Developing the evidence for kinesiology-style manual muscle testing: A series of diagnostic test accuracy studies

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ABSTRACT

Introduction

Kinesiology-style Manual Muscle Testing (kMMT) is estimated to be practiced by over 1 million people worldwide. Despite its prevalence, the clinical validity of kMMT has never been rigorously assessed and its usefulness is frequently questioned.

This paper describes a series of 5 diagnostic test accuracy studies aimed at developing evidence for one application of kMMT: distinguishing false from true statements. The main objectives of Studies 1 and 2 were to estimate the accuracy of this application of kMMT while the objective of Study 3 was to compare these results with grip strength dynamometry. Study 4 assessed the reproducibility of kMMT, and Study 5 varied the emotional valence of stimuli presented.

Methods

Five prospective studies of diagnostic test accuracy were carried out where kMMT practitioners performed kMMT on test patients (TPs) after TPs spoke given true/false statements. The reference standard was the statement's actual verity and the primary index test was kMMT or grip strength (Study 3). A second index test was also enacted in alternating blocks: practitioners were asked to ''guess'' the verity of the spoken statement without using kMMT. Error-based measures of accuracy are reported: overall fraction correct, sensitivity, specificity, Positive Predictive Value and Negative Predictive Value.

Results

In Study 1 kMMT practitioners correctly distinguished lies from truth in 69.3% (95% confidence interval [CI] 66.0–72.5%) of statements more often than by chance alone ($p < 0.01$), or guessing (47.4% accuracy; 95% CI 44.9–50.0%). In Study 2, kMMT accuracy was 63.1% (95% CI 56.8–64.9%; $p < 0.01$), while guessing was 51.4% (95% CI 48.3–54.4%; $p = 0.01$). In Study 3 there was no significant difference between dynamometer-measured grip strength for true (mean 24.0 kg; standard error 2.1 kg) versus false (mean 23.8 kg; standard error 2.1 kg) statements ($p = 0.94$). Study 4 found that 57% of kMMT accuracy can be attributed to the practitioner–TP pair dynamic, whereas 43% is yet undiscovered. Study 5 showed that kMMT accuracy using emotionally arousing stimuli was no better or worse than when using affect-neutral stimuli ($p = 0.35$).

Conclusion

kMMT has repeatedly shown significant accuracy for distinguishing lies from truths, compared to both guessing and chance. Furthermore, practitioners appear to be an integral part of the kMMT dynamic because when removed, no significance is achieved. The main limitation of these studies is its lack of generalizability to other muscle testing applications. A strength was that these studies show that scientific method can indeed be used to assess the usefulness of kMMT.