

Applied Kinesiology: Point-Counterpoint

APPLIED KINESIOLOGY: SHOULD IT BE ABANDONED?

Editor's note: See the counterpoint to this article, "Research Basis for Applied Kinesiology," also in the June 14, 1999 issue of *DC*.

The pages of *Dynamic Chiropractic* have hosted discussion of the merits of applied kinesiology. The discussion has centered around the research (or lack of it) in support of AK. My contention has always been that AK lacked supportive research. After Dr. Yanuck's letter ("We Get Letters," Feb. 22, 1999 issue) and a literature search of my own, I must now change my opinion. Based on the current evidence, I now believe that not only is there no supportive evidence for AK, but there is ample evidence to show that AK is without merit. When several studies have been performed on a procedure and it is found to be without merit and no supportive evidence can be found, it is my opinion that it should be abandoned.

The most recent letter to *Dynamic Chiropractic* from Dr. Yanuck, the research advisor for ICAK (International College of Applied Kinesiology), cited six studies in the current literature. Dr. Yanuck claimed these studies to be supportive of the tenants of AK. He also cited four more studies which are as yet unpublished. Since these last four are unpublished, inaccessible and therefore cannot be reviewed, I will not comment upon them in this review paper. I attempted to review the six citations which Dr. Yanuck provided. I found an additional five studies in the current, indexed literature which will also be reviewed.

I reviewed what I could of the six citations provided by Dr. Yanuck. This consisted of reading the abstracts on a Medline search of studies one through four and number six. I could not find number five in any search pattern. I could not find the original text of any of the citations in either the Palmer College West or Stanford medical libraries. Neither library carries the journals in question. Stanford used to, but stopped carrying them due to a lack of requests. An acquaintance of mine requested reprints from the ICAK as Dr. Yanuck had suggested. They promised to fax them right over. After waiting a few weeks, he determined that they were not coming.

I then embarked on a brief review of the literature to determine for myself the extent of AK research. I found only five studies, all of which appear to be negative when testing AK principles.

After reviewing the available data my conclusion is the same. There is no research supporting AK. However, there is research refuting the tenants of AK.

Let's start with a definition of AK. AK is a system where manual muscle testing is relied upon as a diagnostic tool to determine clinical or subclinical pathologies. The general AK practitioner will test various muscles searching for weakness. Based upon the muscle in question and its response to various challenges, the practitioner will then render a diagnosis and prescribe treatment. A challenge can be anything from gentle pressure on a joint to stimulation of a neurolymphatic point to sublingual supplementation. Most AK texts note that it should be used in conjunction with other diagnostic procedures. Many AK practitioners rely exclusively on manual muscle testing. I have witnessed AK practitioners prescribe vitamin C for laryngitis after noting strength increases when

a bottle of vitamin C was held on the patient's chest. I have attended seminars in AK where diagnoses were made with nothing but manual testing. Standard methods were never discussed.

I reviewed a standard AK manual. One section contained 196 pages of manual muscle tests. Every muscle in the body had a test. Most had a nutritional, glandular, subluxation, orthopedic and systemic condition associated with a weak test. If the sartorius muscle tests weak, this could theoretically indicate the need for adrenal nucleoprotein extract, vitamin C, pantothenic acid, an adrenal weakness, an SI subluxation, a knee disorder or a problem with blood sugar handling. Everything could be clarified with the appropriate challenge -- put vitamin C under the tongue. If the muscle then tests strong, you've found the problem: the patient needs vitamin C.

None of these 196 pages had a single reference except to standard anatomy texts. Contrast this to current texts by Dr. Hammer or Dr. Croft. These texts have an average of 3-4 references to research journals on each page. One randomly chosen chapter of Arthur Croft's book had 53 pages and contained 162 references.

Based on the previous definition, let's look at the evidence as cited by Dr. Yanuck, the research advisor for ICAK. The citations here are sufficient to perform a Medline search if needed. For the full citation, I would refer you back to Dr. Yanuck's letter published in the February 22, 1999 issue of *DC*. For those who have internet access, HealthGate (www.healthgate.com) will perform free Medline searches. That is where I found the following articles. If I have misinterpreted anything, I invite Dr. Yanuck to send me the full text of any articles he has cited. My e-mail address is listed at the end of this article.

1. Leisman G. Somatosensory evoked potential changes during muscle testing. *Int J Neurosci* Mar 1989;45:1-2, 143-51. This study found a link between SSEP recordings and manual muscle tested weak and strong muscles. In the conclusion, the authors stated, "These findings suggest a neurologic basis for manual muscle testing."
2. Leisman G. Electromyographic effects of fatigue and task repetition on the validity of estimates of strong and weak muscles in applied kinesiological muscle-testing procedures. *Percept Mot Skills* Jun 1995;80:3, pt. 1, pg. 963-77. The authors concluded that "... muscles subjectively testing 'weak' or 'strong' yield effects significantly different from fatigue."
3. Perot C. Objective measurement of proprioceptive technique consequences on muscular maximal voluntary contraction during manual muscle testing. *Agressologie* 1991;32:10, spec no. 471-4. "Results indicated that when examiner-subject coordination was good, an inhibition was easily registered." This study noted that stimulating a healthy muscle spindle fiber in a compressive direction could weaken a muscle.
4. Lawson A. Interexaminer agreement for applied kinesiology manual muscle testing. *Percept Mot Skills* Apr 1997;84:2, pp. 539-46. I have reviewed this one previously as it was quoted as evidence in a previous letter from Dr. Yanuck. This is simply an interexaminer reliability study with mixed results. "Significant agreement between examiners was found for piriformis muscles, but little significant agreement was noted when hamstrings were tested," and "Significant interjudge agreement was found for pectoralis muscles, but no significant concordance could be found when the tensor fascia lata was examined."

In the preceding four studies, manual muscle testing was found to have an interesting, reproducible but unexplainable neurologic component. The conclusion drawn can only be

that humans have strong and weak muscles and that this difference can be detected by machines and other trained humans. No pathologies were identified. No link was established between manual muscle testing and any diagnosis. None of the standard challenges which in AK theory could change muscles from weak to strong and therefore indicate a pathology were tested (i.e., neurolymphatic points, nutritionals, etc.). No pre- or post-treatment component was examined. These studies can be considered evidence in support of AK only by the greatest leap of faith imaginable. Using these studies in support of AK is analogous to discovering that opening and closing doors in a house causes some lights to go off and on, then claiming that you can use this to diagnose any house ailment from termites to clogged drains. All you have really discovered is that the refrigerator door has a switch.

5. Esposito V. Neuromuscular effects of temporomandibular joint dysfunction. *Int J Neurosci* Feb 1993;68:3-4, 205-7. In this study, it was discovered that stressing a confirmed TMJ patient by lateral deviation and opening had a detrimental effect on balance and coordination. No AK methods were employed in any way, shape or form. Manual muscle testing was not examined.
6. Esposito V. Nonforce manual therapeutic effects on disc herniation. This study was unavailable. A Medline search failed to produce it. I found other articles by this author and in the listed journal but none by this title.

In contrast to these six citations of Dr. Yanuck, I did my own research:

1. Hass M. Muscle testing response to provocative vertebral challenge and spinal manipulation: a randomized controlled trial of construct validity. *JMPT* 1994;17(3):141. This was a direct test of AK where manual muscle testers were asked to evaluate patients pre- and post-adjustment. This was an RCT using experienced practitioners with full blinding and a control group. The conclusion was, "... muscle response appeared to be a random phenomenon unrelated to manipulable subluxation."
2. Triano JJ. Muscle strength testing as a diagnostic screen for supplemental nutrition therapy: a blind study. *JMPT* Dec 1982;5(4):179-82. This was a direct test of an experienced manual muscle tester's ability to identify when nutrients had been administered to previously diagnosed patients. The results: "Evidence from this study appears to reject the hypotheses that there is any consistent relationship between specific nutrient supplements and improved muscle performance to manual testing."
3. Peterson KB. A preliminary inquiry into manual muscle testing response in phobic and control subjects exposed to threatening stimuli. *JMPT* June 1996;19(5):310-316. This was another direct test of an experienced manual muscle tester's ability. In this case, patients who were diagnosed as phobic or suffering anxiety were stimulated and tested. The results: "... raw data reveals that manual muscle testing response in subjects exposed to a threatening stimulus is not reliable or valid."
4. Jacobs. Diagnosis of thyroid dysfunction: applied kinesiology compared to clinical observations and laboratory tests. *JMPT* June 1984;7(2):99-104. This study examined an experienced manual muscle tester's ability to correctly identify thyroid dysfunction using

standard AK tests. AK was compared to standard laboratory and clinical tests. The results: "... using clinical and laboratory observations has the greatest assurance of a correct diagnosis of thyroid dysfunction ...". This study noted that AK was likely to find cases of thyroid dysfunction which did not exist and to miss cases which were clinically obvious. AK had a very high false negative and false positive rate.

5. Klinkoski B. A review of the research papers published by the International College of Applied Kinesiology from 1981 to 1987. *JMPT* May 1990;13(4):190. This paper reviewed the type and scientific quality of the published papers of the ICAK. Fifty were examined as the total output between 1981-87; 20 were accepted as research papers. Of the 20, the results were, "As none of the papers included adequate statistical analysis, no valid conclusion could be drawn concerning their report of findings." In other words, the entire literature output of the ICAK between 1981 and 1987 was found to be without merit.

I did not set out to find only the negative studies. This is everything I found. There were no positive studies. These studies directly tested the basic tenants of AK and found them to be invalid. One was for a musculoskeletal condition; one for nutrition; one for mental states; and one for systemic problems. They were all negative.

A scientist looking at this evidence could only conclude that AK has discovered that muscles are sometimes weak and sometimes strong. This variability can be affected by muscle spindle fiber stimulation; it has an unexplored neurologic component; and it has no proven correlation to human pathologies. Based upon this, AK should not be practiced on humans unless they are involved in a legitimate research project.

Scientists should not rely on personal opinion, leaps of faith, or smoke and mirrors. Unless AK can come up with something better than what has been presented so far, my opinion remains: AK has no research support. In fact, the available research denies AK's validity. Based upon the lack of support and the presence of well done negative studies, it is my opinion that AK should not be used on humans for health care except for purposes of further research.

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