It may be out of balance and cause our patient to have chronic problems and should be examined and corrected if it is malfunctioning. This interest in movement continued to grow till his appointment to the 1980 Olympic team as the first chiropractic physician. Dr. Irvine Dardik, who was in charge of the medical staff for the USOC want Goodheart to go out to a special training center in Coto de Caza, California to see digital video studies of Olympic athletes being filmed at 10,000 frames per second, these pictures absolutely astounded him.

What he observed was walking pattern of Flora (Flo) Jean Hyman, an American volleyball athlete and Olympic silver medalist. This information on movement became a basic part of applied kinesiology (AK) that Walther incorporated into Synopsis 2nd Edition in the section on gait testing; titled Walking Gait Temporal Pattern.[5] This became tied into the modular distortion pattern of Pitch-Roll-Yaw known as PRY-Technique and later associated with Dural Torque or Dural Tension. Goodheart introduced the idea of measuring spinal length from the tip of the coccyx to the external occipital protuberance or (EOP), with a rolling ruler or what is know as a tapeless measure in 1985, there should have no more difference than a half inch whether sitting, standing and lying.[6]

I added these new procedures to my examination and treatment methods starting with PRY-Technique in 1980 and measurement of stride length in 1983 and spinal length measurements with the tapeless measure in 1985. I have continued the use of examining for Pitch-Roll and Yaw, on every new and regular patient for the past 33 years. I discontinued the stride length after five years because no one that I examined had an even stride. However, I did continue to use the DeJarnette block challenge to check for the side of longer stride and presence of dural tension. I also stopped using the tapeless measure of spinal length from coccyx to (EOP), in the sitting, standing and prone positions, because it was time consuming and due to the obvious fact that dural torque is almost universal. The lack of dural involvement is the exception rather the rule.

Discussion

The American College of Sports Medicine reports that a person walking takes approximately 2000 steps in one mile. The average step length is 2 feet 6 inches or 31 inches for the average person, but the question becomes who is the average person?

This measurement is from the initial point of contact of the left heel to the initial point of contact of the right heel, about 32 inches. Where as the average stride length, or two steps, one with the right leg and one with the left leg is measured at 62 inches.

The average stride length will depend on many factors such as gender, height, leg length and age. The Oklahoma University Health Science Center has measured female step length at 26 inches and stride length at 52 inches and male step length at 31 inches and stride length at 62 inches.

Gait anomalies became part of the AK evaluation in an article in Chiropractic Economics from 1975 that described what became to be known as the "Gait Reflexes."[7] These observations of Goodheart came from his reading of a book probably in 1968, which was a study of normal and pathological walking.[8] Gait evaluation became a part of standard AK program when Walther published his first book in 1976 that described the testing procedures and the treatment points.[9]

Goodheart in 1980 introduced one of the most important evaluative tools for diagnosing and treating dural torque.[10] This method became know as PRY-Technique, which stands for Pitch-Roll-Yaw and is a uniform modular distortion pattern found in at least nine out of every ten patient's we see in our practices. Walther added Goodheart's observation to the Applied Kinesiology Volume 1 in 1981.[11] There he links PRY technique to a system of evaluating the organization of sections of the body with each other and connects this with one of the factors that influences switching.

The 1983 Workshop Procedure Manual contained an analysis of gait patterns, many research papers were sited such as: "Quantitative Gait Evaluation In The Clinic," "A Quantitative Analysis of Recorded Variables in the Walking Pattern of Normal Adults," "Walking Patterns of Normal Men," "Evaluation of a Clinical Method of Gait Analysis," "Methods of Measurement in Soviet Gait Analysis Research," "Footprint Analysis in Gait Documentation," "Camera Speeds for Normal and Pathological Gait Analysis," and "The Development of Nature Gait," just to name a few.[12] The final conclusions from all these studies is that no one takes an even stride length on a consistent basis. Dr. Kimiyoshi Isogai had spent 40 year observing stride length on some 90,000 observation and said that the left leg was a longer step in 70% of patients.[13] Goodheart's observations were that 45% of people take a longer step with the left foot, and about 45% take their longer step with their right foot, and only about 10% take even steps.[14]

In 1985 Goodheart added an additional method to determine the presence of dural tension in the Workshop Procedure Manual under the heading of Spinal Length and Dural Tension; he mentioned the concept of Alf Brig,[15] a Swedish orthopedist who stated the spine has a finite length. There is a four to five centimeter length change in the dural tube can fold up when one sits and it can extend approximately two inches in the standing or possibly the supine or prone position. Goodheart introduces the use of the tapeless ruler which had a rolling wheel that allowed the measurement of spinal length from the tip of the coccyx to the external occipital protuberance (EOP). This was done in the standing, sitting, lying (prone) positions, if there is no dural torque present then the spinal

length differs no more than a half inch or 12.5 mm when measured in three positions. This information became standardized part of AK and Walther added it to the Synopsis 1st Edition in 1988.

From the introduction of the spinal length using the tapeless measure in 1985, I continued using this method until 1990 on every new patient and most regular patients during re-examinations. This probably amounted to at least 10,000 observations in this period of time and my conclusion was that at least 90% or more of the patients we treat have dural torque. Walther presented in the Synopsis, the use of DeJarnette blocking method, by placing the patient into torsion with one block under a shoulder and another under the contralateral acetabulum and femoral head. This will cause the indicator muscle to weaken when dural tension is present.

This is usually challenged in the supine but could also be done in the prone position, similar to what was shown to challenge Yaw#2 modular distortion pattern. This seemed to be much quicker and just as reliable as doing the spinal length measurement in three positions and this really saved time during the examination.[16]

Because of this being demonstrated in Synopsis, I changed my methods of the Yaw#2 challenge to the supine position, since all the rest of the PRY-Technique is done with the patient supine it makes sense. I have been doing this challenge on every patient, every visit, for the past 23 years.[17] Walther's observations stated in Applied Kinesiology Volume 1, that Pitch pattern of the PRY-Technique for some reason, causes limitation of femoral head motion associated with this condition, and it is noted during ambulation. This can be evaluated by observing abduction of the supine patient's hip and noting the maximum range of motion. Because of the limited range of hip motion, there is generally a decreased stride when walking.[18] I was able to explain this observation of Walther's in my 2001 research paper on PRY-Technique and range of motion improvements.[19]

Conclusion

The examination of patients for dural torque due to discrepancies in stride length has been done for more then 30 years by numerous methods and examination.[20] Other test methods to detect the presence of dural torque in patients such as Rocker Action and Pitch-Roll-Yaw are 38 and 34 years old respectively.[21] It is my observations that cause me to draw the conclusion that we humans do not walk with even stride length. Goodheart stated in his Workshop Procedural Manual that his observations were that 45% of patient took a longer right step and 45% took a longer left step and 10% were even.[22] He also quoted Dr. Isogai's forty years and some 90,000 observations that 70% of his patient took a longer left step and 30% took a longer right step.[23]

I have to disagree with both of these findings in that I have noted the constant reoccurrences of the Yaw#2 pattern in patients for the past 34 years. Wondering what could I be missing I looked for a muscular imbalance that associated with this modular pattern and published my observation in the paper Yaw#2 Muscular Pattern in 1982,[24] following this up with many observations and research papers on this and associated

matters in 2001,[25] 2002,[26] 2003,[27] 2006,[28] 2008,[29] 2010,[30,31] and finally 2012[32] and 2013.[33]

I based my statement of the discrepancies in stride length and this being tied to dural torque on 24 years of examination and challenge for Yaw#2 and stride discrepancies by the use of the DeJarnette block on every visit. What I found was that the Yaw#2 was found to be on the left universally and the longer stride was taken with the right leg even in left handed individuals with rare exceptions. I presented this information at the ICAK-U.S.A Annual Meeting in Dallas, Texas in 2012, based on my research paper on reoccurring switching and yaw#2 and bladder meridian points B6 ands B50.[34] During the two presentations of 90 minutes each I demonstrated on approximately a total of 18 volunteers all of them showed the presence of yaw#2 on the left, all had standard switching, right hand on right K27 and left hand on left K27 and all had a longer stride on the right.

Goodheart had suggested a system of exercises to stabilize stride length and dural torque that patients could do at home these were presented at seminars and in his Workshop Procedure Manual. He stated to simply ask the patient to take longer steps with the left leg, in this instance, moving the right arm slightly more forward as a neutralizing effect. This must be continued for a month or even longer; this may be needed to de-torque the average patient. Goodheart talked of the conversion of Dr. Isogai's ideas into AK principles, with the use of deep knee bends done two to three times a day. He states that this would "unwind" or "unscrew" the patient and that's why they are "all screwed up."[34]

Walther suggest walking exercises such as a unilateral longer stride, or the use of cross crawl exercises to remove the dural torque. The examination for this condition was to look for resistance to inward turn at the foot or the use of the DeJarnette blocks under the femoral head of the longer stride leg and the contralateral shoulder.[35]

Just after the Dallas ICAK-U.S.A. Annual Meeting I had the opportunity of meeting with and teaching with three psychologists. I was also invited to present at the 15th Annual Energy Psychology Meeting in Reston, VA, in June 2012. This association led me to discover a new way to allow the self correction of the yaw #2 modular distortion and standard switching by a simple exercise system. This information was presented in a research paper in the ICAK-U.S.A. Collected Papers in 2013.[36]

Currently it has been 16 months since I first tried the self correction exercise for the Yaw #2 pattern on August 4, 2012. This first study consisted of 108 patients and continued for six weeks. The outcome was a complete success for the correction of Yaw #2 in every patient and switching in every case tested.[37] I have continued teaching patients to use this method twice a day over the 16 months and have more then 600 different patients at this point in this study. I have to currently refine the correction that I reported in the research paper," A New and Highly Effective Way to Correct Yaw #2." I would find that despite the patients reporting back that they did this faithfully at least 50% still showed a return of Yaw #2 and switching with in a few weeks. Reviewing Walther's 1981 textbook for this correction done in an adaptive side posture position, which showed only the pelvic

complex being torqued forward rather then the torso. So now I instructed the patient to move the pelvis when doing the exercise and the correction seems to have a much more lasting effect.

The observation of patients during examinations show when viewing them from the rear standing on plumb line the pelvis is carried forward on the right in the transverse or horizontal plan. This will be also observed with the patient supine on the table the pelvis at the ASIS of the ilium will be held higher on the right and lower on the left ilium ASIS. The challenge for Yaw #2 will be positive with the DeJarnette block under the right iliac crest and under the left shoulder this will weaken the indicator muscle and can negated when the patient places the palm under the left PSIS of the sacrum and also by touching K27 right and on the right and left K27 with finger tip of left hand. This pattern will be consistent in more then 90% of our patients. This pelvic distortion is produced by the weak psoas on the left and a normal or hypertonic psoas on the right favoring a longer stride on the right. This would produce a consistent torque in a counterclockwise direction. This has been observed in research studies at Max Planck Institute for Biological Cybernetic in Tubingen, Germany. The researchers were outfitted with global positioning system (GPS), and then dropped off either in a flat forest in Germany or the Sahara desert in southern Tunisia. What was demonstrated in this experiment that people do walk in circles when they're lost. This was also demonstrated at Wilderness Medicine Institute of the National Outdoor Leadership School. Tod Schimelpfenig the Curriculum Director of NOLS said he was glad to see some science behind what he and many of his fellow wilderness experts see often in search and rescue missions.

I believe that what I have described in the Yaw #2 modular distortion pattern with the pelvic girdle being held forward on the right in the transverse plan allow for the step on the right to be longer, coupled with the fact that the psoas is stronger on the right adds to this observation. Now going with the fact that at least 85% of all people in the world are right hand which would also mean there are right footed use the right leg more, this would be nearly 90% of any sampling. The final fact that our liver, the largest organ in the human body is on the right making everyone weight more by an average of ten pounds on the right. This would cause a favoring of the right even in the left handed individuals; this could explain my observations over the past three and a half year and some 450 new patients that I only found that the left leg challenged as the longer step four times. This would confirm Goodheart's favorite expression of these facts from his Jesuit education and love of Latin res ipsa loquitur, the facts speak for themselves!

The uneven pulling or torque to the dural membrane and it's anatomical attachments within the cranium, at the foramen magnum and the upper cervical vertebra C2/C3.

The rest of the dura is loosely tethered by fibers from pia mater extending the entire length of the spinal cord on each side between dorsal and ventral spinal nerve roots, known as the denticulate ligament. The borders are attachment of the dura at regular intervals. There are twenty-one of these points of attachment, the most cephalic one at the foramen magnum band, the most caudal at the conus medullaris. At the caudal end of the spinal cord, the pia mater is prolonged into the filum terminale which blends with the

dura mater at the second sacral vertebra and continues caudally to the coccyx where it fuses with the periosteum. It secures the caudal end of the spinal cord, is called the central ligament of the spinal cord and assists in maintaining the cord in position during movements of the body.[37] The remaining spinal nerves are not tethered by denticulate ligament from L2 through the coccyx and travel downward as Cauda Equina and are covered by the pia mater and dura mater that act as their anchor.

The spinal and cranial subarachnoid spaces are continuous and contain cerebrospinal fluid. The pia mater closely invests the cord; on each side, it sends out a series of 22 triangular processes, the denticulate ligaments, which are attached to the dura mater and thus anchor the cord. This is considerable smaller than the vertebral canal; the meninges, the cerebrospinal fluid and the epidural fatty tissues and veins combine to cushion it against jarring contact with its bony and ligamentous surroundings.[38]

These last two descriptions of the meninges and the denticulate ligaments show the spinal mechanics as a "Closed Kinematic Chain," tying the entire spinal column including the cranium, and the pelvic region along with the temporal mandibular joint. This Kinematic Chain is influenced by the uneven walking pattern that produces the modular distortions pattern of Pitch-Roll and Yaw that tries to maintain the integrity of the skeletal system and the nervous system, thereby creating fixations, subluxation, and eventually cranial faults as well as TMJ dysfunction.

The final conclusion is that the main cause is the uneven stride that produces dural torque and Pitch-Roll-Yaw modular distortion patterns. This makes the PRY-Technique a method of diagnosing and treating this form of mechanical meningitis. Standard switching primary cause is Yaw #2 at almost 99% of the time and the remaining 1% is Pitch at .075% and Yaw #1 at .025%.

The simple counter torque exercise that I presented in my 2013 research paper and refined in this paper has proven to stabilize the most difficult case and give a much more lasting correction of Yaw # 2 and dural torque.

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The Subtle Energy Patterns of Neurological Disorganization Observed by John Diamond, M.D., from Behavior Kinesiology

Paul T. Sprieser, D.C., DIBAK

Abstract

Subtle energy patterns of the central nervous system and the significance in every day chiropractic practice. These finding are reported in the Collected Papers of International College of Applied Kinesiology – U.S.A., Goodheart's Applied Kinesiology Workshop Manual, and Dr. John Diamond's book Behavioral Kinesiology.

Introduction

There has been much misinterpretation of the meaning and importance of the subtle energy patterns with manual muscle testing and Applied Kinesiology. This can be found as early 1969 with Neurological Disorganization or Switching[1], polarity[2,3], Figure 8 energy patterns[4], ocular-lock[5] or B'nai Birth Syndrome.[6,7,8]

What I am going to address in this paper are Diamond's observations on symbols, pictures and cerebral hemispheric imbalances and the connection to dural torque and switching.[9] I am doing this because of my involvement with Energy Psychology and Thought Field Therapy (TFT) and a group of psychologists that I have been teaching and doing research with wanted to clarify the meaning of switching and polarity.

What I had noted in many of the textbooks that have been published on TFT, was the enervation of Roger Callahan, Ph.D., who had studied the 100-hour basic AK course taught by Walther and Blaich in 1980. He was also a member of ICAK and published ten research papers in The Collected Papers of the ICAK from 1981 to 1989.

When I started working with three psychotherapists who studied with Callahan and who had evolved a more comprehensive system they called Evolved-Thought Field Therapy or Ev-TFT, I noted some misuse of what was termed polarity and switching and how this was being tested and corrected. Since I was going to be teaching with them I wanted to make sure we were not going to be contradicting one and another. I am going to include in this paper the information that I had complied of Neurological Disorganization (Switching) and Polarity for these psychologists. This will follow in the discussion part of this paper.

Discussion

Neurological Disorganization (Switching) and Polarity

I reviewed the information on switching in the Workshop Manual of Dr. George Goodheart, he talked about switching in 1969 - 1987. His first observations were reported in Chiropractic Economics in 1969.[10] The treatment as a standard procedure was introduced in his Workshop Manual 1975 through 1987 and it appeared as item number three stated to stimulate with a firm rotatory rubbing action being done on both right and left K27 and umbilicus (CV8) before the start of examination on every patient. The stimulation should be done for at least 15 seconds and rechecked by touching both K27 points know as Therapy Localization or TL and muscle testing.[11,12]

After checking both of Callahan's books, Five Minute Phobia Cure and Tapping the Healer Within,[13,14] I do not see any mention of what is known as switching in AK. This phenomenon is very important in the full practice of AK for chiropractors, because it can give misleading information to the side of muscle weakness, a structural lesion or the vector of proper correction. The wrong information is strictly random and only appears in a very low percentage, usually only one item. However in the utilization of TFT for the treatment of various emotional problems it does seem to have some importance.

The information about switching seems to come from John Diamond, M.D., but he did not discover it and his quotes seem to be taken as gospel. In his book Behavior Kinesiology on page 40, Switching is a term coined by Goodheart to describe a state in which there is particular type of body confusion. In Behavior Kinesiology, switching has been found to be a distinct manifestation of cerebral hemisphere imbalance. A demonstration of this states, read text of prose forward then stop and test a strong muscle, read the passage backward and the asymmetry between the two cerebral hemispheres produces a bizarre type of dyslexia. This information is inaccurate because it actually represents a cross K27 pattern referred to as ocular lock or the B'nai B'rith Syndrome.[15]

In Behavior Kinesiology pages 35-36 (BK), Diamond, and Energy Psychology pages 76-77 (EP), Gallo, is pictured muscle testing a patient standing with the doctor standing in front of the patient using his right hand to apply pressure to the patient left arm deltoid muscle. Both books show the same picture and the description of its meaning are the same. Have the subject place the palm of his/her right hand opposite the right ear 3 to 4 in. if weak this means right hemisphere is dominant. If the muscle remains strong, the opposite hemisphere is tested by having the subject place the right palm off the left side of head. The question is, why bring the right hand across the midline? The answer is simple, the doctor testing is right handed. The test can be done just as well if the left hand and is placed along the left side of the head and right arm deltoid is used to test. Another test sometimes shown is the palm of patient's hand is placed over the vertex of the skull palm up or palm down, which is supposed to indicate polarity. If the truth is known, all these responses actually mean that switching is present, and when the actual cause of switching is corrected these all disappear or become neutral.[16]

In Diamond's Behavior Kinesiology pages 88-91 he shows a test muscle weakness will occur when certain symbols are viewed such as a pitch fork, roman cross and swastika. The statements about the swastikas on page 91, "In spite of its recent use as an emblem of Hitler's Nazi party in Germany, the swastika is still a symbol of prosperity and good Fortune." Even Jewish death camp survivors do not weaken to the clockwise or German swastika. I can tell you that left brain dominant right handed individuals weaken to the counter clockwise swastika and right brain dominant left handed individuals weaken to the clockwise swastika. He confirms this in the following statement, "Test yourself for the clockwise and counterclockwise swastika. One or the other will make you weak, depending on which cerebral hemisphere is dominant. Of course, if you are centered, neither one will weaken you."

Another interesting statement of Diamond's in his paperback version of Behavioral Kinesiology, which is "Your Body Doesn't Lie," on page 66. "Portrait paintings have a powerful effect on us, too." He said "For example, consider a painting by Velázquez that cost the Metropolitan Museum of Art over five million dollars. Looking at this portrait of Juan De Pareja makes nearly everyone weak", on page 67 and looking at a copy of this portrait on page 69 does not. This observation I tested on patients for more then 30 years and found it to accurate. I have done this test periodically with patients and while teachings have done it more the 5,000 time, and I wonder why this happened. Going back to Goodheart's statement about not understanding some observation "Why is That," I discovered the reason for the testing weakness.

If you look at the original portrait above and slightly in front of the nobleman's head you will note what appears to be a ghostly image almost like a masquerade mask. When this image is covered and the original picture is viewed no muscle weakness will be noted. If you view the copy of another artist of the same portrait there is no ghostly image present.

Goodheart's description of switching he used the analogy of an aircraft (body) having a problem (illness) requiring the attention of the pilot (dominant hemisphere). The pilot leaves the cockpit to check the problem, leaving the flying of the aircraft to the copilot. When the pilot returns to the cockpit the copilot refuses to turn over the control of aircraft to the pilot.

In another book The Energy of Belief shows the use of TFT on pages 124 - 125 listed under a title of General Polarity Problems this was being combined as Polarity and Disorganization or switching. Here the picture shows a patient with the palm of their hand about three inches above the vertex of skull this is done and supposed to mean polarity is correctly organized, if weakness occurs with palm down.[17] However, what I have discovered is when standard switching is present it is due to Yaw #2 causing dural torque. The left brained dominant individual and right handed will only weaken with the volar surface or palm up this will happen with either hand when testing an indicator muscle. Whereas the right brained dominant individual and left handed will test weak with the palm down over the vertex of their skull this will occur with both hands. What all of this means is standard switching is present and when the Yaw #2 modular distortion is correct there is no weakness present with the palm up or down.

Conclusion

All the subtle energy patterns that have been described in Applied Kinesiology are the result of dural tension or if you like dural torque. The reason that K27 is the TL points for these phenomena is most likely their functioning as circuit breaker similar to those found in our home to prevent burning out of the wiring system. I had explored this idea in a paper "A New Slant on Switching and the PRY-Technique", in 2002. I showed that not only was K27's an indicator points for switching but K11's, on the pubic bone were the points in the pelvic girdle. I was also able to demonstrate that there were similar points on the posterior thoracic surface at B11 and in the pelvic/sacral region B33 that TL in the same manner as the original points of K27.[18]

Diamond's descriptions of the energy patterns that cause muscle weakness to a strong indicator muscle such as ocular-lock (when reading a line of text), pictures and symbols such as pitchforks, roman cross and swastikas, and hand positions next to the skull about three inches lateral of the ear all have one common reason for being. That is neurological disorganization. His statement that holds true is that they represent an asymmetry between the two cerebral hemispheres, which Goodheart coined the phrase switching.

My past eight and half years of clinical research and currently 2197 different patients, shows that standard switching as caused by Yaw #2 pattern in more than 90% of the patients we treat. Truth be known it is closer to 99% of people we treat only leaving 1% to be divided Pitch and Yaw #1 modular distortion patterns of the PRY-Technique. I presented this research paper in Dallas, Texas, at the ICAK-U.S.A. 2012 Annual Meeting the connection of bladder meridian points B6 and B50 to reoccurring Switching and Yaw #2.[19] This was followed up the following year in the Collected Papers of ICAK, with a self-correction method for Yaw #2 done with a simple exercise.[20] This led to further observations of switching when caused by Pitch or Yaw #1 does not show any of the subtle energy weakness that were mentioned in Diamond's Behavior Kinesiology.

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The Whys and the Wherefores of Neurological Disorganization

Paul T. Sprieser, D.C., DIBAK

Abstract

A review of the importance of evaluating every patient, on every visit, for the presence of what is known in applied kinesiology as Switching/Neurological Disorganization. This is a constant in almost every patient we see in our practice and to neglect to check for its presence will likely lead to making mistakes in our treatment and outcome of our therapies.

Introduction

This January I will begin my 45th year in practice and I have been using AK for at least 44 of those years. I have been checking for the following clinical condition in patients during examinations and treatment and have often wondered why it occurs and how to keep it corrected for as long as possible. It seems to me that the importance of our nervous system is to be aware of what is going on in the body and be able to communicate and direct the healing process. Neurological Disorganization causes confusion and may prevent the healing and positive outcome of treatment when a patient is sick.

I have been reviewing the information about the switching phenomena Goodheart first wrote about in Chiropractic Economics in 1969 in an article, Cross Pattern Crawling and Muscle Spasm.[1] This information came from his reading Carl Delacato, Ed.D, The Diagnosis and Treatment of Reading and Speech Problems.[2] He then included this information into basic AK in the 1970 Workshop Manual.[3] This idea came from postural body in distortion. He noted a high right shoulder test should show a weakness of the right Latissimus Dorsi muscle, but in this case it would be found on the left side. This he suggest could be corrected by stimulating with a hard rubbing circular pressure on both right and left K27 points located at the lower surface of the clavicle where it articulates with the sternum and umbilicus which is acupuncture points CV8. This would cause the reorganization of the patient's nervous system and would allow the weakness of the Latissimus Dorsi to show on the right.

The choice of these points came by visual observation and muscle testing because therapy localization (TL) was not discovered till 1974.[4,5] I have often wondered why he chose these points. One reason could have been that K27 is called "House of Associated Points," which makes it the associated point for all associated points. Another reason he may have chosen these points to associate with switching is that area at the sternal-clavicular articulation which is one of the first point to develop in the nervous system of an infant as they learn to crawl.

Switching has four distinct types which are evaluated by TL and testing a strong indicator muscle. The first type I call standard switching which involves TL of fingers of right hand to right K27 and fingers on the left hand to left K27. Second type is the cross K27, meaning TL of the fingers of the right hand to the left K27 and fingers of the left hand to the right K27. Third type is laterality of the atlas TL done with the thumbs, the right thumb to the right transverse process of the atlas and left thumb to the left transverse process of the atlas, positive if it weakens the indicator muscle. Forth type is ionic switching, this is produced by changes in the of volume of air through the nasal passages. TL is done while occluding on nostril and breathing in then breathing out a weakness indicates ionic switching. Each one of these can cause switching and neurological confusion and causing the chiropractor to make a inaccurate adjustment.[6]

Discussion

Goodheart stated that K27 was considered a general lymphatic center for spinal Muscles, as well as fixation patterns, and should be stimulated when treating these conditions. In the 1970 Workshop Manual he talked about there being a general neurovascular centers at the aortic arch, the carotid and the glomus coccygeum. He also stated that there was a general neurolymphatic center at the umbilicus and at the margins of the levator ani muscles. This became a general treatment pattern that was suggested to be done at the beginning of the patient examination to remove the chance of switching.[7]

After the advent of TL, when we could objectively test the K27 points to see if switching was present, Goodheart added in the research manuals his Workshop Procedure page that outlined the examination and treatment systems. This was introduced in 1975 with 15 topics and subdivision making 45 things to be corrected, and continued until 1987 with 16 topics and 93 subdivisions. The three examination topics were Postural Analysis, Palpate T.S. Line, and using K27 Umbilicus Contact to eliminate switching.[8,9]

Walther in his textbook Synopsis, suggested not to generally stimulate K27 and umbilicus points at the start of evaluation examination to eliminate switching, but rather looking for the cause or source of switching. He also brought to our attention that the switching should be checked on every new patient as well as check on every visit.[10,11]

What I did to correlate the source of switching to be dural torque I use the DeJarnette block to challenge for Yaw #2. I would then ask the patient to therapy localize standard switching with contact to both K27 points. The block would be positive and cause a strong indicator muscle (TFL) to weaken and contacting K27 point would negate the weakness proving the connection to causing switching. I have done this challenge consistently on every new patient and on any challenge for Yaw #2 for the 26 years. This has proven without a doubt that Yaw #2 was the primary cause of switching in more then 90% of patients seen and the remaining causes are Pitch and Yaw #1. To date I have never seen roll pattern or the tilt pattern to be associated case of switching.

The following chart shows the percentages of occurrence found in a study I started on

April 4, 2013 and completed on July 2, 2013, a three month period with 100 different patients. I was interested in knowing the frequency of the four types of switching in regular established patients in comparison to the study that I presented in Dallas ICAK-U.S.A. Annual Meeting.[12] In that paper which represented only new patients on the initial examination over a two year period, in approximately 300 patients there were two exceptions. One had Yaw #2 to the right and standard switching and one had no form of switching and no Pitch-Roll-Yaw or PRY-Technique and no dural torque. This meant that the Yaw #2 was present on 298 patients on the left and was associated with standard switching in every case. This put the standard switching at a 99 percentile level.

Standard Switching	Cross Switching	Lateral Atlas	Ionic Switching
100 in study	100 in study	100 in study	100 in study
92%	57%	94%	10%

(This chart represents 100 different established patients in this study.)

I continued collecting data and have conducted two additional studies of the percentage of switching present on examination and the finding are still at the same levels.

Conclusion

It is necessary to always check for switching on every patient and on every visit and it should be conducted as Goodheart suggest in his Workshop Procedures, with step one postural analysis, step two palpate TS line and step three check for at least the three form of switching, standard, cross and lateral atlas. Treat each form separately starting with Standard switching which is correction of the Yaw #2 modular distortion and is a small percentage of cases Pitch or Yaw #1.

You will find that Cross K27 Switching is due to what I discovered some 40 years ago and call the L/D cranial fault, which is simply corrected with contact at the cruciate suture of the palate and pressure applied at the vertex of the skull. The pressure is up on the palate and down on the vertex on inspiration. You can recheck with cross TL to K27 and also check for "ocular-lock" which it causes and should now be corrected.[13] Remember that it represented 57% so it is not always present. I originally believed that the L/D fault was present about 25 to 30% of patients being treated ended up being nearly double that.

Finally Lateral Atlas is even more common then standard switching at 94% and it is a source of switching both in the fact that when you check leg lengths supine and then ask the patient to turn over to the prone position the long and short leg will shift sides. This obviously is a form of switching, and I have also seen it cause other type of misinformation such as side of pelvic categories not just change of leg length.

I know once and a while I will forget or not check for switching at the start of the examination, but I will recognize that I have missed something and realize it, and this is because I have been practicing AK for over 45 years and know when finding do not

correlate. So it is much easier to just incorporate checking and correcting switching at the start of examination to avoid making mistakes.

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Rethinking the Role of Water, Electromagnetics and Electropollution in Cell Physiology: Implications for PAK Practitioners

Barton A. Stark, D.C., DIBAK, D.I.A.M.A. and Ann Stark, D.C.

Abstract

The authors discuss the observations of a team of researchers from Washington University, led by Dr. Gerald Pollack, regarding cellular water interactions with cell structures and surfaces. An understanding of this revolutionary thought has direct implications for muscle and neuronal cell function and healing. Body electromagnetism, electropollution, and appropriate therapies are discussed. A partial case history is reviewed. Specific PAK diagnostic and treatment protocols are recommended.

Key Indexing Terms
Professional Applied Kinesiology, Manual Muscle Testing, Concussion, Dr. Gerald Pollack, Water, Cell Physiology, Laser Therapy, Light Therapy, Circulation, Electromagnetic Pollution

Introduction
In recent years the authors have attempted to discover new explanations and solutions for patients who seem beyond the threshold of reasonable health recovery in spite of intense and extremely thorough natural medicine and chiropractic efforts. This search has led to some fascinating insights primarily from Dr. Gerald Pollack, Professor of BioEngineering, University of Washington. Dr. Pollack holds a PhD in electrical engineering and is a recognized expert in muscle contraction and cell physiology. His primary observations and interpretations are expounded in several of his books:

- Muscles & Molecules – Uncovering the Principles of Biological Motion (1)
- The Fourth Phase of Water: Beyond Solid, Liquid, and Vapor (2)
- Cells, Gels, and the Engines of Life (3)

Discussion

Obviously, Applied Kinesiology recognizes great significance in the diagnostic use of manual muscle testing as well as muscle therapy techniques. Naturally we are intrigued by Dr. Pollack's views that challenge current dogma relating to muscle function. In Muscles and Molecules – Uncovering the Principles of Biological Motion he questions the sliding filament theory of actin and myosin in muscle sarcomere contraction. (1) In his other texts he turns up-side-down accepted theories such as the fluid mosaic model of

cell membrane structure and function related to cellular water. Most importantly, he proposes a **central role of "structured" water in cell functions**. (2, 3)

Molecularly speaking 99% of the human body is water. In spite of this, H2O is poorly understood in scientific academia. Most body cells are negatively charged and the body tries to excrete positive charged materials especially in the urine. Pollack observes that H2O in cells interfaces with protein, nucleic acids, and salts. Most of these interfaces are hydrophilic and negatively charged resulting in a prolific ordering of water in the form of H3O2. He calls this gel form of water "exclusion zone" water (EZ water) and states it is part of all cell structures and surfaces. In other words, water in cells is tightly organized around cell molecules where their interface has a negative charge. Adjacent positive charged water is repulsed or excluded, thus creating a battery with inherent potential energy. (2, 3)

Pollack explains that the ordered structuring and unstructuring of cell water zones releases stored potential energy for cellular tasks. **This process is mainly energized by electromagnetic energy from sunlight and any other infrared source**. Part of the "structuring" is a hexagonal (honeycomb) arrangement of H3O2 as opposed to the uncharged dipolar nature of unstructured H2O. Pollack also notes that the negative charge in EZ water is fixed at certain points, like a semiconductor, in the tight hexagonal matrix. (2, 3)

Action Step Recommendations
Basically, Pollack speculates that if an organ or tissue is unhealthy it means the cellular proteins and water in that tissue are not working. Since proteins are interfaced with EZ water, then it should be possible to get those proteins to function optimally again by renewing the EZ water zones. The observations of Pollack and others have great potential to spawn new validation of some existing health practices:

- **Sunlight,** laser therapy, infrared sauna – photonic energy powers the negative charging and water structuring process – *sunlight is probably best as it gives the broadest range of helpful frequencies and wavelengths (2, 3)*
- **Earthing** – grounding techniques which help replenish negative charge, remove unhealthy EMF, and fight oxidation
    - Voltage (stored potential to do work) measurements of patients using a common multimeter in work and home settings can demonstrate otherwise undetected EMF exposure especially around powerlines, major transformers, air travel, electronics, and "smart meters" installed by utility companies
    - Smart meters should be shielded and grounding products and/or neutralizers used in home and work settings when high voltage exposure is discovered
    - EMF neutralizer products should always be used on any wireless remote device (i.e.: cellular phones) and some appliances (4)
- **Structured Water**
    - Created somewhat by vortexing (vigorous stirring) of clean water

    - Spring water is naturally structured by pressure *(findaspring.com)*
    - *See Environmental Working Group results for bottled water purity (www.ewg.org/research/ewg-bottled-water-scorecard-2011/summary-findings)* (6)
- Organic **essential oils** (EO's) – electron donors with broad spectrum nano-voltage healing radiofrequencies and physical constituents (esp. phenols, monoterpenes, and sesquiterpenes) (5, 10)
    - *Practitioners can become depleted of electrons through touching numerous devitalized patients, but hands-on application of EO's to patient's seems to preempt this effect and actually vitalizes both patient and provider*
- **Antioxidants** help maintain EZ water whereas oxidants (electron stealers, toxins) and electro-magnetic frequency (EMF) pollution create positive charge "robbing us of negative charge"
    - Strong Nrf2 stimulators recommended as they will stoichiometrically eclipse direct antioxidant supplements
- **Ionic foot bath** – negatively charged water footbath
- **Salt lamps** – excellent negative ion source for indoor air helps counter positive ions generated by electronics
- High energy **homeopathy** – especially remedies to expel non-biological EMF and nuclear radiation which tend to confound the structure and charging processes (7)
- **Kidney** regulation and drainage – nutrients/herbs/homeopathics to support the natural excretion of unhealthy EMF through the urine (7)
- **Juicing, coconut water** – may be sources of EZ water but should avoid high glycemic foods when juicing
- Whole foods – electron donors from flavonoids, polyphenols, and vitamins
- Minerals may be helpful for alkaline support and electrical conductance
- Educated use of frequency generator devices can be therapeutic (8)

*Consider this partial case history example of the effect of **beneficial** pulsed EMFs: a patient was diagnosed with a terminal type of neuro-endrocrine cancer with multiple sites of metastasis. He had severe pitting edema in his legs of about two months duration. The patient was hospitalized in another state. Without seeing him in person, a small frequency generator device was arranged and smuggled to him to use with a program of beneficial frequencies. Within 12 hours of beginning the treatments ALL of the edema (likely displaced charged water) was eliminated!*

Heat, cold, pressure, vortexing, negative electric current, agitation (as in homeopathic succusion), and possibly magnetic fields are said to have a structuring effect on environmental water. Environmental examples are seen in waters from the Ganges River and Lourdes, France as these have been shown to preserve a negative charge over long periods. Other examples are found in glacial melt and natural spring water. At this point it is unknown what happens to this water when taken into the stomach. According to Pollack the evidence is evolving but he speculates that drinking negatively charged structured water, if it carries its structure and especially negative charge to the cells, will

benefit the structuring process of intracellular water and, hence, cell function and health. (6)

The common practice of "**Earthing**" is a strong source of negative charge for humans. This involves simply being in regular physical contact with the earth (i.e.: going shoeless or laying on a natural surface). This practice facilitates a massive transfer of free negative electrons flowing into our cells and, theoretically, helps replenish EZ water. Free electrons also have **profound antioxidant effect**. According to Physics Nobel Richard Fineman, the negatively charged electric field at the surface of earth is 100v/m which is due mostly to lightning. So humans would be approximately 200v more positively charged at the nose than the toes. (6, 9)

Interestingly, from the surface of earth to ionosphere is approximately ½ million volts, so we exist in a "hugely charged" environment which unfortunately, gets little discussion in health and science. If water in living organisms is negatively charged then this phenomenon may account for the ability of water, without a pumping force, to defy gravity and flow upward through plants (like sap in a tree) simply due to charge repulsion. It also may assist human circulation of body fluids. In fact Russian researchers have used charged water to produce exceptional plant growth in gardening. (9)

Free electrons are also beneficial because they work to prevent the unmasking of the NFkb protein in cells which upregulates approximately 400 inflammatory genes.

To summarize, the typical life circumstance for modern humans involves chronic unhealthy EMF exposure, metal and chemical pollution, microbial imbalance, a devitalized acid diet and metabolism, and negative thinking. This is coupled with a lack of the following: nutrients, antioxidants, sunlight, grounding, spiritual activity, and good water. The result is inadequate negative charging of cell batteries, high oxidative stress, low vitality, inflammation, and poor circulation.

MMT Procedure Suggestions

The authors have had success in testing the various remedies and techniques above but the testing can be somewhat specialized. For example:

- EMF excretion remedies or other therapeutic substances like EO's tend to test positively when placed over **Kidney 1** and/or the Heart Alarm point, or sometimes other acupoints.
- With some brain toxicity and concussion patients therapeutic remedies and/or EZ water vials can be tested directly over the carotid artery.
    - Laser pulse frequency and nanometer wavelength dosage can also be screened over the neck area being careful to avoid the thyroid.
- Traditional oral or other body surface testing may produce false negative results depending on the patient and testing location.
- Potentially any muscle inhibition may strengthen to related remedies listed above or to grounding techniques.
    - AK Gait testing may normalize when retested without shoes on natural surface or concrete (exceptions: wood, asphalt).

- Negative thoughts tend to lower therapeutic values of EO's by 12 megahertz whereas positive thoughts raise them by 10mHz and prayer by 15mHz (5, 10).
    - Flower remedies and/or Psychological Reversal techniques can help overwrite negative thoughts.

In general **kidney**, **heart**, **nervous system**, and sometimes lymph indicators are the most commonly used circuits for investigating these phenomena with MMT.

Conclusion

The majority of patients as well as practitioners are affected by this problem to some degree. This is likely due to the almost universal proliferation of powerful radio-frequency generating wireless devices and networks, the common deficiency of grounding activities, natural water and nutrients, and the confounding effects of free radical pathology and toxins. Many of these patients have been treated with limited or no success in other ways. Knowledge and testing capability of these phenomena will continue to grow. Thus, effective MMT investigative procedures are helpful to individualize treatment, prevention, and lifestyle measures that resonate therapeutically with the patients' cells to create healing. With enough diagnostic tools this problem can be overcome and patients' health restored or improved.

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Division III

Constructive Review Papers

Li19 & Li20 Switching

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

Abstract

This paper looks at the impact of a commonly missed phenomenon of Large Intestine meridian crossing the body and its impact within Applied Kinesiology and the health of our patients.

Key Indexing Terms
TCM, Meridian Therapy, Large Intestine, George Goodheart, Muscle Testing, Therapy Localization

Acknowledgments
George Goodheart, David Walther, Deng Liangyue, Yijun, He Shuhui, Ji Xiaoping, Li Yang, Wang Rufen, Wang Wenjing, Wang Xuetai, Xu Hengze, Xue Xiuling, and Yuan Jiuling.

Discussion

First, we want to familiarize ourselves with and locate Li19 and Li20 on our patients. As reviewed in my previous article, large intestine 20 is found in the nasal groove what should be half way between the medial nari line and smile crease line, on the opposite side of the rest of the meridian. Large intestine 19 is found 1/3 below the nose at the lateral margin of the nostril level with GV 26 on the opposite side of Li20 and on the same side as the rest of the Meridian points.

Even though the doctor can stimulate these points, it is easier to have the patient touch with their pinky and thumb with accurate doctor placement. First clear up any weakness this may create. If a previously weak TFL or Hamstring was found, see if this corrects it. If so, stimulate for 60 seconds and therapy localize to Li1 (the location is end of index radial nail bed by .1 mm) to see if this needs to be included (B&E Technique)

Next, have the patient touch opposite from each other Li19 and Li20. See if this creates a weakness. Correct it any way you deem best, I haven't found a unified preferential one. However, for simplicity sake, rubbing K27 and CV8 is very effective correction for this. Stop here and recheck all parameters. This can have a huge affect on the whole body/system. Often times if you ask the patient to describe how they feel, they will describe a rush or euphoric sense. You could stop here, allowing them to enjoy it. However, if you push on, you are likely to fix some major fault or issue. I have found that if you have the patient maintain the opposite Li19 to Li20 point, you can retest every gait meridian muscle and find some interesting, now apparent, imbalances. (A short cut observation I made was that the Meridian Map points will not suffice for testing the meridian muscles; where as, a then and now variety seems to work.)

In a normal tonic muscle while in gait position, tapping a meridian acupressure point (tonification point for consistency as the sedation point brings other accuracy concerns) for what should be a facilitated muscle on its opposite muscle meridian side of the body will cause a temporary weakness.
I have found it common, but not always affective in non-gait position as well. Gait position reinforces the right, left-brain facilitation patterns in a normal neurological system. Finding this imbalance doesn't tell you exactly what it is, but can identify meridian imbalances contributing to our neurological model in an easy to investigate mode. The biggest concern is poor approximation of the meridian points and getting a false negative.

First, would be to test all 12 basic meridian muscle associations in gait while tapping the opposite side tonification point to the related muscle and looking for a "temporary associated weakness." If the specific gait muscle should normally facilitate, then tapping the opposite side tonification or same side sedation points related should temporarily override the "extra facilitation of gait." (Causing a lack of facilitation or perceived weakness. Similar to stepping on a piece of glass would). The basic concept is that pain and threat of injury is a basic primitive reflex and should supersede a coordinated effort.

Small Intestine	Quadricept	SI3
Heart	Subscapularus	Ht9
Gall Bladder	Popliteus	GB43
Liver	PMS	LV8
Bladder	Ant. Tibialus	BL67
Kidney	Upper Trapezius	KI7
Large Intestine	Hamstring	LI11
Lung	Deltoid	LU9
Stomach	PMC	ST41
Spleen	Lattissimus	SP2
Tripple Warmer	Teres Minor	TW3
Pericardium	Gracilis	P9

Then, in the above scenario go back and re-therapy localize to Li19 and Li20 opposite point and while holding, retest the above meridian muscles. If and/ or when, you find an inappropriate tonification response you now have a meridian specific switching or redirecting of Qi. In most cases, tapping the appropriate Li20 and sedation point of the same meridian while in gait will produce lasting, powerful results.

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TCM and the Large Intestine 20

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

Abstract

This paper reviews common ideas and point locations of meridian therapy and some widespread common discrepancies. Furthermore, we'll discuss how these correct fine points can impact Applied Kinesiology and the health of our patients.

Key Indexing Terms
TCM, Meridian Therapy, Zang, FU, Large Intestine, George Goodheart, Muscle Testing, Therapy Localization

Acknowledgments
George Goodheart, David Walther, Deng Liangyue, Yijun, He Shuhui, Ji Xiaoping, Li Yang, Wang Rufen, Wang Wenjing, Wang Xuetai, Xu Hengze, Xue Xiuling, and Yuan Jiuling.

Discussion

Applied Kinesiology (AK) was born from Dr. George Goodheart, Jr. in 1964, when he started using manual muscle testing to evaluate his patients. TCM and meridian information from China was added in 1966. Of the five main factors he added to help understand and treat muscle imbalances, I believe it is the meridian, organ relationships that has holistically popularized and spread our technique of AK among other natural health practitioners the most. Secondly, I assert it is our integrated brain, neurological model and application of AK that makes it all work so well.

We have advanced many reflexes, tools, techniques and more. Yet, I think the average practitioner can easily take for granted the precision and influence of the meridian TCM system.

In TCM, the large intestine meridian would be considered one of the six "Fu Organs." The large intestine meridian communicates with the lung meridian (Zang organ) with which it is externally-internally related. The relationship between large intestine and lung takes Qi descending from lungs in transmission of normal bowel movement. In times that large intestine is obstructed by stasis it may prevent lung Qi from descending. In TCM, this dysfunction of descending Qi may lead to cough and fullness of the chest.

If one does enough cross research you will see discrepancies in points, terminology and application. Surprisingly, our use of the Large intestine meridian is a discrepancy to the classic TCM books. In these texts, the Large intestine 20 crosses the body side opposite the other Large Intestine points. The Large Intestine meridian is the ONLY meridian that crosses from the side it starts on. Take another look at the Applied Kinesiology Synopsis

(Walther) and other incorrect references on the Internet, where they often show Li20 on the same side. Among the most reputable TCM meridian point references, you will see Li20 on the apposite side and in a few references Li19 as well. I have found in my experimentation Large Intestine 20 and not Large Intestine 19 to accurately flow on the opposite side. My main supporting reference is "Chinese Acupuncture and Moxibustion," by Deng Liangyue; et al., first publication 1987, Beijing, China.

If you are anything like me, just the possibility of this correction has you first doubting its truth and secondly, bursting with questions and opportunities to investigate. Li20 it would seem needs to have a cross-brain representation. Li20 and Li19 come very close to stomach 3, crossing over at the conception and governing vessel convergence. I suggest the opportunity for switching from side to side and front to back happens right here at this little end point of the large intestine meridian.

To be more specific, large intestine 20 is found in the nasal groove what should be half way between the medial nari line and smile crease line, on the opposite side of the rest of the meridian. Large intestine 19 is found 1/3 below the nose at the lateral margin of the nostril level with GV 26. Li19 is where I have seen a larger discrepancy depicting same side as Li20 or same side as Li18. Large intestine 18 is on the anterior SCM border with the head rotated to make the muscle prominent, even with the tip of the "Adam's Apple" (Laryngeal prominence).

We need to remember that every patient has a unique measurement that is regionally specific and referenced as CUN or Chinese inch. It is different for everyone. When there is no reference point the bottom horizontal length of their thumbnail is used, however, when a better reference can be had such as the lower arm for example. From elbow bend crease to wrist bend crease is known as 12 CUN dividing this into 12 will be more accurate and often slightly different than thumbnail length.

The difference between success and no success in TCM, besides the clinical decision of which points to use, is often the practitioners accuracy within .1 mm of point location. Fortunately a lot of the points we use have also landmark locating support. Luckily, a patient’s five fingers or enhanced two hand patient location can make some screening quicker. But, if it’s been a while since you have looked at your notes on meridian therapy, today is a great time to sharpen up again.

Conclusion

In summary, we may need to correct some of our references with relation to correct locations, and practice being as accurate as we can. Ultimately, our patients will be rewarded with our hard work and accuracy.

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