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SERVICES FOR SCIENCE AND EDUCATION

Biofield Energy: History and Applications of Kinesiology Muscle Testing

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ABSTRACT

In the 1960s, a chiropractor in the United States adapted manual muscle testing (MMT), a procedure in which muscle strength and nerve function are subjectively assessed, as a method for evaluating and correcting structural imbalances, naming the practice Applied Kinesiology (AK). The practice of AK was eventually developed into a multifaceted system using MMT as a means through which information about the function of organs and systems can be derived. AK cites the neurological principle of sensory and motor integration known as the central integrated state, i.e., the summative effects of all activating and inhibiting influences on motor output, as the basis for the ability of MMT to reflect organ function beyond that of muscle or nerve function alone. Over the ensuing decades, interest in this evaluative technique has expanded beyond the chiropractic profession, and it has been adapted for use in a number of both conventional and complementary healthcare disciplines. This review article briefly explores the history and applications of MMT as an evaluative tool.

Keywords: Biofield, Kinesiology, Measurement of the function of organs and systems.

HISTORY AND PRINCIPLES OF APPLIED KINESIOLOGY

The practice of using manual muscle testing as a diagnostic tool was devised in the 1960s by George Goodheart, a U.S. chiropractor. Goodheart named this technique Applied Kinesiology (AK)(Schwartz et al., 2014). AK started as a method for isolating and restoring function to weakened muscles as an adjunct to chiropractic adjustments. Over time, Goodheart expanded the utility and applications of the procedure to include evaluation of the functional status of internal organs and systems.

According to AK theory, muscle weakness or dysfunction reflect impaired function or insufficient energy in one or more of these systems, and this can be deduced through a prescribed protocol referred to as therapy localisation, whereby the manual muscle test (MMT) becomes a functional or evaluative tool (fMMT). Once the appropriate correction is determined through therapy localisation, a correction is delivered, usually by means of sensory-based therapy, with the aim of normalising afferent input in order to shift the central integrated state of the nervous system toward health. Retesting the muscle or repeating the therapy localisation protocol immediately after the treatment should produce an improved muscle testing response to indicate restored function.

When used in the chiropractic setting, one example of a structural application of the fMMT is to determine which joint structures need to be adjusted. This is based on the principle that pain or injury causes impaired mechanoreceptor function, leading to inhibition of the affected muscles. The pattern of weakness or imbalance in muscle strength around a joint can therefore indicate to the chiropractor the type and location of chiropractic adjustment to perform(Cuthbert & Goodheart, 2007).

INTEGRATION OF FUNCTIONAL MANUAL MUSCLE TESTING INTO OTHER HEALTHCARE DISCIPLINES

Over time, the functional manual muscle test (fMMT) has been adopted as an evaluative tool within subsets of various allopathic, complementary, and alternative health disciplines. In some instances, the fMMT is used by itself, without a prescribed evaluation and treatment protocol, as a means to obtain a binary, i.e., yes/no response to a sensory input. Or, in some instances, new systems for applying the fMMT have been developed separate from the AK protocol. A 2015 review by a University of Oxford researcher identified 79 distinct technique systems utilizing fMMT, with an estimate of over 1 million people worldwide practice a form of fMMT(Jensen, 2015). A few examples of fMMT systems include the following:

Touch for Health is a system designed for use by nonhealthcare professionals and uses fMMT as an evaluative tool in conjunction with acupressure, light touch, and massage to reduce pain and stress and improve well-being(Maine et al., 2022). Neuroemotional Technique is designed to address emotional components of health and uses fMMT in conjunction with the principles of cognitive behavioural psychology and Traditional Chinese Medicine (NET)(Bablis et al., 2022). Nambudripad's Allergy Elimination Technique (NAET) combines the fMMT with acupressure therapy to evaluate and treat allergies(Terwee, 2008).

MECHANICS OF THE FUNCTIONAL MANUAL MUSCLE TEST

Due to the inherently subjective nature of manual muscle testing, the reliability of muscle testing when used in the context of AK and other disciplines where the technique has been adopted is also subjective, making it both a science and an art. As with muscle testing of a structural nature, i.e., when grading strength and nerve function, factors such as proper positioning, consistent pressure, avoiding preconceived expectations of the result, and contraindications are important to consider and control for(Cuthbert & Goodheart, 2007).

The fMMT is performed by first isolating the muscle in the same manner as for an orthopedic or neurologic test. However, rather than applying the maximal pressure required to determine muscle strength, the testing pressure is light and brief, lasting a maximum of 2–3 seconds(Green), and the quality of the muscle response, i.e., speed and consistent resistance to the pressure applied, provides the qualitative information sought. Specifically, the tested muscle should lock into place quickly and respond accurately to the amount of force being used. A poor-quality muscle response would be one that is slow to respond to the pressure being applied and/or unable to maintain a constant position, resulting in either a failure to hold the position or a ratcheting or boggy effect, whereby the muscle toggles between overcorrecting and undercorrecting to the pressure.

THE FUNCTIONAL MANUAL MUSCLE TEST AS AN EVALUATIVE TOOL

The fMMT differs from orthopedic muscle testing in that the context and procedures accompanying the test allow for a broader interpretation of the results. This is accomplished by performing a physical provocation or challenge or by introducing a sensory stimulus through smell, taste, or visual stimuli, such as placing a food or supplement in the mouth, in conjunction with the muscle test(Schmitt & Yanuck, 1999). Or, in some instances, a sensory stimulus may be introduced into the subject's energy field by placing the item in the subject's hand or on their body.

These sensory stimuli affect the central integrated state of their suprasegmental targets in the hypothalamus, thalamus, and cortex, which in turn affect motor output from the brain, resulting in either facilitation or inhibition of the muscle being tested(Schmitt & Yanuck, 1999). Importantly, all somatic input affects visceral function, and any alterations in visceral function affect somatic motor function(Schmitt & Yanuck, 1999). Changes in motor function result from changes in the central integrated state of the nervous system at the spinal cord level, i.e., the sum of all excitatory input and inhibitory input to the nervous system, including from skeletal muscles and tissues, as well as from the viscera and chemoreceptors located throughout the body(Schmitt & Yanuck, 1999).

In this way, the fMMT is meant to provide a window into the level of integration and overall function of autonomic, endocrine, immune, and other systems of the body, with the potential to detect subtle declines in function at early stages before end-stage disease changes set in(Haas et al., 2007; Schmitt & Yanuck, 1999).

INTEGRATION OF THE FUNCTIONAL MANUAL MUSCLE TEST IN AK

Within the field of AK, five systems are recognized as contributing to muscle function. These include three bodily systems: the nervous, lymphatic, and vascular; the flow of cerebrospinal fluid; and the network of acupuncture meridians. While the fundamental contributions of nerve and blood supply to muscle function are readily apparent, those of lymphatic flow and acupuncture meridians are constructs of AK based on the correlation of these systems with skeletal muscle function.

For the lymphatic system, the correlation in AK between lymphatic flow and muscle function is seen as stemming from the reliance of lymphatic flow on the contraction of adjacent visceral smooth muscles and skeletal muscles. This results in viscerosomatic functional relationships, whereby pain or dysfunction of visceral origin affects corresponding skeletal muscle function via feedback loops within the central nervous system, which can then be evaluated through muscle testing procedures(Caso, 2004).

For acupuncture meridians, Goodheart determined the associations between each of the 12 major meridians and the skeletal muscles supplied by each meridian. Deficient energy in a meridian will produce demonstrable muscle weakness upon muscle testing, and an imbalance in energy across the meridians will cause an imbalance in muscle tone throughout the body. These skeletal muscles became indicator muscles for assessing meridian function through the corresponding muscle's function(Moncayo & Moncayo, 2009).

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Objective evidence for the AK correlation between the rectus femoris muscle and the small intestine meridian was confirmed in a 2009 study via surface electromyography(Moncayo & Moncayo, 2009). The study employed healthy volunteers, and acupuncture points were treated using either tonification or sedation techniques. Increased signal amplitude was observed upon surface EMG testing of the rectus femoris muscle when acupuncture tonification points for the small intestine meridian were activated, and decreased signal amplitude was observed when acupuncture sedation points for the small intestine were activated.

APPLICATIONS

Allergy Detection and Treatment

In a study of 17 volunteers ranging from 16 to 74 years of age, muscle testing was compared against serum immunoglobulin levels for food sensitivities(Schmitt & Leisman, 1998). Muscle testing was performed using an oral challenge that involved placing a sample of the food in the participant's mouth and then testing an indicator muscle. Of 21 foods that tested positive for sensitivities via muscle testing in one or more participants, 19 were confirmed via blood tests. A case report using NAET describes the alleviation of food intolerance symptoms in a 3-year-old girl with multiple food intolerances, eczema, and dyspnoea(Terwee, 2008). The patient was reported to be free of symptoms following a series of seven treatment sessions and, after 3 years follow-up, she continued to be able to eat all of the foods she was previously sensitive to.

Nutritional Supplementation

The fMMT was used to prognostically evaluate the effectiveness of a therapeutic intervention for elevated cholesterol in a study involving 11 participants with elevated cholesterol levels(Waxenegger et al., 2007). Participants were muscle tested before starting on an 8-week therapeutic regimen of red yeast rice, with a strong fMMT response positively correlating to predicted benefits of the supplement.

In this study, rather than oral testing per AK protocol, the supplement was placed on the abdomen of the participant. The strengths of the muscle testing responses were subjectively graded by the testers on a 10-step scale. A significant correlation was found between muscle testing results and the participants' post-therapy cholesterol levels, indicating a strong predictive value of muscle testing in this study.

Management of Urinary System Dysfunction

A retrospective case series review involving 21 patients with urinary incontinence reported symptom improvement using AK therapy localization techniques in conjunction with chiropractic manipulative therapy and soft tissue treatments(Cuthbert & Rosner, 2012). The patients ranged in age from 13 years to 90 years, with a symptom history ranging from 4 months to 49 years. Complete resolution of symptoms occurred in 10 patients, considerable improvement was reported in 7 patients, and slight improvement occurred in 4 patients. Follow-up examinations showed improvements were maintained over a minimum of 2 years.

Management of Gastrointestinal Dysfunction

In AK, a particular reflex point is used to evaluate ileocecal valve function, with the theory that there is a correlation between malfunction of the ileocecal valve and the development of low back pain. A study involving 100 participants with and without low back pain sought to determine the sensitivity and specificity of the AK procedure(Pollard et al., 2006). Practitioners

were blinded to the status of the subjects. Among those subjects who reported low back pain, a positive correlation with the ileocecal valve reflex point fMMT result was noted in 86.6%. Among those who reported no back pain, the practitioners' fMMT test results were positively correlated in 97%. False negatives occurred in 13.4%, and a single false positive (3%) was reported.

Processing Emotional Trauma

NET was used as an intervention in a randomized, placebo-controlled study of patients with cancer-related emotional trauma(Monti et al., 2018). Patients who reported having traumatic stress symptoms of at least 6 months duration were included. Resting-state functional blood oxygen level-dependent magnetic resonance imaging (rs-fMRI) was used before and after the NET and placebo treatments to evaluate neurophysiological effects. Additionally, heart rate response to the traumatic stimulus was used as a measure of autonomic reactivity. Significant changes in rs-fMRI and significant reductions in heart rate response were noted in the NET group compared to the control group.

Pain Management

A randomized, controlled trial consisting of eight twice-weekly NET treatments for low back pain reported clinically and statistically significant reduction of pain and disability markers and improvements in quality-of-life indicators in a group of 112 low back pain patients compared to placebo(Bablis et al., 2022). Objective measures included c-reactive protein, tumour necrosis factor- α, and interleukin (IL)-1, IL-6, and IL-10 levels.

Dentistry

A literature review on the use of AK in dentistry found evidence for the use of AK in evaluating temporomandibular disorders and for determining the appropriateness of dental materials to be poor(Melis & Di Giosia, 2022). However, the study found supportive evidence for the use of AK in detecting changes in muscle strength associated with changes in dental occlusion. Specifically, the use of a mandibular orthopedic repositioning appliance was associated with increased muscle strength of an indicator muscle, such as a deltoid muscle, compared to biting on a placebo appliance.

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