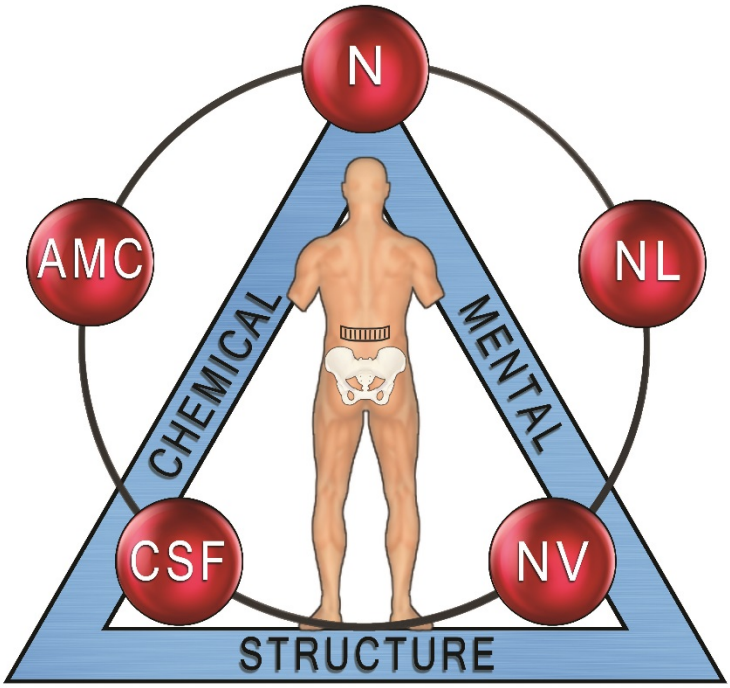

INTERNATIONAL COLLEGE OF APPLIED KINESIOLOGY U.S.A.

Experimental Observations of Members of the ICAK

Volume 1, 2020-2021

Seventy-First 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, 2020-2021

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, 2020-2021

Proceedings of the Annual Meeting

Presented:

July 30-August 2, 2020
Virtual Homecoming

Publications Staff:

Angela Capra, Executive Director
Chalise Shaw-McClaran, Membership & Publications Manager

Message from the Chairman

Dr. Richard Belli, D.C., D.A.C.N.B., F.A.B.N.N.

As we get nearer to 60 years of the members of the International College of Applied Kinesiology®-U.S.A. sharing their insights, outcomes, case histories and research through the papers presented in these Proceedings, we find ourselves in a new environment. The challenges we are currently enduring due to COVID-19, have changed our atmosphere. Not only has it affected our ability to practice, but also our ability to network and share our experiences and best practices. This year we find ourselves pivoting towards virtual education for our Annual Homecoming. Nonetheless, it remains our goal that through it all, ICAK-U.S.A. remain a consortium of academic and intellectual exceptionalism. We, as the authorities of the AK community, must find ways to continue to thrive as forum of individual observations, clinical results and research. It is our hope that our virtual meeting along with 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.

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

Thank you and congratulations to all of you who have taken the time to contribute. A special thanks to Drs. Denise Natale, David Engel, and Corey Osbourne for your time and knowledge in helping to produce this publication.

With excitement, we look forward to seeing you at our first-ever virtual AK Homecoming!

Introduction

This seventy-first collection of papers from members of the International College of Applied Kinesiology®-U.S.A. contains seven original papers written by six authors, and two International papers written by one author. 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.

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.

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.

Manuscript Preparation

Authors are requested to submit final manuscripts via email to icak@dci-kansascity.com. 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
4919 Lamar Ave.
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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Volume 1, 2020-2021

Fatigue and Leg Pain - A Case History

Robert Ozello, D.C., DIBAK

Abstract

Both chronic leg pain and fatigue are commonly treated conditions in an Applied kinesiology practice. There can be many causes for these symptoms and the doctor must be alert to all possibilities. In this case the patient had an essential fatty acid and Vitamin D/K2 deficiency that that showed only when the testing procedure was "pushed" beyond the usual.

Key Indexing Terms
Leg Pain, Fatigue, Applied Kinesiology, Aerobic Muscle Weakness, Essential Fatty Acid Deficiency, Vitamin D Deficiency

Introduction
Today's dietary guidelines call for a low-fat diet. This has created major problems for patients. Hormonal imbalances, weakened and dysregulated immune systems, poor digestive function, fatigue and muscle weakness are all consequences of this deficiency. Patients have various levels of deficiency showing up more strongly in some cases than others.

In this case the patient was "healthy" enough that it was more difficult to find the aerobic weakness. She ate food mostly cooked at home and grew her own eggs, beef and chickens. She was sick enough, however, that she had considerable fatigue and leg pain that did not respond to usual AK treatment. I had her walk about 10 steps in the office in at attempt to diagnose the problem. Those few steps dramatically increased palpatory pain in the right gluteal and hamstring muscles. There also was a weakness of multiple muscles tested after those 10 steps. Evidently using more muscles exacerbated the aerobic weakness. Ingestion of essential fatty acids and Vitamin D/K2 negated the palpatory pain and aerobic weakness.

The purpose of this case history is to encourage AK practitioners to use the tools we have and to push the testing procedures to bring out hidden or difficult to elicit imbalances and deficiencies.

Materials and Methods
Applied Kinesiology Manual Muscle Testing, Biotics Biomega -1000, Vitamin D/K2

Discussion

A 67-year-old female presented with right gluteal and right posterior leg pain with weakness and fatigue. The pain was worse with moving and sitting. She had been a regular patient but had not been seen in several months with this new complaint.

She did not recall any car accidents or physical trauma.

Applied kinesiology examination revealed a multiple fixations, subluxations and muscle imbalances with a right category II distortion. Correction of these imbalances provided some improvement. I checked her for a ligament stretch which was negative. I then checked for an aerobic weakness with 10 contractions of her opponens pollicis muscle. It also was negative. I continued correcting structure with little further improvement.

At this point I was frustrated and perplexed. I thought about this and reasoned that perhaps the patient had an aerobic weakness but was hidden and the patient has some reserve. I retested the opponens. I continually tested the muscle until it failed. It took twenty-six contractions to fail. I was surprised at this finding. I then tested various supplements to negate this finding. Biotics Biomega-1000 (omega 3 with EPA and DHA) and Thorne Vitamin D/K2 negated the muscle failure. In fact, I tested to 100 contractions with no failure. She was placed on three Biomega-1000 and ten drops of Thorne Vitamin D/K2 per day.

She was instructed to eat wild salmon, mackerel and sardines three times a week. She generally had a good diet with minimal grains. She grew her own chickens, beef and eggs which were all pastured.

I had been taught, and I also taught that the doctor only needed to go 10 contractions or so to bring out an aerobic weakness. My frustration and dissatisfaction with the results forced me to look beyond my experience. I have found aerobic weaknesses on other patients up to forty contractions. In all these cases a successful outcome was achieved with improvement to over one hundred contractions.

Results

The patient had a complete improvement with no return of symptoms over the next three weeks. She was able to discontinue the supplements after three months. She continued to eat the salmon, mackerel and sardines.

Conclusion

My own annoyance with the initial results in this case forced me to look at things in a new way. I am glad that I did not easily give up and was able to help a number of patients that I could not help before.

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Going Around the Mountain, Ending Where You Start and Still Getting Results Because of Good AK

Dr. John Erdmann, D.C., LAc, DIBAK

Abstract

The purpose of this case study is to describe a treatment approach for reducing subdural hematoma swelling utilizing Applied Kinesiology, Chiropractic, and Traditional Chinese Medicine.

Key Indexing Terms
Subdural Hematoma, Applied Kinesiology, Chiropractic, Gonstead technique, Traditional Chinese Medicine, Acupuncture, Muscle Testing, Goodheart, Chapman Reflexes, Meridian, Temporomandibular Joint Dysfunction

Introduction
Patient "Mr. M" sought out our care for an accident that resulted in a head injury. He fell in his driveway and hit his head, face, shoulder, and arm, all on the right side. Mr. M was diagnosed by a neurosurgeon as having a subdural hematoma. With this type of injury statistics show: "About half of affected individuals die in the first 6 months. Rebleeding, a major complication, carries a mortality rate of 51-80%.[1,2]

Five weeks after the original injury, Mr. M came to our office. His contusions and cuts were noticeably still healing. He was out of the immediate life-threatening condition and had improved, however, the swelling had not improved and was getting incrementally worse. The neurosurgeon highly recommended a craniotomy--a fairly invasive surgery where a hole is drilled into the skull to locate and reduce the swelling.[5,6] On Mr. M's last visit to the neurosurgeon, the day prior to coming to our office, he was told he would need an urgent surgery if the swelling increased. With no time or margin to spare, we accepted Mr. M with the goal to reduce his brain swelling.

Mr. M. had received chiropractic and craniosacral therapy from a local doctor without satisfactory results. We began with Applied Kinesiology (AK) and some neurological tests. This patient was not able to pass a basic straight-line test, fukuda test, or any other balance test. Bilateral blood pressure recording with a Raglands (seated-standing-supine) test showed slightly elevated systolic and diastolic with 8 lbs. pressure higher on the right suggesting increased sympathetic tone on the right side. Also found was the blood pressure

not rising on standing (with gravity), suggestive of hypo adrenal function. Performing an eye tracking test where there was nystagmus increased in the right hemisphere: the eyes up to the right caused a strong indicator muscle to test sub-optimal that was negated with a therapy localization over a visible healing scar on the right temporal muscle/bone. We began treatment with gentle skin tugging or scar technique as taught in AK, and the eyes "up and to the right directional-challenge" became negative. Mr. M's overall "Shen," according to TCM (Traditional Chinese Medicine) diagnosis, was poor. Shen is a term used to evaluate the overall vitality or health as seen in the face color and characteristics. The last initial exam results showed a balance issue and unsteadiness when he walked into the office assisted by a cane.

AK has three main diagnostic windows that lead us in AK to test muscles. We proceeded to use Pulse points on Mr. M. Pulse point diagnosis is utilized in TCM and AK alike. Palpatory Pulse point analysis found a deficient spleen and kidney meridian bilateral pulse points, whereas muscle testing proved only the kidney yang meridian or the proximal right-side points to be "the most significant" channel/ meridian. This meridian was identified by testing the right sartorius muscle which tested inhibited as indicated as a muscle grade 4 out of 5. The muscle then facilitated, (muscle grade testing 5) by the patient touching the associated TCM front Mu point known as ren 17 and likewise the Chapman adrenal front points. Several adrenal related supplements were tested orally to no avail. A structural chiropractic pelvic adjustment and rubbing of the Chapman's reflex corrected the Sartorius muscle even to additional temporal tapping. Temporal tapping is a procedure used as an audit to test if enough treatment was given to maintain muscle facilitation. Next, another AK diagnostic window was used which is postural observation. Because of Mr. M's lack of balance, the gait analysis couldn't be relied on, so we used Static observation only. It showed a low right shoulder, so we proceeded to test the right upper trapezius muscle and also test the left latissimus dorsi muscle.

Only the right upper trapezius muscle tested positive or non-facilitated. Therapy localization to the occipital and the kidney Chapman's reflex, caused the upper trapezius muscle to strengthen. Because of the earlier ocular lock direction challenge and the upper trapezius insertion point, we palpated for restriction to the occipital region. A chiropractic manipulation to the superior occipital and subsequently the Chapman reflex rubbing for 60 second was done. Tracing the upper trapezius attachment to the shoulder an observation of a rolled in shoulder was found, which led to testing of the pectoralis major clavicular muscle. It was found non-facilitated with a muscle testing grade of 4. Therapy localization and challenge testing led to a corresponding acromium clavicular joint along with an inferior clavicle, which was all adjusted. All muscles facilitated.

In addition, Mr. M was experiencing a headache over the right temporal bone. He rated this headache as a 6 out of 10 on a VAS. (visual analog pain Scale) The rating is 0-10, 10 being the worst pain. First consideration was to evaluate his TMJ (Temporomandibular Joint) and TMD (Temporomandibular joint dysfunction) utilizing AK evaluation procedure. Several TMJ muscles were found with aberrant jaw movement indicating TMD. It was corrected by using AK protocol along with correcting all the cranial bones. Based off of sacral occipital technique, a category 1 was corrected as well as a 5th lumbar

subluxation. Following this treatment, Mr. M was much better, but still had a slight headache. He downgraded his headache to a 2 and it moved to just over the frontal bone. The frontal bone lines up over the stomach and large intestine channel region. In acupuncture these two meridians often cause what is called a Yangming headache. Yangming refers to the stomach and large intestine relationship in the six-channel theory of TCM. It was corrected by sedating with needles to the stomach meridian point #44. As a result, instantly the headache went down to zero.

Circling back, the Ocular lock was retested and negative, eyes into distortion was negative, and on pitch-roll-yaw-tilt only a sacrifice-tuberous correction was found and corrected.

Evaluating inflammation and chemistry several muscles were tested relating to heart, kidney, adrenals with no inhibition. Testing calf pressure was positive but with no response to oral nutritional challenges. There was no visual body edema. On further investigation using a 51-percent double therapy localized challenge a sartorius muscle was found reactive to the kidney neuro-lymphatic point and it was corrected with an oral challenge to AC-Carbamide a mineral osmolarity supplement.

The patient already had better balance so He was instructed to walk along the hallway without using his cane. Two things became obvious: he kept falling to his left and he had a left short stride. This meant he over swung his left arm and barely moved his right arm and shoulder.

Testing Mr. M's right upper trapezius muscle in a standing gait position, which was previously corrected in a supine position, now tested improperly inhibited again. The muscle strengthened to therapy localization over the 4th cervical. After palpating and challenging this vertebra, it was corrected with a sitting Gonstead chiropractic technique. Mr. M now could walk much better with a very slight left drift and slight decreased right shoulder movement.

Lastly, the TSL (Temporal Sphenoidal Line) was checked for reactive trigger points and none were and confirmed with therapy localization. This practitioner often uses the third AK diagnostic window as a final check to see if some inhibited muscle was missed. Home-work was given to walk with excessive right shoulder movement. AC Carbamide was given to supplement and that concluded Mr. M's treatment.

On Mr. M's follow-up brain scan two days later, the swelling had not increased. A week later, the brain scan showed a millimeter decreased. Three weeks later the surgeon told him he didn't need the surgery.

Discussion

Patient Mr. M came with a desperate request to avoid brain surgery, more over his symptoms showed us extreme balance and discoordination along with a bad headache. In AK there are so many approaches to take, and all are valid by our motto "fix what you find." (Thank you, Dr. Goodheart) It is easy to get lost in the details, instead of taking the

obvious problem right in front of you. After 24 years of AK practice, I find the body tells you simply what it needs. The patient's symptoms and issues are necessary, but can make your treatment complicated if you don't stay focused. The thorough student of AK has all the tools to make the positive difference. With hindsight being 20/20, the main correction for Mr. M in this author's opinion was the upper trapezius muscle. Static low shoulder was there from the beginning asking someone to help it. The AK beginning student is taught to start with static posture muscles and this is where it finished with the advanced treatment. Traditionally, in Chinese Medicine the right and left proximal points relate to the kidney, the tricky part was the over translation or judgment of the right-side pulse point to equal pericardium meridian or the adrenals meridian organ relationship. It was corrected, but again it was the upper trapezius and its lack of motion creating the major imbalance and problem.

Conclusion

This patient case represents an extreme example of "what to do next" when you have no obvious idea. Certainly, the chief complaint of brain swelling offered little insight. Patients come to us with issues and often pain, we desperately want to help reduce their condition and or suffering. It exemplifies how good AK works regardless of the order or beaten path it takes you, as long as you persist with solid study, technique and determination.

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Oxalic Acid Bioaccumulation & Intolerance- A Novel Test and Solution

Michael Lebowitz D.C. & Noah Lebowitz D.C.

Abstract

Oxalic acid is another “food toxin” that can wreak havoc in the body of susceptible individuals. Applied Kinesiology testing yields an extremely high per centage of false negatives when testing for weakness with an “indicator muscle”. Results on a group of random patients with this method, plus a new novel testing method is discussed, as well as how to remediate issues.

Key Indexing Terms
Oxalic Acid, Food Toxin, Intolerance, Applied Kinesiology

Introduction

Oxalic acid is an organic compound with the formula $C_2H_2O_4$. In susceptible patients it can lead to a host of symptoms. These include but are not limited to intense pain in your side and back (often coming in waves), pain upon urination, blood in your urine (appearing red, pink, or brown), cloudy urine, foul-smelling urine, an urgent and constant need to urinate, kidney stones, nausea and vomiting, autism,[1] COPD,[2] asthma,[2] thyroid issues,[3] fibromyalgia, joint pains, brain fog, migraines, IBD, rashes, behavior and speech regression in children, arthritis, etc.

Oxalate problems, or excessive calcium oxalate crystals, can be due to increased biosynthesis, increased dietary ingestion of high oxalate foods, or insufficient degradation of oxalates. Laboratory testing of urinary oxalates is of limited value as a low value could indicate no problem or can indicate high bioaccumulation with little excretion. Also, a high value could indicate a high amount of bioaccumulation or a patient who efficiently excretes oxalates with little bioaccumulation.

Biosynthesis

“At least two pathways exist for the enzyme-mediated formation of oxalate. In one pathway, oxaloacetate, a component of the Krebs citric acid cycle, is hydrolyzed to oxalate and acetic acid by the enzyme oxaloacetase. It also arises from the dehydrogenation of glycolic acid, which is produced by the metabolism of ethylene glycol."[4]

Diet

Oxalic acid is found in significant amounts in rhubarb, spinach, chard, tea, beet greens, potatoes, okra, chives, raspberries, almonds, chocolate, miso (see https://www.stjoes.ca/patients-visitors/patient-education/patient-education-k-o/pd-9447-

oxalate-in-food.pdf for a more complete list). Some foods can decrease their level by boiling and draining off the water or presoaking, but not all oxalates are water-soluble.

Degradation/ Accumulation

Oxalic acid can be broken down by the anaerobe oxalobacter formigenes, which ingests it. Many people with oxalate related illness have less then optimal amounts of this microbe in their intestinal tract.[5] Increased intestinal permeability (which can be secondary to dysbiosis, food intolerance, glyphosate accumulation, etc.) will also increase bioaccumulation. There is some anecdotal evidence that Lactobacillus and bifidobacterium species may help to a very minor degree.

Procedure

AK Testing

When composing our initial research on food toxins,[6] we omitted oxalic acid as when testing a sample on an indicator muscle we showed a positive response in less than 5% of subjects tested. Over the past year two separate events made us re-evaluate.

1) A health-oriented AK doctor friend suffered from kidney stones that he felt was due to the number of green drinks he was ingesting.[7]

2) Another AK physician sent us the following email- "Any thoughts on Oxalates? I have a few people who have dropped the high level containing foods and felt better, not to mention all the stone formers. This patient has hashimotos and is sensitive to Histamines. She tested among other things for SAMe. She informed me that in her research she found that there is a connection between histamine issues genetically and oxalates. I have not confirmed this, but she went on a low oxalate diet (on top of no gluten, dairy, soy and histamines) and had a reduction almost immediately in joint pain, bloating after eating, itching in ears, rash under eyes (this was really bad) and increased energy. She was eating at least 4 of the top 10 highest oxalate foods daily. The skin change was the most dramatic and interesting to me."[8]

We started retesting oxalic acid again but the results were as previously noted. With our new provocation work taught in the Lebowitz protocol since fall 2018 we decided to use the psoas as an indicator muscle to see if oxalic acid would test positive more frequently. It did not increase the percentage of patients we found a positive test results with. We picked the psoas due to the fact that oxalic acid is a major kidney irritant. Before giving up we decided to try versus the peroneus longus muscle and the results were very significant.

Discussion

Results. We tested the next 36 patients that came into our office in Haiku, HI. This was a mixture of new and existing patients with various health concerns. We tested oxalic acid while held under the south pole of a magnet over GV-20. Only 4 out of 36 patients (11%) showed positive when using a general indicator muscle. Now while still holding the oxalic acid over GV-20 we tested the patients' peroneus longus muscle (first checking without oxalic acid to make sure the muscle was conditionally facilitated). With the peroneus

longus muscle and holding the oxalic acid over GV-20 we found that it tested positive on 30/36 people (83%), including the 4 people it showed up with a general indicator muscle. Only 6/36 (17%) didn't show on oxalic acid when testing it with the provocation mentioned above. On 15 people it showed up with both the right and left peroneus longus muscles. Seven people only caused conditional inhibition ("weakening") of the right peroneus longus muscle and 4 only caused conditional inhibitory of the left peroneus longus muscle. If a person had a positive test via one of these muscles we checked to see if Uva Ursi negated the positive test and it did on 26/30 people (87%). Uva ursi was chosen due to its ability to block the forming or calcium oxalate crystals.

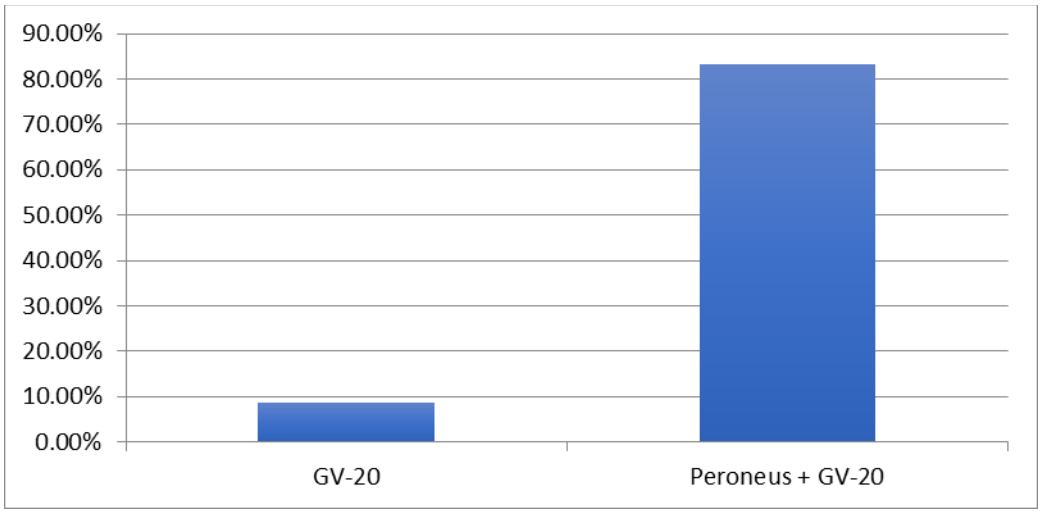

Figure 1. The percentage of positive tests when checking with a straight-arm test vs. checking the peroneus longus muscle

Conclusion

For people who have chronic symptoms that indicate oxalic acid issues this test is a novel and easy way to check for sensitivity to it in the office. If someone shows positive there are three main steps to take.

1. Avoidance of high oxalate foods.
2. Testing of herbs/nutrients that have been shown to help eliminate and/or prevent the build up of oxalic acid.

Elimination:

Uva ursi

In our clinical experience the most significant supplement and also show to prevent calcium oxalate crystallization (9)

Taurine

Important for making bile acid taurocholate which limits absorption of oxalate. Take if stool turns yellow.[10]

Alpha Lipoic Acid (ALA)

Works for some, not for others; important antioxidant and can prevent some endogenous production of oxalate. [10]

Glutathione

It helps reduce metabolism of glycolate to oxalate. [10]

Pantothenic acid or CoEnzyme A

Important to keep from making oxalate by glycolate cycle in microbes and us. [10]

Vitamin B6

Important for preventing metabolism of food to oxalate. [10]

Citrate (Calcium or Magnesium)

May prevent crystallization of oxalate and may help break down crystals already formed.[9]

3. Avoid vitamin C supplementation.

Supplemental Vitamin C should be avoided as it can be converted to oxalate. [10]

A word of caution- it is anecdotally reported online that when people institute a low oxalate diet that they can experience “oxalate dumping” which can cause an exacerbation of symptoms or new symptoms. This can occur, although is less common with proper supplementation as well as applied kinesiology structural work directed to the appropriate areas according to the patient’s individual needs.

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Review of Symptoms Examination and Treatment for the Structural Practitioner of the Temporomandibular Joint

David W. Leaf, D.C.

Abstract

This paper describes symptoms, evaluation, and coordinated treatment for the structural on dental approach to normalizing as much as possible the temporomandibular joint.

Key Indexing Terms
TMJ, Temporomandibular Joint, Manual Medicine

Discussion

Penfield and Rasmussen have demonstrated that 35-40 percent of the nerves in the body are related to the face and head. Imbalances in the temporomandibular joint (TMJ) have far-reaching symptom patterns due to this sizeable neurological importance.

In 2000, Dr. Jean-Pierre Meerseman and the author were invited to lecture at a symposium where 12 dental societies were trying to decide whether TMJ problems had anything to do with posture. Six of these societies said no, and the other six said yes. At this meeting, the author presented evidence of multiple symptom patterns below the skull that were related to TMJ imbalances.

Three of the following are described here. When the condyle is posterior superior in the temporal fossa, some of the ill effects of this positioning involve the decreased function of the abductors of the arm and leg, decreased vital capacity due to restriction of the diaphragm, and changes in gait.

Dr. Meerseman calls these problems descending symptoms. These can be easily demonstrated to the patient or created by having them retract then clench their teeth.[1]

The simple tests will be described in the examination portion of this paper.

Dr. Merrseman also describes ascending problems causing the abnormal function of the TMJ muscles. Common areas affecting these muscles include dropping of the arch in the foot, pelvic imbalances, and upper cervical misalignments. Shoulder problems have also been found to cause TMJ muscle imbalances.

In November 2019, the author was a speaker at a symposium on pain in Moscow. He was the only non-medical doctor speaking to over 700 neurologists. The speaker before him was working with a pharmaceutical firm in Belgium that was working on a medication to reduce the pain in migraines. They were working on a drug to block chemicals created and released by the trigeminal nerve that they felt caused 60 to 70% of migraines. The author followed this dissertation by relating that his findings were that many migraine patients had TMJ problems. Proper treatment of the TMJ condition quickly diminishes or eliminates this type of migraine by finding the cause of the muscle contractions that cause the abnormal function of the mandible. It reduces the stress of the trigeminal nerve.

From the dental standpoint, pain and ache over the temporomandibular joint are sometimes considered the only valid symptoms. It is not uncommon to find tinnitus, vertigo, trigeminal pain, facial muscle inhibition, occipital headaches, and Meniere's syndrome related to TMJ malfunction.

Abnormal chewing function, sometimes due to TMJ involvement, can also be found related to swallowing problems as well as musculoskeletal imbalances, including shoulder, rib, gait, and even foot problems.

Anatomy

The dental standard of the jaw's ideal relationship in a resting position is called the myocentric position. This is when the mandibular muscles are in equilibrium, and no contact between the opposing teeth occurs until closing occurs with a solid simultaneous contact of all opposing teeth.

The joint is composed of the condyle of the mandible, an articular disc superior both held in the mandibular fossa. On jaw opening, the condyle of the mandible moves forward as the ramus moves posteriorly, and the disc moves anteriorly. Alterations in this regular fluid action lead to clicking and aberrant motion.

The articular disc is composed of collagen fibers and is found between the head of the condyle and the temporal bone.

The surfaces of the temporal bone and the condyle are covered with collagen fibers, not articular cartilage. This covering gives the articulation excellent pliability as the condyle moves from the concave fossa to the convex anterior portion of the temporal eminence.

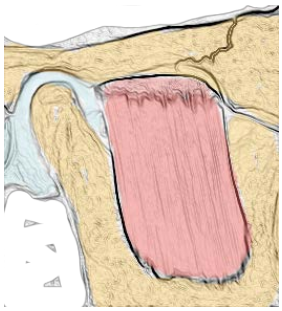
The disc is securely fastened to the condyle on the medial and lateral aspects. The disc is then carried with the condyle as it moves through its range of motion. The anterior portion of the disc is vascular and is the posterior attachment of the superior division of the external pterygoid.[2]

Muscles of the TMJ

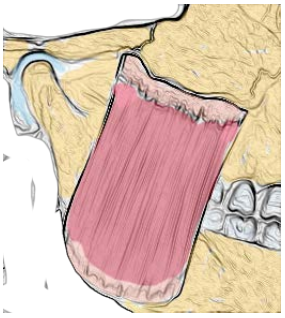
There are two sections of the masseter muscle, and they work differently in chewing. The

deep portion (Figure 1) is more involved with biting with the incisors. It protrudes, adducts and closes, and elevates the mandible. The fibers run almost perpendicularly.

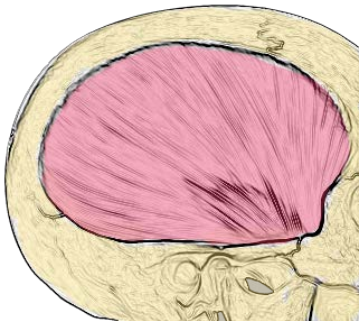
Deep Masseter
Figure 1



Superficial Masseter
Figure 2



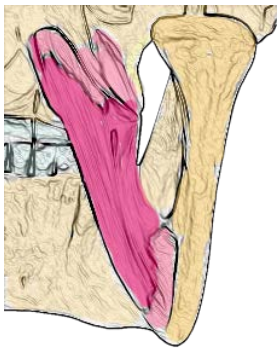
Temporalis
Figure 3



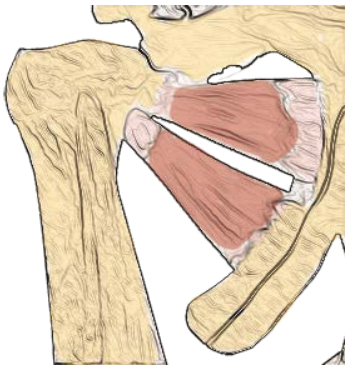
The superficial masseter (Figure 2) functions similarly to the deep masseter but is involved more with grinding with the molars and retraction of the mandible. These are easily felt by palpating the muscles and actively clenching and biting with the incisors.

The temporalis muscle (Figure 3) must also be thought of as having two separate parts. The anterior fibers elevate the mandible while the posterior portion is involved with retraction and grinding with the molars. Again, fingers applied over the muscle and feeling for the active contraction of the different fibers are quickly done and demonstrated to the patient.

The internal pterygoid muscle (Figure 4) is one of the primary grinding muscles. It contracts with the mandible. The insertion of this muscle can be palpated on the internal surface of the mandible anterior to the inferior angle. Care must be taken when the muscle is palpated orally. To protect the examiner, press the opposite check gently between the teeth, so if the person clenches hard, they will bite their cheek before hurting your finger.



Internal Pterygoid
Figure 4



External Pterygoid
Figure 5

The lateral pterygoid (Figure 5) has two divisions. It is relatively easy to palpate the inferior division going external to the teeth and sliding gently into the pterygoid pocket. Then move your finger superior, and you can contact a part of the superior division. The superior portion attaches to the articular disc and helps control the motion of the disc during translation of the mandible condyle. The inferior division is more involved with the final closing of the teeth.

Mandible Opening

The regular opening of the mandible occurs due to the relaxation of the closing muscles. These include the masseter, the temporalis, and the internal pterygoid. The superior division of the external pterygoid Exerts anterior traction on the disc during closing.

The inferior division of the external pterygoid is active in opening the mouth. Contraction pulls on the condyle causing lateral deviation and protrusion. Contraction on one side causes rotation of the mandible on opening. The key here is that opening is mostly a passive action, and any contraction or failure to relax of the closing muscles causes imbalances in function.

During the last one-third of opening as in yawning, the fibers of the anterior digastric muscle function to aid in pulling the mandible inferior.[3]

Mandible closing

Closing of the mandible is a coordinated contraction of the masseter, temporalis, internal pterygoid, and the superior division of the external pterygoid. The contraction of the masseter and temporalis on one side and the contraction of the contralateral internal pterygoid and the superior division of the external pterygoid are accomplished by chewing or grinding of food.

Retraction of the mandible is accomplished by contraction of the superficial masseter fibers and the posterior temporalis.

Clicking

Clicking or popping sounds on motion are caused by either disc displacements, altered joint surfaces, or muscular imbalances of the mandible.

The clicking sound of the jaw on opening is due to anterior displacement of the disc. As the condyle translates forward, it must ride over this thickened portion of the disc and creates a snapping or clicking sound as it does so.

If the disc has moved anterior enough to stop normal translation of the condyle, blocking has occurred, and the degree of opening will be diminished.

One of the common causes of clicking will be a shortening of the superior division of the external pterygoid. This can be treated using the strain counterstrain technique. The muscle is palpated, placing the examining finger into the pterygoid pocket and moving straight superior. If involved, the muscle should be quite tender. Goodheart would show that this could cause decreased abduction of the leg.

If abnormal opening exits after correcting the TMJ muscles or a "click" is still present, apply pressure on the mandible to simulate the normal function of the muscles of mastication. Force should be used to stretch the masseter, retract the mandible, elevate the mandible, and any combination of these actions. The information gained from this gives you guidance on how to treat the patient.[4]

Examination

One of the first things you should do when talking to a patient is to observe the degree to which they open their mouth when they talk. You will find that many of the patients with TMJ problems move their lips and very slightly open their mandible. This will be due to shortening and abnormal contraction of the closing muscles, especially the temporalis and the masseter. This is common in gum chewers and patients who brux at night. During your exam, always observe the surfaces of the teeth for abnormal wear.

Look at the patient's eyes and determine if one is more protruded or retracted than the other. The major muscles of the temporomandibular joint attach to the sphenoid. Increased contraction on one side will cause the tipping of the sphenoid and change the relative position of the eyes in the orbit. The retracted eye will be found on the side of increased muscular contraction, especially of the temporalis muscle.

If you see a difference in the eyes, it is good practice to test the patient's visual acuity. It is common to improve their vision after proper correction of the muscles involved with TMJ problems as it affects the balance of the sphenoid and consequently changes the pressure on the eyeball.

In practice, the visual acuity can be improved after proper correction of the TMJ muscles and the position of the sphenoid changes. If you do not test for it and retest later, you will not get credit for the improvement.

If you suspect a TMJ problem, ask the patient to open their mouth slowly, observing for lateral deviation on opening or closing when viewed from the front. Then see the movement from the side, watching for any abnormal protrusion or retraction of the mandible.

If you observe the patient walking, note the position of their feet. Many times, you will find that patients are athletes with the TMJ problem that will green the lake in almost over the midline. Sometimes a will even tell you that they occasionally trip over their own feet.

Observe the patient bringing their arm into extension. If this is diminished, have the patient open their mouth three quarters and retest extension. If the arm goes farther into extension with the mouth open, there is a TMJ problem.

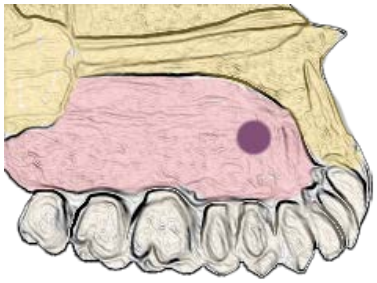
You should also test for reduced respiration by having the patient inspire and feel for lateral expansion in the lower rib cage. The expansion will be restricted on the side of the TMJ imbalance. There are other causes of reduced rib expansion, but one can be a TMJ problem. Again, asking the patient to open their mouth and retest and see if the ribs expand farther.

To test this on yourself, place your hands over the lower cage inspire fully. Then retract and clench your mandible and attempt to take a deep breath. You will notice a dramatic decrease in rib expansion. In sports, many athletes will clench while performing. If the condyle of the mandible is thrust posterior and superior, the athlete will have decreased respiratory function.

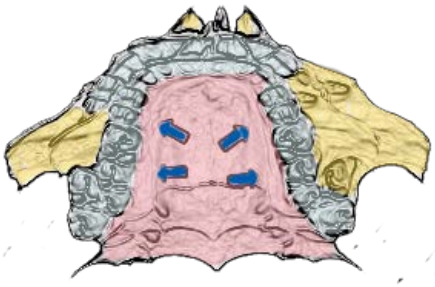
Finally, take your fingers and place them under the zygomatic arch. Ask the patient to slowly open their mouth and feel the translation of the mandible. You will learn more during this than you will by sticking your fingers in the side of decreased condyle motion, and you will tend to find over contraction of the temporalis and possibly the masseter muscles. On the opposite side, you will find the condyle being moved further anterior and lateral.

In all cases of TMJ problems, you should check for the proper functioning of the tongue. Ask the patient to wet their lips and swallow. Have them tell you where the tip of their tongue hits inside their mouth when they swallow. It should be up on the upper palate in the diagram shown here (Figure 6). The tongue's proper function is one of the major causes of the slight movement of the cranial bones.

Proper tip of tongue when swallowing
Figure 6



Tongue pressure against the teeth in children will cause the teeth to be pushed forward, and the maxilla is not pressed laterally (Figure 7). Over time, the teeth are pushed by the tongue, and the roof of the mouth 1s elevated, causing decreased room for the developing teeth. Single correction in the office with lateral pressure against the maxilla bones is a temporary correction. Normalizing tongue function getting the tip of the tongue superior, and applying lateral pressure is a better approach.



Pressure of tongue when swallowing
Figure 7

The examination of the TMJ follows with palpation of the related muscles. Palpation may reveal multiple trigger points in the muscles of mastication. Begin by palpating for trigger points in both the superficial and deep fibers of the masseter. Then palpate the different sections of the temporalis. Palpate the suprahyoid muscles for tenderness. You will usually find sensitivity on the side of involvement. In cases where the muscles of mastication have shortened, you may find a small area of intense pain on the base of the occiput. This tenderness is reduced dramatically by having the patient occlude on 1 - 3 tongue depressors.

This examination is followed by palpating and feeling the motion of the condyle. Classically, you place your finger in the external acoustic meatus. Anterior pressure is applied against the wall of the canal. While the patient opens and closes the mandible, you compare the condyle's motion against your finger.

Another procedure is to place your finger horizontally under the zygomatic arch. The advantage of this test is that you can feel the condyle's motion as it moves through translation. Translation is the motion that the condyle undergoes as it moves anterior and rotates in the temporal fossa. You can easily diagnose blocking of the condyle, lateral shifting as well as the degree of anterior motion.

Next, measure the degree of mouth opening. Travell [5] has stated that normal mouth opening is three knuckles of the less dominant hand.

The next step is to have the patient therapy localize to the temporal fossa just anterior to the ear. A normal functioning muscle is tested for inhibition. If inhibition is found, there are two possibilities, one being that local pathology is suspected. The other is that the condyle is in an abnormal position. The patient is then instructed to open their mouth, close forcefully, occlude on each side, lateralize the mandible, swallow, and then speak. These actions are done while the patient therapy localizes the joint, and a strong muscle is tested after performing each task. Any inhibition is then investigated for the muscular imbalance that causes positive therapy localization.

Any position that has a positive therapy localization is investigated by having the patient move their fingers to the muscles involved in the tested position. For example, if the therapy localization is positive on closing, have the patient first isolate the side involved by removing one hand and then the other. Then the individual muscles are tested by first moving the patient's fingers to the masseter muscle. The temporalis muscle and then have them reach under the angle of the mandible to therapy localize the internal pterygoid.

Increased contraction of the temporalis muscle is many times found with the sphenobasilar fault. This should be corrected in the office, and potentially the patient is shown how they can adjust and normalize this themselves. It is very common to find contraction of the temporalis muscle to return when they either eat, drink, or smell something that they are sensitive to.

Contractions can also be created if they clench excessively during the day or while they sleep. It is a good clinical practice to show the patient how to palpate this muscle for excessive tenderness or ache and then to have them check it periodically during the day. For example, the author had a mother and a daughter developing migraine headaches from their hair shampoo. In the office, when they smelled their hair, the temporalis muscle became incredibly tender to palpation and immediately caused the deceased translation of the mandible condyle.

The patient should be asked to get into their sleep position and then palpate or use therapy localization to evaluate muscle contraction.

Masseter hypertonicity can also be found with a sphenobasilar problem as well as jamming of the cruciate or palatine suture.

Internal pterygoid contraction has been shown at times to be related to excessive pronation of the arch on the same side, posterior rotation of the opposite innominate, and posterior displacement of the atlas on the same side. To test for this, palpate the pterygoid pocket and first supinate the foot on the same side and palpate for a reduction in the tenderness of the pterygoid muscle. Follow this by asking the patient to pull the opposite femur to their chest rotating the innominate posterior. Again, palpate for a reduction in tenderness. Next, apply anterior pressure against the lateral mass of the atlas while palpating the pterygoid.[7]

If none of these reduce the tenderness, ask the patient to bring their teeth together slowly, and see if they contact in unison. Sometimes you will have to have the patient do this in different positions. The most common is to ask them to sit and pretend that they are eating. Most will flex their neck and head, and this can alter the position of the mandible. If a premature contact is found, apply light pressure against the tooth involved. The pressure should be from lingual to buccal and then buccal to lingual. See if one reduces the tenderness in the pterygoid pocket. Dental work may be required if a filling or crown is where the premature contact is located.

Once the muscles of mastication have been treated with these procedures, evaluation for muscular coordination problems needs to be evaluated. Therapy localization is used to isolate the muscles involved.

Once the muscle involved has been isolated, the spindle cells are challenged to find if the muscle needs to be "turned up" or "turned down". Following this testing, the reflexes for the TMJ muscles should be tested for involvement and treated if necessary.

If there is no positive therapy localization to the TMJ and involvement is strongly suspected. The patient should challenge the skin over the ramus, both superior and inferior, while the above tests are repeated.[6]

It is not uncommon to find skin involvement after a lengthy dental procedure with the mouth held open wide for extended periods. The examiner then continues to examine the patient in differing positions. These should include sitting, supine, the patient's eating, chewing, position, side-lying if the symptoms occur during the night, and the work position of the patient.

If the temporalis muscle is found involved, the patient must localize to the different segments of the muscle. The patient is then asked to isolate the various sections to find the exact segment that is involved. The temporalis is often found engaged in proprioceptive inhibition patterns. These are tested by having the patient chew or perform more complex actions like protrusion and retraction of the mandible.

The examiner should palpate the temporalis muscle while the patient clenches with their molars to feel the contraction of the posterior fibers of the temporalis. It is common to find these underperforming allowing the mandible to protrude when opening and be one of the leading causes of "clicking."

After correcting any muscular imbalances, the mandible should be palpated for normal translation. Any blocking of the condyle may be corrected by "recapturing" the disc to its normal position.

The left diagram (Figure 8) shows the normal relationship between the condyle and the disc. The right diagram (Figure 9) shows the position of the disc when it blocks the normal opening.

Normal condyle position
Figure 8

Blocked condyle in translation
Figure 9

The procedure for this is to:

1. Stand behind the patient and stabilize their head to prevent any posterior motion.

2. Grasp under the inferior angle of the mandible bilaterally and stabilize your hands against the skull.

3. Exert pressure to separate the mandible in a lateral direction.

4. Ask the patient to protrude the mandible and open as wide as possible. The patient then closes and is asked to open again.

5. At complete opening for the second time, the hand contact is removed, and the patient returns the mandible to the resting position.

After the balancing of the muscles of the TMJ is performed, the mandible should be therapy localized using both hands for a holographic subluxation. Contact the ramus and the body of the mandible on one side and then on the other side. Test a normal functioning muscle for inhibition, if this is found, challenge the mandible to increase or decrease the angle formed by the ramus and the body. Correct in the direction that challenges with the phase of respiration that negated the positive therapy localization.

Mandibular sling
Figure 10

After testing for imbalances between the ramus and the body, test for imbalances in the superior-inferior alignment of the ramus. This type of imbalance will be found if there are chronic imbalances in the internal pterygoid and the masseter muscles. These two muscles form the "mandibular sling". (Figure 10) Over contraction of either will create abnormal stress to the bone and can cause changes in the condyle as well as the ramus.

In all cases, if there is a holographic subluxation present, there will be tenderness at the inferior angle of the mandible at the junction of the ramus and the body or over the symphysis menti.

If the patient has abnormal tongue thrust, weak stability of the suprahyoid muscles may be indicated. Palpation to the genioglossus and the hyoglossus muscles can easily be performed, and they will usually be exquisitely tender to palpation. If this is found, ask the patient to reach behind the clavicle and apply inferior pressure on the first rib and see if the tenderness is dramatically reduced. Poor stabilization of the hyoid by the failure of the infra-hyoid muscles causes the tongue to stay in an inferior position creating abnormal swallowing patterns. The most common symptom of this is aerophagia. Here the tongue fails to make a complete seal causing the patient to swallow air every time they swallow.

Conclusion

Many patients present with TMJ problems that are overlooked. These can be caused by factors in the body that are usually unrelated to cranial problems or by environmental factors.

This paper has attempted to expand the examining treatment doctor's scope in treating this common problem.

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Spelling Out the 2- and 3-Point Therapy Localization (TL)

Dr. John Erdmann, D.C., LAc, DIBAK

Abstract

The purpose of this paper is to review one application of Applied Kinesiology (AK) called "2- or 3- pointing." In this paper we will discuss how this application of "2- or 3-pointing" can discover hidden health issues and lead to their treatment.

Key words:
Applied Kinesiology, Therapy Localization, Manual Muscle Testing, Meridians

Discussion

Using Therapy Localization (TL) and Manual Muscle Testing (MMT) in an applied kinesiology diagnostic manner, we can find hidden or deeper problems. AK has shown that specific muscles are related to specific organs and meridians. Through MMT of these muscles we can join another AK tool of TL to test an extensive list of reflexes such as acupuncture alarm points or Chapman reflexes to find associations otherwise not observable.

The Concept of 2- or 3- pointing is utilized when conventional knowledge, case history or just plain instincts are suggesting a relationship should be present in our patient, but straight forward MMT does not reveal it.

For example, a patient is losing hair, has fatigue, is very emotional and yet, the Teres Minor muscle, which relates to the thyroid organ, MMT as normal with a grade of 5. From the history, some sort of thyroid conditions would be expected. After carefully eliminating all other factors, such as; switching, dehydration, breath holding etc., we can try 2- or 3-pointing. In this scenario mentioned, you test teres minor muscle and it holds intact or an MMT grade of 5. You then have the patient TL with their free hand the thyroid directly, and if it now weakens this would be considered a "one point with a specific muscle test." Often this is what we would call a 51% 'er, meaning just hidden from our 50% threshold needed for a weak or grade 4 MMT. Continuing our scenario, let's say the teres minor muscle is actually strong with TL over the Thyroid. Now we have the patient maintain the TL over the thyroid, and look for a second reflex or point to TL. This is best performed by the doctor using a magnet. Generally, TL is suggested by the patient only for higher accuracy, a magnet helps keep the TL accurate by enhancing it. For this example, the doctor/ magnet TL is over the liver alarm point. If this now creates an inhibition of MMT of a grade 4, it would prompt a whole new line of doctor investigation such as the liver's role in converting the thyroid hormone (many possible hypotheses can now be pursued).

In a three-point TL we need to mix lower and upper body muscle testing since most people can't TL with their toes. There are a few ways this can be tested, using a meridian/ organ relationship of the lower extremity muscles, can free up both patient hands and the doctors non testing hand. Or we can use a magnet left on the body as its own TL, and go about the usual patient TL.

2-point testing:

- Doctor tests a related organ/ meridian muscle
  Patient TL's suspected point/ reflex
- Doctor with the aid of a magnet tests a second concurrent point/ reflex
- Any change in muscle strengths indicates a deeper connection

3-point testing:

- All the above except step 4 elicits no change.
- If using lower extremity can use both patients' hands plus the doctors one free hand on all separate reflexes/ points.
- Any change in MMT points to a dynamic connection between these reflexes/ points.

Conclusion

Using therapy localization and manual muscle testing in an applied kinesiology diagnostic fashion can find hidden or deeper problems. By using MMT on these muscles we can TL to an extensive list of reflexes such as acupuncture alarm points or Chapman reflexes and so on to find associations otherwise not observable.

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Tooth Pain - A Case History

Robert Ozello, D.C., DIBAK

Abstract

Tooth or jaw pain is a common condition treated in an Applied Kinesiology practice. Often the pain is caused by trauma such as a car accident or a trip to the dentist. Other times it can be caused by a hormonal imbalance such as an adrenal deficiency with a ligament stretch reaction. Also, cranial faults caused by digestive imbalance and nutritional deficiencies can be the culprit. Muscle imbalances of the skull and jaw such as the Temporalis, zygomatic and platysma can cause problems.

Key Indexing Terms
Tooth Pain, Applied Kinesiology, Coconut Butter

Introduction
Tooth pain can present as a difficult problem to treat due to the complexity of the stomatognathic system. An imbalance anywhere in the body can manifest as pain in the jaw or tooth. The jaw and skull muscles and the cranial bones are used constantly and are very sensitive to insult from within and outside the body. A sensitivity to any food, nutritional supplement, heat and cold may elicit symptoms. The doctor must be open to every possibility when assessing this condition.

Materials and Methods
Applied Kinesiology Manual Muscle Testing, Coconut butter

Discussion

A 55-year-old male presented with right lower molar pain. He was a regular patient that I had not seen in several months. The pain had come on gradually and had become so excruciating that he could barely chew on the right side. He had been to the dentist who took x-rays and examined the entire mouth. The dentist found nothing wrong except for some slightly loose teeth that he wanted to remove. I have often been able to help patients with this problem and I accepted the case.

Applied kinesiology examination revealed a category I distortion with multiple fixations throughout the spine. The gum over the tooth was extremely sensitive to palpation. The gum over the tooth was less sensitive to palpation after the treatment. On the next visit the patient reported slight if any improvement with gum sensitivity returning. The category I had returned. This pattern repeated itself for two more visits. At this point, since the Category I had returned, I reasoned that the patient might be eating something that caused the return of the Category I.

I had the patient complete a diet log. There were some possible suspects. The patient drank one cup of coffee a day, ate several servings of dairy and ate two tablespoons of coconut

butter a day for “health reasons.” I had him bring into the office coffee, dairy products and coconut butter. I tested each of these items against palpatory pain on the gum/jaw and muscle strength. Only the coconut butter elicited a marked increase in palpatory pain and muscle weakness.

The patient was instructed to eliminate the coconut butter from his diet. Within a week all pain was gone from the tooth and jaw. The Category I did not return. I tested him against several other brands of coconut butter all with a negative effect. This is probably a case of coconut butter sensitivity.

Results
The patient had a complete improvement with no return of symptoms. The patient has been pain-free for the past two years.

Conclusion

This was a remarkably interesting case in that the only symptom was tooth pain. I have seen many symptoms over the years caused by foods, etc. including back and neck pain, headaches and many other problems but not tooth pain. I was very gratified that I was able to help this patient and possibly save his tooth.

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Topography of the Ileocecal Valve – A Quest for Causation

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Abstract

Since 1924 the ileocecal valve has been studied and observed to be functional. In 1950 George Goodheart observed a relationship between the ileocecal valve's dysfunction and a way to correct it (Goodheart). This paper explores the functional relationship between the ileocecal valve and other structures and organ systems. It intends to provide a clinician with information about not only the treatment and support of the valve itself, but strings practical connections between the many other structures that may cause valve dysfunction.

Objective

To provide a way to better support resolution of more hidden or difficult to resolve ileocecal valve syndromes and highlight a whole-person approach using muscle testing outcomes, history, and knowledge of normal body function.

Key Indexing Terms

Chiropractic, Applied Kinesiology, Manual Muscle Text, MMT, Nutrition, Physiological Phenomena, Functional Medicine, Large Intestine, Colon, Ileocecal Valve (ICV), Chlorophyll, Valve of Houston, Cause of Ileocecal valve dysfunction. Digestion, Hidden Pain, NL, Neurolymphatic

Introduction

The silent pandemic of ileocecal valve dysfunction is real and seems to be escalating.

The ilieocecal valve has been described adequately by Walther and Goodheart in previous works; however, when a clinician works up a patient with valve dysfunction many causative scenarios are often elusive and this begs the question; "what caused the cause?" We will look briefly at some of the topography and extant functional relationships between the Ileocecal valve and other structures and systems. We will see how we can incorporate and support them and the complicating factors that accompany dysfunction to enhance outcomes and lower recidivism.

The time frame for healing of the ICV is dependent on an accurate identification of the causative element or elements. We have observed a consistent average healing time of 4-weeks when the correct cause is isolated and rehabilitated.

Jargon relating to Ileocecal Valve, Valve of Houston.

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" valves but function to support the weight of feces and

prevent it from 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 Fascia 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 Temporo-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. “Switching” refers to a term called neurological disorganization as is referenced in the AK Synopsis. The term suggests confusion in the nervous system; **pH** is a measure of hydrogen ion concentration, a measure of the acidity or alkalinity of a solution of body fluid. The **pH** scale usually ranges from 0 to 14. Mesentery refers to the organ that carries fat, blood and lymphatic vessels to parts of the intestines. Each organ is named after the part of the intestine it contacts; the mesoappendix is the organ associated with the appendix; the mesorectum is mesentery associated with the rectum and so on. Switching is Applied kinesiology slang for disorganization of the nervous system which manifests as opposite or nonsensical findings on examination (i.e. right sided hand pain and the left side is testing inhibited when it should be opposite. Once the source of this problem is found and corrected the nonsensical findings resolve themselves. Grounding is connecting the patient to earth or making sure their body is in contact with earth. This sometimes causes muscle testing outcomes to show that were previously unrevealed.

Discussion

Fundamental to the identification of the cause or pattern related to valve dysfunction are two concerns[1]; is the ruling out of switching and[2] remedying the burden of the body not being able to function efficiently without being grounded to earth by grounding the patient.

What caused the cause?

Often what a clinician has identified as a problematic ileocecal valve exists within the framework of several other findings. Sometimes it is labeled “cause” when that is not true, hence the problem persists, re-occurs, or healing plateaus.

Obtaining a patient history is a minimal requirement and is usually helpful but the clandestine meeting of the bodies many humors, nerves, and electromagnetic impulses, as well as switching, and burdens from additional voltage relating to being ungrounded, complicates detection in some cases. Accuracy can be enhanced by having serial visits and grounding, looking, listening, and tracking. There are several patterns that are useful to know about and can be addressed effectively.

Top-down relationships - patterns related to the chain of events of digestion

The top-down relationships regarding ileocecal valve dysfunction relate to the organ's function based on gravitational forces, appropriate pH, distant physiological relationships and normal organ function as is impacted by nutrition, subluxation, and the 5-factor complex of applied kinesiology. As evidenced by past NASA studies, gravitational forces play an important role in basement membrane stabilization especially in the small intestine. This is important to consider on a functional level in patients who are managed and who reside in the inner city and live in high-rise buildings or never contact earth (Miquel).

The digestive process is well known to begin in the mouth via chewed food bathing in the alkaline secretions of the parotid, sublingual, and submandibular glands. Function of the salivary glands may be impacted by poor cervical function and lymphatic drainage via the deep cervical lymphatic vessels. Even minor blockages lead to poor drainage. Issues such as spasm, improper biomechanics and dehydration. The salivary secretions according to Goodheart and Hawkins should be 7.2-7.8 on the pH scale (Hawkins). Recent research confirms these past observations but gives a larger window. The saliva has many functions but there are several characteristics of it that can impact valve function; two include calcium status and pH. The pH of saliva seems to be an indirect marker and stimulus for lower bowel function, not just dental health (although rarely practically applied in the modern dental practice). When the saliva is acidic it often indicates upper or lower bowel dysfunction and dietary imbalances in essential fatty acids and the macrominerals calcium, phosphorus, magnesium, and zinc. Valve function may be negatively impacted by a lack of triggering of functions by upstream organ secretions with abnormal pH.

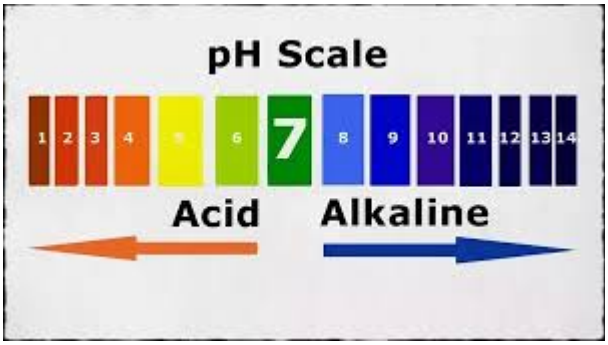


Illustration 1: pH scale chart

When a person decides to eat, a complex cascade of hormonal actions occurs that causes the expression of extremely alkaline saliva (pH >8.0) that preps the digestive tract and primes downstream organs. This readies the stomach for a meal that will soon arrive. Absence of sufficient alkaline stimulation seems to play a role in valve dysfunction and often is found as a hidden factor. Proof of such a mechanism comes in the form of the therapeutic benefits derived from the ingestion of bitter plant material called “bitters.”

Bitters were originally classified as alkaline plant compounds that neutralize acids – but really stimulate acid and digestive juice production.

A further top-down-relationship exists between the stomach which in-part seems to be triggered by alkalinity. Saliva is neutralized by the acid of the stomach. The secretions stimulate the desired neutralization creating a now mostly acid bolus that is passed to the small intestine. Now the alkaline secretion of the pancreas and gallbladder temper and decrease the acid bolus created at the level of the stomach – subluxations, fixations, hiatal hernia, hypochlorhydria, zinc deficiency, and elevated histamine levels impact the stomach.

Finally, we make it through the somewhat alkaline small intestine into the acid large intestine where acid loving bacteria proliferate, create, vitamins, recirculate. This is one of many processes that occurs in digestion.

It seems to follow here that acid saliva not only may contribute to dental caries but may be more important as it serves as a beacon for unmet nutrient needs and declining health and as a future cause to ICV dysfunction in a top-down fashion. It is necessary then to work to establish an improved and more normal salivary pH.

There is a temporal profile of salivary pH that must be considered - morning (AM) pH is acid and as the day progresses if the diet is appropriate the pH eventually ends up alkaline.

Normal Top-down function mimics a pH tug of war with one alkaline system stimulating one acid system and then vica-versa, unitil elimination. A dysruption anywhere in the chain can lead to ICV dysfunction.

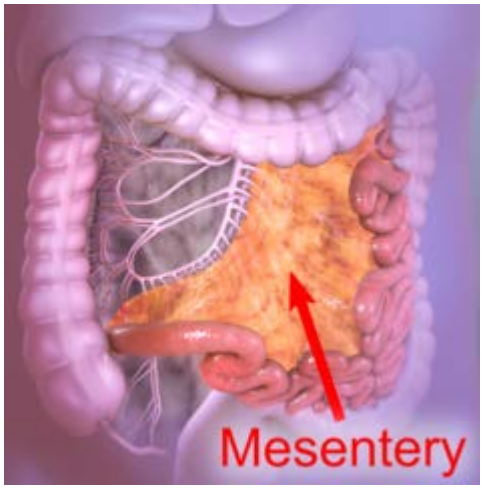
Based on these functions we can utilize the following muscle groups/organ nutrients to assess the digestive tract's function and better isolate the cause of valve dysfunction.

Organ/nutrition	**Muscle**
Hypothalamus us by supraspinatus	supraspinatus
Parotid	TL direct to gland
Stomach	Inhbitied low HCL, cranial fault, hiatal hernia
Popliteous	Gall bladder
Pectoralis Major Sternal	Liver
Small intestine	Rectus Femorus
Large Intestine	Tensor Fascia Lata

Figure 2

Bottom-up patterns

Goodheart references mesenteric dysfunction as the cause of many musculoskeletal symptoms related to ICV dysfunction. He stated "….In other words the stretching of the mesentery by a variety of causes....causes more pain in more places than can readily be imagined." The mesentery in recent times has been declared an organ with individual sections terminating posteriorly in the abdomen. The mesentery which is denoted as "a separate organ" is done here using the prefix "meso-". So the rectum (and mesorectum), Valve of Houston (and mesosigmoid), and ileocecal valve (and mesoappendix), dysfunction can be caused by spinal subluxations, dysbiosis, dehydration, and gravity. These do much to cause pain and dysfunction and negatively influence the ICV, or vica-versa.



Drawing 1: Mesentery,showing mesoappendex

ICV and Adrenal dysfunction patterns

Sympathetic overflow

Recurring ICV patterns are often seen as a direct result of sympathetic overflow; sympathetic overflow is defined as constant stimulation which turns to overstimulation of the adrenal gland as a part of the general adaptation syndrome. Overstimulation via "stress" initially increases peristaltic activity but chronically slows the entire digestive process and leads to suppression of immunity, the vitality of the gastric mucosa, and finally relaxation or a resultant open ileocecal valve.

This overstimulation leads to adrenal hypertrophy initially, then depletion of vitamin C reserves (salivary acidosis), depletion of mineral reserves, and then a hypoadrenic state with a parasympathetic dominance and a closed ileocecal valve syndrome may result.

In order to rehabilitate this valve pattern the adrenal glands must be supported and the valve managed simultaneously.

A topographic view of ICV dysfunction must also include many other factors. Which will only be mentioned but will be explored in other works. Other relationships which are present and will be elucidated in future papers include;

- intra-enteric dysfunction
- hypoacidity
- Enzyme depletion
- Phosphourus
- Neurological imbalances
- Seaonal patterns
- Aberrant kidney/psoas function via myenteric plexus

Practical application

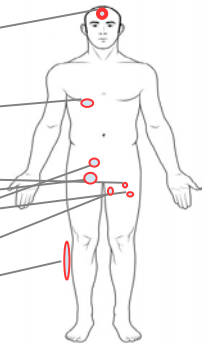
Ileocecal valve dysfunction is detected in the usual ways.

If suspected but not detected – ground the patient and retest.

Clear all factors.

If function is still not stable and TFL is still graded 4/5 then

two point in top-down fashion starting with;



1. Brain NL
2. Parotid
3. Stomach NL,
4. Small intestine NL
5. Pancreas NL
6. Gall Bladder NL
7. Large intestine NL
8. Adrenal NL

You may also find that nutrients that benefit top-down organ systems will also improve TFL function and these should be used. Chlorophyll should also always be tested. We find a high frequency of need.

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. Treatment for long term correction requires some familiarity with common patterns related to valve dysfunction. 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 Harmonic Energetics, Integrated Healthcare of Montclair LLC, and the ICAK.

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Experimental Observations of Members of the ICAK

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International Proceedings

Changes in temporomandibular joint dysfunction following a chiropractic management with an applied kinesiology approach: a case report

Dr Joé Dupuis, D.C .

Abstract

Objectives: The purpose of this study is to describe the chiropractic management of temporomandibular joint dysfunction (TMD) with an applied kinesiology (AK) approach.
Clinical features: The patient was referred from a dentist, because of the incapacity to open the mouth enough to give space for dental evaluation. The loss of range of motion (ROM) was present since 6 days with idiopathic cause and pain on a scale of 0 to 10 was 5/10 during rest and 7/10 during chewing found on left temporomandibular joint (TMJ).
Intervention and outcomes: The TMJ was analysed and treated using origin-insertion technique, cranial manipulation and spinal manipulative therapy. One treatment was necessary to gain 100% improvement, with a full ROM.
Conclusion: Treating the whole stomatognathic system using AK methods can impact TMJ dysfunction. Chiropractor using AK techniques should collaborate more often with dentist for the benefit of patients.

Key Indexing Terms
Temporomandibular Joint, Applied Kinesiology, Chiropractic, Manual Muscle Testing, Stomatognathic System

Introduction

Researchers have estimated that 65%–85% of Americans experience some symptoms of temporomandibular joint dysfunction (TMD) during their lives (1). TMD comprise a large proportion of the complaints presented to dentist. Surveys places the incidence at about 20 per cent (2). TMD is a condition that encompasses several pathologies of the jaw and muscles of mastication (3). The term TMD is covering pain and dysfunction of the muscles of mastication, restricted mandibular movement, and noises from the temporomandibular (TMJ) during jaw movement. (2) For most of its consultations,

examination reveals no organic disease of the mandibular articulation itself. (4) There's multiple causes that can lead to TMD and include whiplash, bruxism, malocclusion, anxiety, stress, trigger points, and postural dysfunction (3)

The stability and security of the articulation depends on the antigravity muscles of mastication that keep the condyles of the mastoid in place and not so much of its ligaments and bony configuration. (4) For a normal movement of the TMJ, the joint requires an efficient and relaxed musculature. (2) There is a relationship between occlusal deflective contacts and muscle spasm that can leave to restricted opening. (4) Emotional stress can be the primary etiologic agent in TMJ dysfunction-pain syndrome, but it works indirectly through the tension-relieving mechanism of bruxism (4). The purpose of this study is to describe the chiropractic management of a TMD using an AK approach.

Clinical features

A 43 years old woman consulted in chiropractic for restricted TMJ mouth opening with pain on the left side of the articulation. The dentist referred her because of the incapacity to open the mouth enough to give space for dental evaluation. The TMJ restriction has been present for a week after having started insidiously with pain on evening and a restriction on opening the next morning, always present since. On a pain scale of 0 to 10, the patient subjectively describes her pain 5/10 during rest and 7/10 during chewing. The pain was describe as a pressure always present in the joint and worsening when eating. The dentist took Xray of the TMJ to see both sides and revealed no abnormalities. She prescribed her oral Penicillin© for 5 days, which is beta-lactam type of antibiotics, with no change on pain scale and ROM. The patient reported experiencing more work-related stress by rating her stress at 5/10 on a scale of 0 to 10 and noticed more snores with the restricted TMJ. She mentions believing that she is recently bruxing at night.

The physical examination of the posture showed a forward head with left head tilt and a right upper shoulder compare to left side. The patient also had a middle and low back pain for 8 months, subjectively describe 4/10 on a pain scale of 0 to 10, with no apparent link to the restricted TMJ. The measurement of maximum mouth opening (MMO) (5) reveal the ability to position only the index in the mouth with the non-dominant hand. Left and right deviation, protrusion and retrusion were almost impossible to practice actively and passively, because of restriction and pain. No lateral deviation or audible click was present when opening and closing the jaw. The palpation of bilateral scalene, left external pterygoid, right internal pterygoid, bilateral temporalis muscles and left TMJ was painful. The cervical ROM was evaluated with the visual estimation (VE) method (6) revealing a restricted active rotation of 20 degrees on the left side and 15 degrees on the right side with normal flexion, extension and lateral flexion. Vital signs demonstrated a

blood pressure of 118/76 mmHg and a pulse of 68 beats / minute. The patient showed a positive “three knuckle test” based upon Rattray and Ludwig’s orthopedic test. (7) Only one knuckle of the non-dominant hand could fit in the mouth with no extra room. Separation clench, swallow test and passive mandibular distalization were negative.

A manual muscle testing (MMT) using AK procedure of the right quadriceps as indicator muscle (8) was used during therapy localization (TL) with index and middle finger on the TMJ bilaterally (9). It was showing no functional inhibition of the indicator muscle. With the same TL, the open and close jaw created a functional inhibition of the indicator muscle showing a positive test while lateral deviation, protrusion and retrusion were impossible to evaluate. With the mouth open, the indicator muscle was conditionally inhibited with therapy localisation on the left side only, indicating a dysfunction of opening muscles on the left side. (10) With the jaw closed, the indicator muscle was conditionally inhibited with a right TL only, indicating dysfunction of the closing muscles on the right. (10). TL on cruciate was bringing functional inhibition of the indicator muscle and a static challenge in approaching maxilla bones created a neurological inhibition of indicator muscle (10). The C2-C3 articulation on the left side had restriction with dynamic palpation (11). A MMT using AK procedure of the left deltoid as a indicator muscle was used to challenge C2 process transverse from posterior to anterior (8) The challenge created a functional inhibition of the indicator muscle. (10) Differential diagnosis is first TMD associated with acute capsulitis/synovitis because chewing exacerbate pain with a restricted opening (12) and secondly, TMD associated with disc displacement.(13)

Management and outcome

In the first visit, the inability to open the mouth more than one knuckle made some correction difficult to practice. A separation of the intermaxillary suture was the first correction practiced. (14). The correction was performed with latex gloves by separating the maxillary bones using the therapist's indexes inside the patient's oral cavity. (14) The separation of the cruciate was performed until the practitioner felt a smoother movement. The separation of the cruciate suture began at the center of the alveolar arch for three repetitions during patient inspiration and three other repetitions at the anterior portion near the canines. The posterior portion was impossible to practice. Upon palpation of the closure muscles on the right, previously found to have dysfunction on examination, tension was found on the temporalis neuromuscular spindle cell in a generalized manner. TL on the neuromuscular spindle cells of the sore temporalis was used to validate the cell spindles to be corrected, creating a functional inhibition of the indicator muscle. (10) The manipulation of spindle cells together to set down muscle’s activity was used on temporalis for 12 times approaching the spindle cells (15) and an origin and insertion technique was used on the temporalis origin (16). For the correction of opening muscles

on the left side, pain was found at palpation of external pterygoid and digastric anterior belly. TL of muscle spindle cells inhibited indicator muscle for both of them. Treatment of the left external pterygoid muscle was practiced for 60 seconds, moving the little finger at the same time as applying pressure past the pterygoid process and as far into the muscle as patient tolerence. (17) Treatment of digastric anterior belly was approaching spindle cells together for 10 repetitions during patient inspiration (15). Finally, a chiropractic adjustment of the "HVLA" type (18) at the right C2 transverse process was practiced. A recommendation to treat the pterygoid external by pressing against the spindle cells at home 2 minutes a day was given. Immediately after treatment, MMO and “three knuckle test” were practiced. For MMO, it increased from 1 complete finger to 3 complete fingers entering the mouth and the "three knuckle test" now allowed two knuckles from the non-dominant hand to fit in the mouth. On pain scale 0 to 10, after the treatment, the patient subjectively describes her pain 5/10 during rest and chewing. The cervical ROM was evaluated with VE method (6) revealing a restricted active rotation of 10 degrees on the left side and a normal ROM on the right.

The patient returned to the clinic eight days later for follow-up. The first thing she did was putting three knuckles of her non dominant hand to fit in the mouth and told that on a pain scale, pain was 1/10 at rest and chewing. The patient was treated for the lower back pain that visit without touching the stomatognatic system. She subsequently stopped the care for financial reasons and emailed 3 weeks later to inform that everything was going well.

Discussion

The sudden appearance of an idiopathic TMJ restriction with pain on the left articulation was at the same time than a stressed work-related period. With the chiropractic and dentist evaluation, no serious pathology was revealed to explain the cause. The increasing of emotional stress is associated with bruxism (19) and the patient had both before the TMD.. There’s also a significant association between bruxism and TMD leading the majority of the time to myofascial pain and disc displacement. (20) Furthermore, some researches put forward a relationship between TMD specifically and emotional stress. For example, in a case report, Pierson suggested that when stress levels decrease, symptoms of TMD decrease, and vice versa. (3) TMD can create a cycle where stress causes bruxism, wich causes pain, and that pain then affects the quality of life, causing more stress. (21)

The stomatognathic system, including cranial bones, TMJ, hyoid and cervical spine, is a closed kinematic muscular chain comprising the neck flexors and extensors, muscles of mastication and hyoid muscles. (22) The muscle tension acting on the mandibule is balanced; that is, there is just as much downward pull as there is upward pull on this

bone. (23) Bruxism can lead to imbalance between downward and upward muscles, causing TMD. AK muscle testing makes it possible to precisely find the unbalanced structures of the whole stomathognathic system, by using respiratory challenge, TL and static challenge. (22) In this case, the use of origin and insertion technique, spindle cell massage on TMJ muscles, cranial bone manipulation and HVLA on cervical spine helped to normalize the integrity of the kinematic muscle chain of the stomatognathic system.

It has been shown that cranial manipulation can decrease muscle sympathic nerve activity (MSNA). (24) On the other hand, cranial work using AK methods can also have an impact on cranial bone mobility. (24, 25) It is therefore unclear whether the improvement in TMJ ROM and pain level of the patient resulted from a better structural function of the stomatognathic system or a decrease in the sympathetic effect on muscles of the jaw with stomatognatic treatment. The mechanisms behind the effects of manual treatment on stomatognatic system are poorly know. (26) This case brought the assumption that manual treatment of the stomatognatic system could have an impact not only on TMD, but also on the autonomic nervous system.

Limitations of this study include the fact that no questionnaire was administered to quantify the patient's level of stress, like the perceived stress questionnaire (PSQ).(27) It is then difficult to know if the chiropractic AK treatment approach for stomatognatic system in this case study had an impact on the stress felt by the patient. In addition, there’s only one patient sample for the study, so it is unclear whether results can be replicable for other TMDs. Also medication given could have been late effective, and natural history of the condition could have been in favor. The effect of manual corrections of the stomatognatic system on the autonomic nervous system should be examined in future studies.

Conclusion

In this case of TMD, the patient benefited from a chiropractic management using AK techniques. A better collaboration between chiropractors using AK methods and dentists could be beneficial for patients with TMD.

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Conservative management of Carpal tunnel syndrome using Applied Kinesiology approach : a case report

Dr Joé Dupuis, DC

Abstract

Objectives : The purpose of this study is to demonstrate management of a chronic carpal tunnel syndrome (CTS) with applied kinesiology (AK) procedures when surgery did not work.

Clinical features : The patient had numbness and pain rated at 5/10 on a pain intensity scale of 0 to 10 in right hand since a year and a half with a thenar and hypothenar atrophy, unable to move the thumb and a lot of difficulty to move the 2-3-4th fingers. The orthopaedic and neurologic findings were showing carpal tunnel syndrome which has conducted us to a working diagnosis of chronic carpal tunnel syndrome

Management and outcomes : Five treatments were necessary over two months, to gain 90% improvement, a full range of motion of the thumb and 2-3-4th fingers of the right hand. The wrist was not manipulated until the fourth treatment and the use of AK concepts for carpal tunnel syndrome, posture advice, nutrition, and lifestyle were also practiced.

Conclusion : Multimodal approach using AK concepts may be beneficial for the treatment of chronic CTS. AK procedures like origin insertion technique (OI) and strain counter-strain (SCS), the amount of caffeine consumption and the supplementation in vitamin B6 should be considered in the treatment of CTS.

Key Indexing Terms

Carpal tunnel syndrome, applied kinesiology, manual muscle testing, chiropractic, lifestyle

Introduction

Carpal tunnel syndrome (CTS) is the most common peripheral compression syndrome and is most commonly found in working-age adults (1). In a survey of 715 subjects (33% men) aged 25 to 74 years, the prevalence of electrophysiologically confirmed CTS was 5.8% in women and 0.6% in men.(2) It comes from a peripheral compression of the median nerve in the carpal tunnel at the wrist (Figure 1). CTS is characterized by pain, paresthesia, decreased peripheral nerve conduction velocity, and inadequate functional neuroplasticity in the brain (Figure 2) (3). According to Upton and McComas, most of patients with a diagnosis of carpal tunnel syndrome do not only have a compressive lesion on the wrist, but there is also evidence

of damage to the nerve roots of the cervical region forming a double crush syndrome. (4) Among chiropractors, this hypothesis has gained a lot of popularity, since it provides a rationality for vertebral manipulation at the level of the cervical spine in the treatment of carpal tunnel syndrome. (4) CTS constitutes a major part of the occupational upper-extremity disorders and is associated with considerable health care and indemnity costs. (5)

The purpose of this study is to demonstrate management of a chronic CTS with AK procedures when surgery did not work.

Clinical features

A 56-year-old woman consulted in chiropractic for right wrist pain, located in the palmar surface of the hand and the thumb to the ring finger. On a pain scale of 0 to 10, the patient subjectively described her pain to be 5/10 during rest and activity. Surgery for carpal tunnel was practiced a year ago. She also reported pain rated at 5/10 in the whole forearm and elbow located at the medial and lateral epicondyle with edema in hands and feet. The pain had been present for a year and a half and was described as numbness with pulsations in the hand. The posture showed an anteriority of the right shoulder. Due to an inability to move the thumb and almost no range of motion of the 2-3-4th metacarpophalangeal and interphalangeal joints, the patient reported being unable to lift and grasp objects. The patient also had low back pain for 6 months, with no apparent link to the problem of the wrist. She takes the anti inflammatory Celebrex® for the low back pain, and Ranitidine® for chronic gastritis.

The physical examination revealed atrophy of the thenar at observation. The palpation of the whole forearm and elbow located at the medial and lateral epicondyle was painful. In terms of lifestyle habits, the patient takes 6 large coffees a day and drinks two small glasses of water a day. The orthopedic test of Phalen and inverted Phalen (6) was performed, causing numbness after only 5 seconds in tension position at the wrist for both tests. The wrist Tinel test (7) caused pain and numbness after three wrist impacts. The tests for ulnar Tinel, costoclavicular and adson maneuvers were negative (8). The first costo-clavicular joint on the right side had joint restriction with dynamic palpation. A MMT using AK procedure of the left deltoid as indicator muscle was used to challenge from inferior to superior on the first costo-clavicular joint. (9) The challenge caused a weakness of the indicator muscle (10) At neurological examination, the opponens pollicis was conditionally inhibited using AK manual muscle testing (MMT).(9) Due to the pain, it wasn't possible to approximate the ulna and radius to increased carpal arch, to test the opponens pollicis with the approximation. A "kinesio-taping" was used to approximate the bones and with this supportive challenge, the opponens pollicis was then found facilitated. (10) When evaluating the pain sensation (pin prick) of the thumb and middle finger, the patient did not feel the sharp side of a toothpick to assess the nerve roots of C6 and C7. The vibration of a 128 Hz tuning fork on the thumb, as well as the fine tact by slightly touching the thumb and middle finger with a cotton swab, were not felt by the patient. MMT of the wrist and forearm was unfeasible because of the pain. X-rays of the right wrist were taken during the initial

assessment, showing no abnormalities. The clinical diagnosis for this patient is right wrist pain associated with carpal tunnel syndrome. Differential diagnosis are: first, thoracic outlet syndrome (11) with the orthopedic test hyperabduction maneuver impossible to practice because of pain and second, double crush syndrome. (12)

Management and Outcomes

In the first visit, the pain in the elbow, forearm and wrist were incapacitating and the patient did not allow her wrist and forearm to be touched. A chiropractic adjustment of the "HVLA" type (13) at the first right costo-vertebral joint was practiced. At the end of treatment, a kinesio-taping was done by surrounding the distal radioulnar joint for wrist stabilization, the same taping that was facilitating the opponens pollicis, with the recommendation to keep it for 5 days. Recommendations were made to take 100 mg of vitamin B6 per day (20), reduce by half the amount of coffee consumed and double the amount of glasses of water consumed per day.

The second treatment took place two and a half weeks later and the patient showed no improvement in her wrist. She had followed the recommendations given and the same treatment as in the first visit was performed, because of the impossibility to touch the wrist. The recommendation of 100 mg of vitamin B6 was now given twice daily.

The third treatment took place four days later, three weeks after the start of care, with no improvement. The patient still had a lot of pain in her right wrist, preventing me from touching her wrist.The same corrections as at the first treatment were then made. For the fourth treatment, one and a half months after the start of the treatments, the patient had an increase in the general range of motion in the hand, a slight decrease in the level of pain in the right arm, allowing me wrist manipulation. Upon MMT, the opponens pollicis was conditionally inhibited, and manual support to approximate the radius with the ulna facilitated the opponens pollicis. (10) Upon MMT, the pronator quadratus was conditionally inhibited and therapy localization (14) on origin and insertion facilitated the muscle. (15) The OI technique of the right pronator quadratus was practiced. Pectoral minor was showing functional inhibition after a maximum contraction of 3 seconds indicating the need for SCS procedure.(16) SCS was performed in the right pectoral minor seconds to reduce the anteriority of the right shoulder (17). The recommendation to continue the vitamin B6 100 mg twice daily was given. (18)

At the fifth treatment, two months after the start of care, the patient experienced 90% improvement in overall wrist function, now experiencing a constant pain intensity of 1/10. The same treatment as visit four was practiced adding an advice to avoid wrist flexion during sleep. At the sixth treatment, two and a half months after the start of care, the patient had found for the first time in a year and a half the full range of motion of all the fingers of her hand, with strength in them, as well as a full range of motion of the wrist. Subsequently, the patient stopped her care for monetary reasons.

Discussion

At the beginning of the treatment, the pain was too intense for the patient to allow any manipulation/touching, preventing the clinician from touching her wrist and her right forearm. It is suggested that drinking water can have a significant impact on well-being and long-term health. (19) In this case, the patient took only two small glasses of water a day. Caffeine is recognized as a pro-inflammatory molecule in a healthy population. (20) A patient consuming a lot of caffeine long term will have peripheral pain increases due the sensitivity of peripheral A and C free endings at the inflamed site, resulting in an increase in painful sensory activity. (21) Subsequently, as proposed by Ellis, the pain at the elbow with edema in the hands and feet could be symptoms of a possible B6 deficiency. (22, 23) In the case of CTS, Kasdan and Janes (18) found that conservative care (without surgery) provided only 14,3% satisfactory alleviation of symptoms prior to the use of B6. With its addition, the percentage improved to 68%. (18) They found that a dosage of 100 mg twice daily was enough to obtain results. (18) After a month and a half, three treatments and not touching the wrist, the pain was tolerable to perform an origin-insertion AK procedure (10) of the pronator quadratus muscle in order to stabilize the wrist.

The fact that the patient underwent two unsuccessful surgeries for the CTS suggesting that there were maybe more than one level of compression, reminiscent of the double crush syndrome (12). In this case, the clinician evaluated and treated with AK and chiropractic methods the first costo-clavicular joint and the pectoral minor on the right as those two structures could be involved in thoracic outlet syndrome (11, 24).

One of the limitations of this study is the fact that the patient has not been reevaluate to observe the long lasting therapeutic effect of the treatment. There's also a lack of outcome measurements, because no questionnaire was used (Boston CTS questionnaire for example). The measurements of the right wrist and feet oedema were not taken either. It could also have been relevant to evaluate the cervical region (ex. range of motion, orthopaedic tests, palpation) as the double crush syndrome was one of the differential diagnosis.

The relevance of this study for the conservative treatment of carpal tunnel is the possibility to reduce pain in a patient with lifestyle changes (ex. increase the amount of water and decrease the amount of caffeine) when the patient is in such pain that they do not allow to be touched. In addition, with unsuccessful surgery for the CTS, a double crush syndrome must be considered. Furthermore, when oedema is present on the wrist and ankle area, combined with pain on the elbow, vitamin B6 supplementation should be considered.

Conclusion

In a case of chronic pain management, one should not neglect the life habits of a patient during treatment, since there may be a significant impact on the evolution of the condition. This clinical case shows that AK and chiropractic methods for a chronic CTS,

with combination of lifestyle changes and nutritional advice can be beneficial for the treatment of the CTS. Therefore, for cases of chronic carpal tunnel, AK approach may need to be considered. Further studies would be needed to determine whether conservative carpal tunnel therapy with AK would prevent certain surgeries.

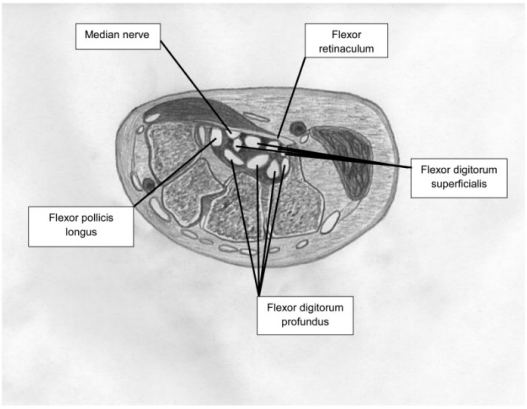

Figure 1 - Anatomical diagram of the carpal tunnel in transverse section

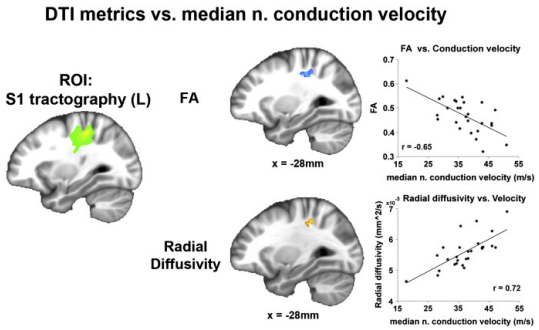

Figure 2 – DTI metrics vs. median n. conduction velocity

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