



The Scientific Foundations of Applied Kinesiology

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Applied kinesiology, the use of muscle testing as a diagnostic method, is widely misunderstood and misused. This is true for the scientific community, including most physicians, as it is for the layperson. The practice of diagnostic muscle testing that looks superficially like either magic or a manipulative sleight of hand, depending on the observers' perspective, or prejudice, actually has sound neurology as its' foundation.

Applied kinesiology is practiced in its' proper context when used by a physician who is licensed to diagnose in conjunction with all of the other tools normally used in clinical practice, such as history, observation, physical, orthopedic, and neurological exams, diagnostic imaging, and laboratory testing. When used in this way, applied kinesiology can give tremendously useful information that can provide context and nuance to other clinical findings.

Understanding function of and connection and relationship between body systems is a particularly notable strength of applied kinesiology. Through applied kinesiology muscle testing it is possible to better understand the nervous and muscular systems, organic and biochemical functions and systems, and the interactions between the mind and emotions and body functions. This incredibly complex net of interdependent reflexes occurs constantly and globally in every moment of life and is the actuality of living beings. As useful as the standard reductionistic method has been to medicine, it does not represent the full richness of life, nor, necessarily the needs of a patient to heal. As Abraham Maslow once and famously said, "The map is not the terrain."

Reflex Relationships In Body Function	
Reflex	Function
Somato-visceral	Body structures (bone and soft tissues) influencing biochemical and organ functions
Viscero-somatic	Biochemical and organ functions influencing body structures (bone and soft tissues)
Somato-somatic	One region of body structure influencing function of another body structure; often remote (i.e. foot dysfunction causing neck dysfunction and pain)
Vicero-visceral	One organ system influencing another organ system
Psycho-viscero-somatic	Emotions/mental processes influencing organic and structural (musculoskeletal) functions
Somato-viscero-psychic	Organic and structural (musculoskeletal) functions influencing emotions/mental processes



Applied kinesiology allows better understanding of these reflexes and how to normalize their functions. In most cases, the influence of applied kinesiology on therapy is measurable by other corroborating metrics used in clinical practice - ranges of motion, improved locomotion, decreased palpatory pain, normalization of blood pressure, increased lung capacity, and improved physical exams and lab findings.

This paper is intended to be accessible to the interested layperson/patient to better understand their experience of applied kinesiology and give the professional a deeper context from the sciences (mostly neurosciences) to better understand the scientific foundation for the use of applied kinesiology in healthcare practice. Hopefully, I've balanced these disparate aims satisfactorily.

Applied Kinesiology As Functional Neurology

There is support for the applied kinesiology model and applications from developments in neurological sciences and the method has been proposed be functional neurology that compares actual responses to sensory-based stimuli to expected patterns based on known neuroanatomy and neurophysiology.^{1,2,3} Applied kinesiology manual muscle testing (AKMMT) has been proposed to be as accurate as the deep tendon reflex in evaluating function of the nervous system when used by a clinician skilled in the method.⁴ AKMMT appears to have comparable or greater reliability when compared to many other orthopedic and neurological diagnostics.⁵

Applied Kinesiology Manual Muscle Testing As A Diagnostic Tool

A common criticism of AKMMT is that it is a subjective diagnostic method that has poor intra-examiner and inter-examiner reliability. Yet, the use of subjective tools, such as the stethoscope or reflex hammer, in diagnosis is standard. Yet, the inter-examiner reliability of cardiac auscultation in trained practitioners can be quite low, especially when listening for more obscure heart sounds.⁶ This doesn't mean that a stethoscope isn't a valid diagnostic tool, only that it must be correlated with other data as part of a diagnostic workup.

High levels of intra-examiner reliability have been shown when individual muscles rather than muscle groups are being tested (.80-.99 depending on the specific muscle being tested) and inter-examiner reliability has been measured as high as .91.^{7,8,9}

Therapy Localization As A Diagnostic Tool

Cutaneoreceptors can influence muscle tone and inhibition of muscles from tactile stimulation at a remote site has been observed.^{10,11} This correlates with the phenomenon of therapy localization (TL) and the inhibition observed, at 17-19%, is congruent with the degree of change in muscle strength typically observed with AKMMT.¹² Literature review shows stimulation of skin receptors produces changes in muscle strength and function consistent with the observation of therapy localization (TL) in applied kinesiology. Use of AKMMT with TL has a high correlation with laboratory diagnostics for thyroid function indicating that the model for using this approach to enhance clinical and laboratory diagnosis is fundamentally sound.¹³



Testing Biochemistry With Applied Kinesiology

Ingesting nutrition targeted to a particular organ has been found to more reliably improve muscle strength using AKMMT than placebo, supporting both the organ-muscle relationship model of applied kinesiology and the usefulness of nutrient testing in AK, especially when the information is incorporated with other clinical observations.¹⁴

AKMMT appears to be a useful method of observing biochemistry in that it shows accuracy for determining food allergies (90.5%) and immunological status when compared to lab tests.¹⁵

Muscle-Organ Relationships and Viscero-somatic Reflexes

Viscero-somatic reflex phenomena have been validated in the research.¹⁶ Irritation to specific organs has been observed to result in muscle inhibition primarily of the muscle(s) associated with the irritated organ and secondarily and to a lesser degree with other muscles of the body. This outcome conforms to the muscle organ relationship model from applied kinesiology.¹⁷ This finding is further supported by research that has shown stress to an internal organ can result in a viscero-somatic reflex inhibiting both motor and sensory nerves.¹⁸

Somato-visceral and viscero-somatic reflexes appear to be interdependent as visceral afferents have been shown to inhibit the effects of cutaneous afferentation and cutaneous afferents inhibition of visceral afferentation.¹⁹

Somato-visceral Reflexes And Manual Therapies

Somatic stimuli influence visceral function. The neurophysiology of somato-visceral reflexes conform to the model that somatic stimuli influence visceral function.²⁰

Stimulation of cutaneous and subcutaneous afferents has shown somato-visceral effects.²¹ Mechanoreceptors and cutaneoreceptors cause somatovisceral reflex responses that effect both parasympathetic and sympathetic tone.²² Mechanoreceptor and cutaneoreceptor afferentation can modulate autonomic tone.²³

Methods used in applied kinesiology appear to have visceral effects as somato-visceral reflexes from applied kinesiology such as the neurolymphatic (Chapman's) reflex, have support in the literature and appear useful both diagnostically and therapeutically.^{24, 25} Soft tissue manipulative techniques for the diaphragm, including neurolymphatic (Chapman) reflexes, have shown increased forced vital capacity.²⁶

Spinal stimuli has visceral effects. Recent neuroscience research supports a neurophysiologic rationale for aberrant spinal function resulting in somatovisceral reflexes adversely affecting visceral function mediated through the autonomic nervous system.²⁷ Stimulation to mechanoreceptors of the spine has been observed to have somato-visceral effects on the autonomic nervous system (sympathetic dampening).²⁸



Somato-somatic Reflexes And Manual Therapies

Local somatic stimuli has effects on organization of muscle tone, proprioception, and organization of muscle function. Spinal manipulative therapy (SMT) has shown significant increase motor-evoked potential to a muscle supplied by the nerve root at the level of the spine treated. This finding supports the increased tone in muscles found through AKMMT after SMT to the level of spinal nerve supply to the tested muscle.²⁹ Other studies have shown both facilitation and inhibition from the same SMT event suggesting a somato-somatic and neuro-modulating effects from SMT.^{30, 31}

Research suggests aberrant afferentation due to trauma, inflammation, or altered biomechanics alters sensation, proprioception, muscle tone and sympathetic reflex responses.³² The somato-somatic patterns of abnormal reciprocal inhibition, known as reactive muscle patterns in applied kinesiology, have been observed.³³

This review of applied kinesiology foundation is by no means exhaustive. I hope that it deepens and enriches your understanding and appreciation of applied kinesiology and gives context to how applied kinesiology contributes to healthcare.



Endnotes

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