

oncology therapies by enhancing efficacy and producing fewer toxicities by reducing dose requirements.

Studies demonstrate that combined therapies offer better life extension, decrease rate of recurrence and improve quality of life.

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## Posters

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



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**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.

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### Management of female infertility with traditional Chinese Herbal Medicine: An updated meta-analysis



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**Background:** Infertility affects 15% or 3 million couples in Australia. Assisted Reproductive Technologies, including in-vitro-fertilisation (IVF) result in about 23% clinical pregnancies and 17% live births. Here we update our previous meta-analysis on the effect of Chinese Herbal Medicine (CHM) on female infertility and pregnancy rates in comparison to Western Medical (WM) treatment.

**Methods:** We searched the Medline and Cochrane databases until December 2013 for randomised controlled trials (RCTs) investigating Chinese Herbal Medicine therapy for female infertility and compared clinical pregnancy rates achieved with CHM versus WM drug treatment.

**Results:** Forty RCTs involving 4247 women with infertility were included in our systematic review. Meta-analysis of RCTs suggested a 1.74 higher probability of achieving a pregnancy with CHM therapy than with WM therapy alone (risk ratio 1.74, 95% CI: 1.56–1.94,  $p < 0.0001$ ) in women with infertility. Trials included women with polycystic ovarian syndrome (PCOS), endometriosis, anovulation, fallopian tube blockage, or unexplained infertility. Mean pregnancy rates in the CHM group were 60% compared with 33% in the WM group.

**Conclusions:** Our review suggests that management of female infertility with Chinese Herbal Medicine can improve pregnancy rates 2-fold within a 3–6-month period compared with Western Medical fertility drug therapy. In addition, fertility indicators such as ovulation rates, cervical mucus score, biphasic basal body temperature, and appropriate thickness of the endometrial lining were positively influenced by CHM therapy, indicating an ameliorating physiological effect conducive for a viable pregnancy.

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