

# Applied Kinesiology: Phony Muscle-Testing for "Allergies" and "Nutrient Deficiencies"

**S.R. Barrett, M.D. (edited)**

Applied kinesiology (AK) is the term most commonly used to identify a pseudoscientific system of muscle-testing and therapy. It was initiated in 1964 by George J. Goodheart, Jr., D.C. (1918-2008) and has become quite elaborate. Its basic notion is that every organ dysfunction is accompanied by a specific muscle weakness, which enables diseases to be diagnosed through muscle-testing procedures. Most practitioners are chiropractors, but naturopaths, medical doctors, dentists, bogus nutritionists, physical therapists, massage therapists, nurse practitioners, and multilevel distributors (most notably for Nature's Sunshine) are also involved. In 1991, 37% of 4,835 full-time American chiropractors who responded to a survey by the National Board of Chiropractic Examiners (NBCE) said they used AK in their practice [1]. Subsequent NBCE surveys found percentages of 31% in Canada (1992) [2], 60% in Australia (1993) [3], 72% in New Zealand (1993) [3], 43% in the United States (1998) [4], and 37.6% in 2003 [5]. The prevalence among other types of practitioners is unknown.

It was developed with no double blind research and thus became an art where Therapist wishes become manifested as the therapist changes the pressure on the arm consciously and unconsciously to control the results. This allows the therapist to sell remedies and control results. He can say this product makes you weak, this product makes you strong. And it is controlled by his desire to sell not the patient's needs. Thus every realistic appraisal of the art has deemed it fraud.

Applied kinesiology should be distinguished from kinesiology (biomechanics), which is the scientific study of movement." Unfortunately, some professionals and educators refer to science-based kinesiology as "applied kinesiology," which increases the risk that people searching for information will confuse the two.

## **Bizarre Fraudulent Claims**

AK proponents claim that nutritional deficiencies, allergies, and other adverse reactions to foods or nutrients can be detected by having the patient chew or suck on these items or by placing them on the tongue so that the patient salivates. Some practitioners advise that the test material merely be held in the patient's hand or placed on another part of the body. A few even perform "surrogate testing" in which the arm strength of a parent is tested to determine problems in a child held by the parent. According to a 1987 book for the general public written with help from two leading chiropractic AK practitioners:

The practicing AK is a graduate chiropractor who can explain to you how your glands and organs appear to be functioning with specific muscle tests. He can suggest nutrition to help improve various conditions, and he can demonstrate with your muscles that you probably need particular nutrients. He can correct problems in your spine and in joints, and can stretch or compress muscles to improve your structural condition. He may massage certain junctures of nerve, lymph, blood, and acupuncture meridians to stimulate glandular or systemic activity. He can advise you on how to stay healthy and he will pay particular attention to your posture and your feet. He can offer an excellent second opinion if you are

under a physician's care, are seeing a chiropractor who is not an applied kinesiologist, or if you have been in an accident [6].

Many muscle-testing proponents assert that nutrients tested in these various ways will have an immediate effect: "good" substances will make specific muscles stronger, whereas "bad" substances will cause weaknesses that "indicate trouble with the organ or other tissue on the same nerve, vascular, nutrition, etc., grouping." A leading AK text, for example, states:

If a patient is diagnosed as having a liver disturbance and the associated pectoralis major [chest muscle] tests weak, have the patient chew a substance that may help the liver, such as vitamin A. If . . . the vitamin A is appropriate treatment, the muscle will test strong [7].

Finding a "weak" muscle supposedly enables the practitioner to pinpoint illness in the corresponding internal organs in the body. For example, a weak muscle in the chest might indicate a liver problem, and a weak muscle near the groin might indicate "adrenal insufficiency." If a muscle tests "weaker" after a substance is placed in the patient's mouth, it supposedly signifies disease in the organ associated with that muscle. If the muscle tests "stronger," the substance supposedly can remedy problems in the corresponding body parts. Testing is also claimed to indicate which nutrients are deficient. If a weak muscle becomes stronger after a nutrient (or a food high in the nutrient) is chewed, that supposedly indicates "a deficiency normally associated with that muscle." Some practitioners contend that muscle-testing can also help diagnose allergies and other adverse reactions to foods. According to this theory, when a muscle tests "weak," the provocative substance is bad for the patient. AK "treatment" may include special diets, food supplements, acupressure (finger pressure on various parts of the body), and spinal manipulation [7].

Goodheart states that AK techniques can also be used to evaluate nerve, vascular, and lymphatic systems; the body's nutritional state; the flow of "energy" along "acupuncture meridians"; and "cerebro spinal fluid function." The 70-page chapter on "meridian therapy" in a leading AK textbook advises that subluxations influence the status of meridian system and vice versa [8].

The leading publisher/distributor of AK educational materials for chiropractors and their patients appears to be Systems DC, of Pueblo, Colorado. Its pamphlet on infections and child health states:

When an infection develops, have your child examined by your doctor using applied kinesiology. He can evaluate the energy patterns and usually find the reason that the infection developed in the first place. By correcting the energy patterns within the body and paying specific attention to nutritional supplements and dietary management, the infection which your child (using natural health care) does develop will be adequately taken care of in most cases [9].

## **Research Findings**

Although the claims of applied kinesiology are so far removed from scientific reality that testing them might seem a waste of time, competent researchers have subjected the muscle-testing procedures to several well-designed controlled tests and demonstrated what should be obvious to rational persons. Some have found no difference in muscle response from one substance to another, while others have found no difference between the results with test substances and with placebos.

- Three practitioners testing eleven subjects made significantly different assessments; their diagnoses of nutritional deficiencies did not correspond to the nutrient levels obtain by blood serum analysis; and that the responses to nutrient substances did not significantly differ from responses to placebos [10].
- Another study found no effect from administering the nutrients "expected" to strengthen a muscle diagnosed as "weak" by AK practitioners." [11]
- Researchers who conducted an elaborate double-blind trial concluded that "muscle response appeared to be a random phenomenon." [12]
- Another study showed that suggestion can influence the outcome of muscle-testing. During part of this experiment, college students were told that chewing M&M candies would give them instant energy that would probably make them test stronger. Five out of nine did so [13].
- Four AK practitioners tested seven patients who were extremely sensitive to wasp venom. Altogether, 140 muscle tests were done to see how the patients responded to preparations of venom or salt water in a bottle. If the test were valid, the venom bottles should result in "strong" reactions and the salt-water bottles should produce "weak" test reactions. However, the practitioners were unable to identify which bottles contained which [14].
- Several chiropractors were tested at a medical office while under unblinded and blinded conditions. During the volunteers could resist downward pressure when a drop of glucose was placed on their tongue but could resist when fructose was administered. The the arm tests were repeated using substances in coded test tubes so that the volunteer, the chiropractors, and the onlookers could not tell which solution being applied to the volunteer's tongue. When the code was revealed, There was no connection between ability to resist and whether the volunteer was given the "good" or the "bad" sugar [15].

Some people who undergo AK muscle-testing report that although they resisted as hard as they could, the practitioner was still able to pull down their arm. Differences from one test to another may be due to suggestibility; variations in the amount of force, leverage, or follow-through involved; and/or muscle fatigue. Distraction can also play a role. (Touching another part of the body just before pulling down the arm may cause the patient to focus less on resisting.) But trickery (deliberate or unconscious) may also be a factor. A sudden slight upward movement can cause a "set" muscle to relax so that it can be immediately pulled downward. I have found that when this is done quickly, the person being tested is unlikely to detect the upward motion. Try this on a friend.

## More Scientific research

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Proponents of AK cite evidence about the methods, clinical efficacy, and neurologic rationales of applied kinesiology examination and treatment.<sup>[18][19][20][21]</sup> Some studies show clinical efficacy. For example one study showed a high degree of correlation between AK muscle testing for food allergies and antibodies for those foods. The AK procedure in this study involved stimulation of taste receptors followed by muscle testing for change in strength.<sup>[20]</sup> But all studies where the person holds the bottle have failed to show any effect. The patient was suspected of being allergic to foods that disrupted muscle function. Blood drawn subsequently showed the presence of antibodies to the foods which were found to be allergenic through AK assessment. In another blinded study, the response of a calf muscle to an inhibitory reflex technique used in AK was studied using graphical recordings of [electromyography](#) and mechanical parameters. The study found that with good coordination between the examiner and subject, muscle inhibition was easily recorded.<sup>[21]</sup>

Other studies of Applied Kinesiology have failed to show clinical efficacy. For example, in some studies muscle testing has not been shown to distinguish a test substance from a [placebo](#) under [double-blind](#) conditions, and the use of applied kinesiology to evaluate nutrient status was not shown to be more effective than random guessing. Some scientific studies have shown that applied kinesiology tests were not reproducible.<sup>[22][23][24][25][26]</sup> A review of several scientific studies of AK-specific procedures and diagnostic tests concluded that "When AK is disentangled from standard orthopedic muscle testing, the few studies evaluating unique AK procedures either refute or cannot support the validity of AK procedures as diagnostic tests. The evidence to date does not support the use of [manual muscle testing] for the diagnosis of organic disease or pre/subclinical conditions."<sup>[27]</sup> Another concluded that "There is little or no scientific rationale for these methods. Results are not reproducible when subject to rigorous testing and do not correlate with clinical evidence of allergy."<sup>[28]</sup> A double-blind study was conducted by the ALTA Foundation for Sports Medicine Research in Santa Monica, California and published in the June 1988 Journal of the American Dietetic Association. The study used 3 experienced AK practitioners and concluded that, "The results of this study indicated that the use of Applied Kinesiology to evaluate nutrient status is no more useful than random guessing."<sup>[29]</sup>

One review of the literature identified methodological problems with previous AK studies<sup>[19]</sup>

Some of the studies, research and reviews of applied kinesiology mentioned above are listed at the [National Library of Medicine](#) and [National Institutes of Health](#).<sup>[24][25][29][30][31][32][33]</sup>

Nearly all AK tests are subjective, relying solely on practitioner assessment of muscle response. The Therapist changes the pressure wildly to control and make his results. The whole process is under therapist control and reflects nothing from the patient. Specifically, some studies have shown test-retest reliability, inter-tester reliability, and accuracy to have no better than chance correlations.<sup>[11][25][34]</sup> Some skeptics have argued that there is no scientific understanding of the proposed underlying theory of a viscerosomatic relationship, and the efficacy of the modality is unestablished in some cases and doubtful in others.<sup>[11][16]</sup> Skeptics have also dismissed AK as "quackery," "magical thinking," and a misinterpretation of the [ideomotor effect](#).<sup>[1][35]</sup> It has also been criticized on theoretical and [empirical](#) grounds,<sup>[1]</sup> and characterized as [pseudoscience](#).<sup>[2]</sup> With only [anecdotal accounts](#) providing positive evidence for the efficacy of the practice, a review of [peer-reviewed](#) studies concluded that the "evidence to date does not support the use of [AK] for the diagnosis of organic disease or pre/subclinical conditions."<sup>[27]</sup>

Position statements

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### **American Chiropractic Association**

According to the American Chiropractic Association, in 2003 Applied Kinesiology was the 10th most frequently used chiropractic technique in the United States, with 37.6% of chiropractors employing this method and 12.9% of patients being treated with it.<sup>[10]</sup>

"This is an approach to chiropractic treatment in which several specific procedures may be combined. Diversified/manipulative adjusting techniques may be used with nutritional interventions, together with light massage of various points referred to as neurolymphatic and

neurovascular points. Clinical decision-making is often based on testing and evaluating muscle strength."<sup>[6]</sup>

Note that "testing and evaluating muscle strength" is a basic practice in physical medical examination and that "testing and evaluating muscle strength" neither means the same as practicing Applied Kinesiology nor does Applied Kinesiology use testing and evaluating muscle strength as such, but as an assumed means of diagnostics not directed at muscle strength in itself at all. The citation therefore shows that citing legitimate chiropractics in favor of Applied Kinesiology is questionable in itself.

### **Danish Chiropractic Association**

According to a March 26, 1998 letter from the DKF (Dansk Kiropraktor Forening – Danish Chiropractic Association), following public complaints from patients receiving homeopathic care and/or AK instead of standard (DKF defined) chiropractic care, the DKF has determined that applied kinesiology is not a form of chiropractic care and must not be presented to the public as such. AK and homeopathy can continue to be practiced by chiropractors as long as it is noted to be alternative and adjunctive to chiropractic care and is not performed in a chiropractic clinic. Chiropractors may not infer or imply that the Danish chiropractic profession endorses AK to be legitimate or effective, nor may the word/title chiropractic/chiropractor be used or associated with the practice of AK.<sup>[36]</sup>

## **Double-blind Study on Materials Testing with Applied Kinesiology**

### **(Muscle testing Materials Proven Fraudulent)**

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### **Abstract**

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Applied Kinesiology (AK) is a scientifically unproven method used in complementary medicine to recognize the (in)tolerance of dental materials. Test-retest reliability of AK was examined. The working hypothesis was the assumption that the reliability of AK would not exceed random chance. Two dentists qualified in AK examined 112 volunteers to determine individual (in)tolerance toward two dental composite materials. After the first examination, 31 subjects were excluded from further testing. At the end of the open test phase, 34 of 81 participants had been classified as "tolerant", and seven as "intolerant" to both materials. The remaining 40 individuals showed a combination of either tolerant (to material I)/intolerant (to material II), or the reverse (n = 20 each). Retrieval rate was tested under blind conditions. In 14 cases, the results of the open and blinded tests matched, whereas in 26 cases they did not (95% confidence interval, 21%-52%; p = 0.98). This outcome confirmed our working hypothesis.

## Questionable "Standards"

The [International College of Applied Kinesiology \(ICAK\)](#), founded in the mid-1970s, has set "standards" based on the work of Goodheart and his followers who allege they have subjected AK to "extensive scientific study." Certification by its board (which is not recognized by chiropractic's official accrediting body) requires a minimum of 300 hours of study under an ICAK diplomate, 5,000 hours of practical experience, authorship of two research papers, and passage of written and practical examinations. According to ICAK's 1992 status statement:

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. . . .

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 improper treatment, or failure to treat the appropriate condition [16].

In a [letter to me](#), the ICAK-USA executive board added that, "While there are numerous methods which employ manual muscle testing procedures, most are not in keeping with the standards of the ICAK . . . . Specifically . . . testing of substances by any method other than the stimulation of gustatory receptors on the tongue or olfactory receptors in the nose is specifically outside of the realm of applied kinesiology." [17] It appears to me, however, that the nutrition-related claims and practices of those affiliated with ICAK are no less bizarre than those of other muscle-testers who do not follow ICAK "standards." Not surprisingly, a review of 20 research papers published by ICAK concluded that because "none of the papers included adequate statistical analyses, no valid conclusions could be drawn concerning their report of findings." [18]

## AK Offshoots

Muscle testing related to alleged "energy imbalances" are involved in many other treatment systems, most of which are used mainly by chiropractors:

**Neural Organization Technique (NOT)** includes the notion that the skull is an "extension of the spine." [19] It deserves mention because it is often directed at handicapped children. NOT's proponents claim that "blocked neural pathways" caused by misaligned skull bones can cause learning disorders, cerebral palsy, schizophrenia, Down's syndrome, colorblindness, bedwetting, nightmares, and various other problems. Its practitioners claim that "adjusting" these bones by applying pressure to various structures of the head can cure these problems. This claim is not only unsubstantiated but clashes with the fact that the bones of the skull are tightly fused by age two. NOT's originator was Carl A. Ferreri, D.C. (1928-2007) of New York City, who said he had trained hundreds of chiropractors. NOT came to public attention in 1988 when chiropractors subjected children to it in a "research" program sponsored by school officials in Del Norte County, California. For five months, dozens of children from age four to sixteen, with epilepsy, Down's syndrome, cerebral palsy, dyslexia, and various other learning disorders, were "treated" by having their skull compressed with viselike hand pressure. The children were also forced to endure painful thumb pressure against the roof of the mouth and finger pressure against their eyes. According to news reports, the children struggled, cried, and screamed as they were forcibly

restrained. One reportedly experienced his first seizure when his eye sockets were "adjusted." Some of the children became violent, explosive, rebellious, uncontrollable, and lacking in self-motivation and drive [20,21]. In 1991, a jury ordered Ferreri to pay \$565,000 in damages to seven children and their parents who had filed suit for physical and emotional pain related to the treatment. Two other chiropractors involved in the case settled out of court for a total of \$207,000.

**Contact Reflex Analysis (CRA)** proponents claim that over a thousand health problems can be diagnosed with a muscle test during which the chiropractor's finger or hand is placed on one of 75 "reflex points" on the patient's body. If the patient's arm can be pulled downward, a condition corresponding to the "reflex" is considered present, and dietary supplements (typically made from freeze-dried vegetables or animal organs) are prescribed. CRA's chief proponent, Dick A. Versendaal, D.C., teaches that 80% of disease is due to allergy; the two main causes of disease are gallbladder disease and staphylococcus infections; and obesity is commonly caused by parasites.

**Health Kinesiology (HK)**, founded by Jimmie Scott, is said to use "muscle testing/monitoring to identify the priority order of the energy balancing that needs to be done with his/her client, exactly what stresses are interfering with well being, and which energy balancing methods to use for that individual." According to Scott, it can "eliminate allergies, release physical toxicity, emotional traumas, overcome learning blocks, & perform at your best, among other things!" In one technique—the Allergy Tap™—the practitioner "places the offending substance over a specific acupuncture point on the belly and taps eight pairs of specific acupuncture points." [22]

**Neuro Emotional Technique (NET)** focuses on "releasing patients' emotional blocks stored in the body's memory." Proponents claim that everyone has such blocks and that the body "replays" these old memories, which can adversely affect health [20]. According to a recent article, when chronic patients do not seem to get better over a course of treatment, and where structure, nutrition and "toxicity" have been addressed, NET practitioners look for a "Neuro Emotional Complex (NEC)" that they feel is preventing healing. The practitioner then use muscle testing to "isolate a troublesome event," then ask the patient to hold in mind a "snapshot" of the emotional state while the chiropractor adjusts the patient's spine and prescribes supplement products and homeopathic remedies. NET's developer, Scott Walker, D.C., of Encinitas, California, states that during the ten years he has been teaching the technique, 2,700 health care practitioners (mostly chiropractors but some physicians, psychologists and dentists) have learned it, and most use it regularly in their practice. According to Walker, "the reason homeopathy works so well is that it allows the body to remember what toxins it needs to get rid of in order to reestablish homeostasis." He also says that although psychotherapy is valuable, an "emotional memory locked in the body" can't be resolved through therapy alone [23]. The ONE (Our NET Effect) Foundation was incorporated in 1993 "to help NET practitioners scientifically validate their technique, promote their practices, and bring NET to the world." [24]

**Jaffe-Mellor Technique (JMT)** involves muscle-testing while the patient holds a small glass vial containing the test substance. If weakness occurs, the practitioner taps along the spine while the patient holds the vial. Then acupuncture or acupressure are used to "balance the energy throughout the body." [25] In 2002, the directory on the JMP Web site listed more than 300 practitioners in the United States.

**Nambudripad's Allergy Elimination Technique (NAET)** is based on the notion that allergies are caused by "energy blockage" that can be diagnosed with muscle-testing and permanently cured with acupressure and/or acupuncture treatments. Its developer, Devi S. Nambudripad, D.C., L.Ac., R.N., Ph.D.,

is described on her Web site as an acupuncturist, chiropractor, kinesiologist, and registered nurse who practices in California.

**Whole System HealthScan** is said to be a system that "provides access to stored information in the body's computer." Developed in 1992, by Don Anderson, D.C., and Greg Wastl, D.C., it "uses the electrical pathways of the body, including the nervous and meridian systems, to obtain information about the organs, glands, muscles, bones, and other body tissues." According to its developers:

Unresolved issues—structural, physiological and emotional traumas that the body has accumulated—can pile up like layers in our body. Using the Whole System HealthScan, we identify which layer needs to be addressed first. . . . As the problems of that layer are resolved, the body presents the next layer to be addressed. By honoring the body's wisdom and recognizing its innate ability to communicate what is most important in the healing process, we are able to identify the appropriate sequence and protocol for each layer of healing. Nutritional supplements and herbal tinctures specifically formulated for the Whole System HealthScan are used to assist the body during periods of detoxification, cleansing and rebuilding. If indicated, chiropractic adjustments, electro-emotional adjustments and lifestyle changes are utilized to assist the body through the healing process [26].

The developers further claim that the practitioner "will be able to check for structural, physiological, and emotional traumas on each visit, what to do to assist the body to correct it, and do this all in LESS THAN 5 MINUTES." [26] Its recommended products include *Whole System EEP*, a homeopathic pill that "helps balance the emotional connection between the brain and the various organs."

**Thought Field Therapy** and several other varieties of "emotional acupressure" are said to be rooted in ancient Chinese medicine and applied kinesiology. Their advocates claim that negative emotions are caused by a disruption in the body's "energy system" and that correcting "energetic disturbances" can often correct emotional problems. The treatment is performed by tapping on "acupuncture points" while the patient thinks about a problem. These practices are claimed to be effective against a long list of emotional and physical problems.

**The Dawson Program**, also called vibrational kinesiology, was developed over 28 years by Cameron Dawson, an Australian businessman. According to Dawson's Web site:

The Dawson Program uses the Kinesiological technique of muscle testing to trace and identify the root cause of each imbalance affecting the body's energy system and impeding the body from self-healing. This results in conditions such as Dyslexia, learning difficulties, chronic fatigue, depression, stress, Eczema, Asthma, Psoriasis and behavioural problems.

Correction is effected quickly and painlessly by applying energy in the form of sound. Each aspect of the body's energy system has a specific frequency, or rate of energy vibration.

By applying the right frequency under the direction of the subconscious, the imbalances are removed, thereby correcting structural misalignments immediately and removing the impediments from the body's self-healing, so the body can overcome 'medical conditions'.

Dyslexia, for example, can be corrected in less than 4 minutes!



[BodyTalk](#) is said to "combine the wisdom of advanced yoga and advaitic philosophy, the insights of modern physics and mathematics, the energy dynamics of acupuncture, the clinical findings of Applied Kinesiology, and western medical expertise." The International BodyTalk Association, which lists hundreds of "certified" practitioners in its directory, states:

BodyTalk is an astonishingly simple and effective form of therapy that allows the body's energy systems to be re-synchronized so that they can operate as nature intended. Each system, cell and atom is in constant communication with each other at all times. Through exposure to the stresses of day-to-day life, these lines of communication become compromised, which then leads to a decline in physical, emotional and/or mental health. Reconnecting these lines of communication then enables the body's mechanisms to function at optimal levels, thus preventing disease and rapidly accelerating the healing process. BodyTalk can be used as a stand-alone system to treat many health problems, or seamlessly integrated into any health care system to increase its effectiveness and promote faster healing. . . .

The BodyTalk system works by first identifying the weak energy circuits that exist within the body. The practitioner relies on the innate wisdom of the body to locate the energy circuits that need repair by using a form of biofeedback, which is a subtle muscle testing technique.

For every malfunctioning energy circuit that is found, the practitioner or client contacts the corresponding "points" with their hands. The practitioner then lightly taps the client on the top of the head, which stimulates the brain centers and causes the brain to re-evaluate the state of the body's health. The result is that the general energy balance of the body is greatly improved.

The practitioner then taps the client on the sternum to "announce" the corrected energy flows to the rest of the body. This is beneficial because the heart is responsible for communicating the state of the body's health to the rest of the body. Stimulating the heart by tapping the sternum forces the heart to store the corrected energy patterns in the body's cellular memory. This means that the body will remember these changes after the treatment.

The BodyTalk treatment protocol is very straightforward and does not require any diagnosis. The practitioner relies on the guidance of innate wisdom, through muscle testing, to not only locate the weakened lines of communication in the body but also to find the proper order in which they are to be addressed. Just as the body heals a wound with a particular sequencing of chemical reactions, the body wants to address all healing in a certain order. This priority is paramount in the balancing process to initiate the body's ability to heal itself. The healing process usually follows rather quickly.

[Kinesiology.net](#) estimates that there are more than 50 types of AK-related systems and links to several more.

### **The Bottom Line**

The concepts of applied kinesiology do not conform to scientific facts about the causes or treatment of disease. Controlled studies have found no difference between the results with test substances and with placebos. Differences from one test to another may be due to suggestibility, distraction, variations in the amount of force or leverage involved, and/or muscle fatigue. If you encounter a practitioner who relies on AK muscle-testing for diagnosis, head for the nearest exit. Meanwhile, it would help if science-based kinesiologists would stop referring to what they do as "applied kinesiology."

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