

Muscle Testing

The principles of muscle testing were first described in 1949¹ and then developed to include different muscles and grading scales for the evaluation of muscle action^{2 3}. George Goodheart, a chiropractor from the US, suggested that muscle testing could have a wider application than the common biomechanical interpretation⁴. From clinical observation he suggested that muscle tests could be used to detect dysfunction of other body systems.

There is limited and sometimes conflicting research into the science of muscle testing. One study⁵ compared indicator muscle testing with traditional diagnostic methods in patients with thyroid problems and found it to be a valuable tool that complemented laboratory and clinical diagnosis. An orthopaedic surgeon, Anna Rolfes⁶, suggests from her own and others research that the indicator muscle test can show subtle neuromuscular changes due to stressful stimuli and could be considered a form of biofeedback. A review of over 100 observational cohort studies demonstrated good externalⁱ and internal validityⁱⁱ, and 12 randomized controlled trials (RCTs) showed that muscle testing findings were not dependent upon examiner bias⁷. There is also some evidence of its application^{8,9} to allergy and food sensitivity testing^{8,9}, as well as the possible neurophysiologic basis for the technique¹⁰⁻¹⁵.

I was trained in a specific technique of muscle testing by a well-respected Auckland rheumatologist and I view it as a potentially useful feedback process that aims to sense muscle tone changes in response to different input signals. The test is carried out with the patient lying comfortably on an examination couch and the arm (usually right) is raised to a vertical position. Pressure is then applied to the wrist while the patient attempts to resist and the strength or weakness of the response is sensed by the examiner (and often by the patient). This technique is considered to be part of complementary and alternative medicine (CAM) and I do not suggest that it is scientifically validated, supported by mainstream medicine or that strong reliance should be given to any findings. There are no known risks or side-effects of this form of muscle testing.

References

1. Kendall H, Kendall F. *Muscles: Testing and Function*. Baltimore: Williams and Wilkins, 1983.
2. Janda V. *Muscle function testing*. London: Butterworths, 1983.
3. Daniels L, Worthingham C. Daniels and Worthingham's Muscle Testing: Techniques of Manual Examination and Performance Testing. Philadelphia: W.B. Saunders, 1983.
4. Goodheart G. *Applied Kinesiology Workshop Manual*. Detroit: Privately published, 1964.
5. Jacobs G, Franks T, Gilman P. Diagnosis of thyroid dysfunction: applied kinesiology compared to clinical observations and laboratory tests. *J Manipulative Physiol Ther* 1984;7(2):99-104.
6. Rolfes A. *The Phenomenon of Indicator Muscle Change - An Exploration of its Validity and Meaning*. Newrybar, Australia, 1997.
7. Cuthbert S, Goodheart G. On the reliability and validity of manual muscle testing: a literature review. *Chiropractic & Osteopathy* 2007;15(4).
8. Schmitt W, Leisman G. Correlation of applied kinesiology muscle testing findings with serum immunoglobulin levels for food allergies. *Int J Neurosci* 1998;96(3-4):237-44.
9. Scopp A. An Experimental Evaluation of Kinesiology in Allergy and Deficiency Disease Diagnosis. *Orthomolecular Psychiatry* 1978;7(2):137 -138.
10. Leisman G, Shambaugh P, Ferentz A. Somatosensory evoked potential changes during muscle testing. *Int J Neurosci* 1989;45(1-2):143-51.
11. Schmitt W, Yanuck S. Expanding the Neurological Examination Using Functional Neurologic Assessment: Part II Neurologic Basis of Applied Kinesiology. *Int J Neurosci*. 1999;97(1-2):77-108.
12. Motyka T, Yanuck S. Expanding the Neurological Examination Using Functional Neurologic Assessment Part I: Methodological Considerations. *Int J Neurosci*. 1999;97(1-2):61-76.
13. Conable K, Rosner A. A narrative review of manual muscle testing and implications for muscle testing research. *J Chiropr Med* 2011;10(3):157-165.
14. Leisman G, Zenhausern R, Ferentz A, Tefera T, Zemcov A. 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* 1995;80(3):963-77.
15. Perot C, Meldener R, Gouble F. Objective Measurement of Proprioceptive Technique Consequences on Muscular Maximal Voluntary Contraction During Manual Muscle Testing. *Agressologie* 1991;32(10):471-474.

ⁱ this is the extent to which the results of a study can be generalized to other situations and to other people

ⁱⁱ this looks at whether the "cause" and the "effect" are related