Beyond Chiropractic
What Applied Kinesiology has to offer to Integrative Medicine

Mitchell Corwin, DC
&
John Erdmann, DC, Dibak

CIIS November 15th 2010
Mitchell Corwin, D.C.
2914 Domingo Ave
Berkeley CA
510.845.3246
drcorwin@prado.com
www.KinesiologyDoc.com

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John Erdmann, D.C., Dibak
1924 OakPark Blvd
Pleasant Hill CA
925.943.6219
PakDrJohn@gmail.com
www.johnermann.com
Background and experience in integrative health care

Graduate N.Y, Chiropractic College 1977

Work experience:
(1978-80)
• Private Office Mission SF 3 months vacation relief
• Small Hispanic Clinic Mission SF and San Jose

(1980-1983:)
• Multi-practitioner office on Pill Hill Oakland
• Total Health Medical Center in Oakland (Pax Beale director)
• Podiatric office of Steve Subotnick Hayward

(1984-2004)
• Private practice Berkeley. Focused on learning advanced Applied Kinesiology skills with a colleague from Brooklyn NY, Dr. Carl Ferreri, in a technique called Neural Organization Work.

(2005-2009)
• Joined integrative medical clinic Walnut Creek/Lafayette (Health Medicine Center)

(2010)
• Opened satellite office in Sonoma
• Joined practice of Dr. John Erdmann
Role of Chiropractic in an integrative health care setting

Unique characteristics of the Chiropractic profession

• Chiropractic scope of practice: *standard of care*

• Chiropractic organizations: (national and state levels)

• Diversity of practitioners and training

• Northern California is the mecca of conservative Chiropractic services
Challenges of a CAM practitioner working in an integrative healthcare setting

- Chiropractors are generally trained to work as independent practitioners in solo office setting to address all concerns of their patient
- Cam practitioners generally require a series of visits to implement care
- Patients/clients often expect miracles in 1-3 visits were prior medical care has failed or offered minimal help
- Generally complementary to Acupuncturists and Naturopaths (many chiropractors have dual training/licensing as an acupuncturist and/or Naturopathy)
- Generally uncomplimentary with physical therapist as services frequently overlap
- Not well understood by other CAM practitioners
- Poorly understood by medical / osteopathic physicians (often conflicting with primary care services)
Diversity of philosophy among Chiropractors

• Level of training /knowledge base and clinical experience
• Quantity vs. Quality and simplicity vs. complexity of approach
• Majority of chiropractors are working at about 60% of what they would like to work/income ...as a result there is a greater tendency to over-treat and refrain from referrals in fear of losing business income
• Many practitioners often over-state their level of service
• Many practitioners join with management companies with sole primary emphasis on patient retention, management tricks with minimal emphasis on quality of services and little or no training in the philosophy of integrative care
Challenges accompanying Chiropractic CAM practitioners in an Integrative setting

• Problems associated within the present insurance market and reimbursement of CAM and chiropractic services

• Absurdly low and restrictive Medicare reimbursement rates (chiropractors limited to acute trauma, acupuncture and naturopathy uncovered)

• A common style of chiropractic practice is to incorporate a routine of exam ...report of findings ...treatment which only begin on 2\textsuperscript{nd} or 3\textsuperscript{rd} visit and a schedule of multiple visits

• Willingness of CAM practitioners to actively learn and understand the philosophy and care of fellow CAM practitioners

• Ability of CAM practitioners to recognize ones role within the clinical setting

• Willingness to share provider services
Advantages of Chiropractic in an Integrative setting

- Generally chiropractors require minimal space, overhead and equipment
- Malpractice insurance is inexpensive
- Chiropractic offices around the country (especially Florida) have multi-practitioner clinics and are doing well
- A well qualified chiropractor trained in applied kinesiology can fulfill several roles, i.e. providing the knowledge and provider services for
  - Physical therapy
  - Movement specialist
  - Naturopaths
  - Acupuncturist
Potential trepidations when interviewing CAM practitioners / Chiropractors when participating in a integrative setting

- Clarity of role(s) acting as a primary, secondary practitioner or jointly, i.e. actively participating in the intake interview/examination of a patient's and determination of their *initial* course of care
  or
  providing services as a secondary practitioner upon referred by the intake practitioner/gatekeeper

- Willingness of CAM practitioners to recognize and become knowledgeable of colleagues in other professions and actively share services when warranted even if one can provide that same service

- Acceptance by patients of CAM practitioner care

- Willingness of the intake practitioner / gate keeper to fully understand the assets and limitations of the chiropractor / CAM practitioner and use him or her to the best advantage to deliver the most effective and cost effective care or will concerns about costs, i.e. insurance reimbursement rate determine type of care provided!!!
Role of an Applied Kinesiologist in an integrative health care setting

• What is Applied Kinesiology [AK]? Why the name change to PAK
• What is Muscle testing? Is it a diagnostic tool or therapeutic or both?
• It seems like everybody and their grandmothers hold themselves out to be kinesiologist!

How many different types of Kinesiologies are there ...list

Are there a local or International organization and what are there certification requirements?

What has been published on Applied Kinesiology?

What is the reliability of muscle testing
Welcome to ICAK USA

CLICK HERE TO FIND AN AK DOCTOR IN YOUR AREA

News

Press Releases Covering the Opening Reception of the Dr. George Goodheart Library

David S. Walther Memorial Building Dedication

Dr. George Goodheart Busts Now Available

Systems DC Products Now Available

Pamphlets previously distributed from Systems DC and Dr. David Walther's Sympathy 2nd Edition are now available through the ICAK-U.S.A. Central Office! CLICK HERE to download the product order form, complete with a list of available brochures and books.
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<td>Physioenergetik (no longer uses MT but ACREI)</td>
<td>Raphael Asche (Austria)</td>
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<td>David R. Hawkins</td>
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<td>P.K.P. Bruce Dewe, MD. / Joan Dewe (New Zealand)</td>
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<td>J. Dunn, DC. (USA)</td>
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### Duplicate Information?

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† A conservative estimate ("at least" # people trained) - information given by respective organisations via personal email, telephone or from the respective website.

1 Also includes numbers for: Neural Systems Kinesiology, and Energetic Kinesiology

2 Also includes numbers for: Energy Consciousness Therapy (ECM), Energy Diagnostic and Treatment Methods (EDxTM), Advanced Energy Psychology™, and Negative Affect Erasing Method (NAEM)

3 Also includes numbers for: Neuro Organization Work (NOW)
Chiropractic & Osteopathy

Review
On the reliability and validity of manual muscle testing: a literature review
Scott C Cutbhart* and George J Goodheart Jr

Address: *Chiropractic Health Center, 225 West Abriendo Avenue, Pueblo, CO 81004, USA and \*Goodheart Zakin, Hack and Associates, 20507
Mark Avenue, Grosse Pointe Woods, MI 48236-1650, USA
Email: Scott C Cutbhart - cutbhartc@hotmail.com; George J Goodheart - cranialdc@hotmail.com

Published: 6 March 2007
This article is available from: http://www.chiroosteose.com/content/154/14
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Abstract
Introduction
A body of basic science and clinical research has been generated on the manual muscle test (MMT) since its first peer-reviewed publication in 1915. The aim of this report is to provide an historical overview, literature review, description, synthesis and critique of the reliability and validity of MMT in the evaluation of the musculoskeletal and nervous systems.

Methods
Online resources were searched, including Pubmed and CINAHL (each from inception to June 2008). The search terms manual muscle testing or manual muscle test were used. Relevant peer-reviewed studies, commentaries, and reviews were selected. The two reviewers assessed data quality independently, with selection standards based on predefined methodologic criteria. Studies of MMT were categorized by research content type: inter- and intra-examining reliability studies, and construct, content, concurrent and predictive validity studies. Each study was reviewed in terms of its quality and contribution to knowledge regarding MMT, and its findings presented.

Results
More than 100 studies related to MMT and the applied kinesiology chiropractic technique (AK) that employs MMT in its methodology were reviewed, including studies on the clinical efficacy of MMT in the diagnosis of patients with symptomatic pain. With regard to analysis there is evidence for good reliability and validity in the use of MMT for patients with neuromusculoskeletal dysfunction. The observational cohort studies demonstrated good external and internal validity, and the 12 randomized controlled trials (RCTs) that were reviewed show that MMT findings were not dependent upon examiner bias.

Conclusion
The MMT employed by chiropractors, physical therapists, and neurologists was shown to be a clinically useful tool, but its ultimate scientific validation and application in research requires testing that employs sophisticated research models in the areas of neurophysiology, biomechanics, RCTs, and statistical analysis.

Review
The role of the muscle system in spinal function has become increasingly well acknowledged. Manual muscle testing (MMT) as a method of diagnosis for spinal dysfunction has not been well utilized. This paper will present evidence that the MMT can be a legitimate and useful evaluation tool for the assessment of the musculoskeletal and nervous systems.

There are many ways of examining the nervous system and the musculoskeletal system. It has been proposed that the term neuromusculoskeletal system be adopted because examination of the one may reflect the status of the other [1,2]. The evaluation methods of many manipulative therapists often focus at either end of the nervous system, and this paper suggests that MMT provides a method of examining both (the central and the peripheral) ends.
MMT is the most commonly used method for documenting impairments in muscle strength. Limited muscle testing methods are taught in a number of chiropractic schools around the world, however, in 2006 a major 'stand alone' chiropractic technique that employs MMT for the evaluation of patients known as applied kinesiology chiropractic technique (AK), turned 42 years old. We propose in this review to look at the research status of MMT in the manual examination of the nervous system's status. The early years of the AK method are related elsewhere in detail [3]. The specific protocols and clinical objectives of the technique have been described in previous publications [3-9].

AK has therefore been used by a proportion of the chiropractic profession for over 42 years and is now used by other healing professions. In a survey by the National Board of Chiropractic Examiners in 2000, 43.2% of respondents stated that they used applied kinesiology in their practices, up from 37.2% of respondents who reported they used AK in 1991, [10-12] with similar numbers reported in Australia [13]. The general public's awareness of MMT and AK has also been increased worldwide by virtue of the patient education program Touch for Health (T4H) designed by an International College of Applied Kinesiology (ICAK) diplomate, John Thie. T4H was one of the first public self-help programs and there are claims that it is the fastest growing "body work" program in the world, used by over 10 million people [14].

For the purposes of this review we define MMT as a diagnostic tool and AK as a system for its use and therapy based on the findings of the MMT.

In this paper we pose the following questions: 1) "Is the MMT approach worthy of scientific merit?" and 2) "How can new diagnostic and treatment techniques employing MMT be critiqued for scientific merit?" and 3) "Does this evidence add scientific support to chiropractic techniques (such as AK) that employ the MMT?"

Another main objective of this literature review was to investigate the evidence for intraexaminer reliability, interexaminer reliability, and validity of MMT in the assessment of patients.

Methods

Online resources were searched using PubMed and CINAHL (Cumulative Index to Nursing and Allied Health literature). The search terms "manual muscle test", "manual muscle testing", and "applied kinesiology" found over 100 articles in which the MMT was used to document strength in patients with 17 (primarily pain related) diseases/disorders, ranging from low back pain and sacroiliac joint pain to neck pain, post-whiplash syndrome, knee, foot, and shoulder pain, and included MMT for the evaluation of patients with post-polio syndrome, amyotrophic lateral sclerosis, muscular dystrophy, cerebral palsy, Down syndrome, mastalgia, hypothyroidism, dysinsulinism, enuresis and several other disorders of childhood.

After abstracts were selected for relevance and the papers acquired and reviewed, the literature was sorted according to relevance and quality. Inclusion criteria were that the report had a Cohen's kappa coefficient of 0.50 or higher (the magnitude of the effect size shown in the study to be significant) in regards to the intra- and inter-examiner reliability, and/or the validity (construct and content validity, convergent and discriminant validity, concurrent and predictive validity). This selection criteria is consistent with the one suggested by Swinkels et al an the evaluation of the quality of research literature [15]. Randomized clinical trials (n = 12), prospective cohort studies (n = 26), retrospective studies (n = 17), cross-sectional studies (n = 26), case control studies (n = 10), and single-subject case series and case reports (n = 19) were the types of studies reviewed. Studies with a control group (a randomized clinical trial), examiner blinding, and pre- and post-test design are indicated in the descriptions of each study. Duplicates and articles published in non-peer-reviewed literature were excluded.

Statistical presentations of the data are presented showing the average correlation coefficients of MMT examination upon the different patient populations for each study.

Operational Definitions and History of the Manual Muscle Test

In order to be meaningful, all measurements must be based on some type of operational definition. An operational definition is a description of the methods, tools, and procedures required to make an observation (i.e., a definition that is specific and allows objective measurement). Kaminsky and Fletcher et al provide clinicians with some strategies to critically analyze the scientific merit of manual therapies [16,17].

A basic understanding of operational definitions is required in order to make judgments about the methods used in articles and to know which research findings should be implemented in practice. For example, how should we judge the value of the MMT for the gluteus maximus or gluteus medius muscles in cases of sacroiliac joint pain and dysfunction, knowing that statements range from "weakness of the gluteals is usually present in dysfunction of the sacroiliac joint" (Landa 1964) [18] to "the results of this study cast doubt on the suitability of manual muscle testing as a screening test for strength impairments" (Bohannon 2005) [19].
Within the chiropractic profession, the ICAK has established an operational definition for the use of MMT:

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

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

In physical therapy research, the "break test" is the procedure most commonly used for MMT, and it has been extensively studied [20-22]. This method of MMT is also the main test used in chiropractic, developed originally from the work of Kendall and Kendall [21, 23].

In physical therapy the "break test" has the following operational definition [20-22]. The subject is instructed to contract the tested muscle maximally in the vector that "isolates" the muscle. The examiner resists this pressure until the examiner detects no increase in force against his hand. At this point an additional small force is exerted at a tangent to the arc created by the body part being tested. The initial increase of force up to a maximum voluntary strength does not exceed 1 sec, and the increase of pressure applied by the examiner does not exceed a 1-second duration. "Strong" muscles are defined as those that are able to adapt to the additional force and maintain their contraction with no weakening effect. "Weak" muscles are defined as those unable to adapt to the slight increase in pressure, i.e., the muscle suddenly becomes unable to resist the test pressure.

For example, in the seated test for the rectus femoris muscle, a seated subject is asked to flex his knee toward his chest 10 degrees; when that position is reached, the examiner applies resistance at the knee, trying to force the hip to "break" its hold and move the knee downward into extension. The ability of a muscle to leniency but to generate enough force to overcome resistance is what is qualitatively assessed by the examiner and termed 'Strong' or 'Weak.' The grading system is based on muscle performance in relation to the magnitude of manual resistance applied by the examiner. Scores are ranked from no contraction to a contraction that can be performed against gravity and can accept "maximal" resistance by the examiner, depending on the size of the muscle and the examiner's strength. However, in the AK use of MMT the implication of grades is limited to an interpretation of 'better' or 'worse', 'stronger' or 'weaker,' and no assumption is made about the magnitude of difference between grades.

MMT procedures are also commonly employed in clinical neurology as a means of subjectively evaluating muscle function. The examiner in the application of force to the subject's test evaluates the muscle groups being studied as subjectively "weak" or "strong" on a 5-point scale [24].

MMT is employed by physical therapists to determine the grades of strength in patients with pathological problems and neurologic or physical injuries (strokes, post-polio syndromes, fractures, post-surgical disabilities, etc.). The physical therapist's patients are often initially examined by a medical doctor who supervises the physical therapist's rehabilitation programs that may involve isometric, isokinetic, and isotonic muscle training regimes for the gradual rehabilitation of muscle function (often involving instruments and machinery).

In the absence of a pathological neurologic deficit (pathological deficits were originally what physicians sought to find using MMT) [25, 26] clinical inferences are made based upon the result of the MMT. This method of MMT is used in both chiropractic and physical therapy to determine a patient's progress during therapy [3-9, 20-23].

MMT, when employed by AK chiropractors, is used to determine whether manipulable improvements to neurologic function (controlling muscle function) exist. For example, chiropractic management using MMT for a patient with carpal tunnel syndrome could involve assessment of the opponens pollicis and flexor digiti minimi muscles (innervated by the median and radial nerves),
Scientific Research

AK Treatment for Sciatica, Plantar Fasciitis, and Restless Leg Syndrome: A Case Report

Applied Kinesiology Management of Candidiasis and Chronic Parotid Infections: A Case History

Deaths by Chiropractic: Another Misbegotten Report

New study on measurable improvements in creativity after AK examination and treatment

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Innovative Summary: Applied Kinesiology by Drs. Tony Rosner and Scott Cutheby

Muscle Imbalance: The Goodheart and Janda Models by Scott Cutheby, BA, DC, BCAO

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Applied Kinesiology Published Texts

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Knee Pain and Positive MMT Findings Confirmed

Low Back Pain Caused by Muscle Weakness

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MMT Outcomes Correlated with Other Instruments Measuring Muscle Function
Neck Pain Caused by Muscle Weakness

Negative Research Studies on AK

Reliability of the Manual Muscle Test

Therapy Localization Method in AK

DEFENDING APPLIED KINESIOLOGY AND MANUAL MUSCLE TESTING

The Muscle Weakness Revolution Continues, Part IV: The Extremities

Largest chiropractic report ever shows AK treatment successful for 187 children with developmental delay syndromes (including dyslexia, dyspraxia, ADD, ADHD, and learning disabilities)

Knee Pain Correlated with Muscle Weakness

Muscle Weakness Revolution Has Arrived

Evaluation of Applied kinesiology meridian techniques by means of surface electromyography in AK: demonstration of the effectiveness of AK wave examination points

"New study shows AK blocking improves cervical spine extensor muscle strength."

New paper by Dr. Phil Maffezone on Manual Biofeedback

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Chiropractic Muscle Testing: The Challenges of Validating Their Work by Scott Cathber, BA, DC, BCAO

"New AK paper shows postural, muscular, endocrinological, median, and nutritional aspects of thyroid disorders!"

Google Knot definition of Applied Kinesiology

Gold standard for the AK MMT now established in premiere chiropractic journal. CLICK HERE to view this paper


DEFENDING APPLIED KINESIOLOGY AND MANUAL MUSCLE TESTING

Drs. McDowell and Cathber responded to a publication entitled "A Review of the Literature in Applied and Specialized Kinesiology," by Hall, Lewis, dens, and little that appeared in the peer-reviewed and PubMed indexed journal Manual Chiropractic Science in 2008, 16:44-46. We replied to their critique denying the reliability and validity of the manual muscle test, applied kinesiology, and touch for health methods with a commentary. Our work was given a generous word count in The Letter to the Editor section.

You can view the abstract of the Hall et al paper by CLICK HERE.

Hall's literature review used inclusion criteria that paradoxically excluded the research behind the standardized methods of MMT (from Kendall and Kendall and used by the ICAN) because, according to Hall et al all research does not investigate the type of MMT used in the "Kinesiology" method. The type of testing their literature review limited the test, was the light "two-finger pressure testing" used by some elements of the Touch for Health community. From their review of the literature regarding this type of "two-finger pressure testing," they assert that there is no substantive evidence for the reliability or the validity of the MMT used by ICAN members and other physicians who use the MMT (neurologists, rheumatologists, orthodontists, physical therapists, dentists, etc.).

The authors do provide a useful methodology for future "Kinesiology" research, but why they chose to ignore the research literature that validated traditional MMT is perplexing. Their paper definitely reflected negatively upon AK as well as Touch for Health (two methods that should not have been confused with one another), and the published research evidence for AK they simply ignored.
Neck Pain Caused By Muscle Weakness
Negativity Research Studies on AK
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…Dr. John