was impossible for most trials to blind subjects or treatment providers to group allocation. Many of the care programs or interventions varied considerably between groups and only three of the trials included follow-up of a clinically appropriate duration. Most trials adequately described inclusion and exclusion criteria and utilized appropriate, clinically useful and clearly defined outcome measures. Only one trial included falls as an outcome measure, but as a feasibility study no meaningful conclusions could be drawn about the effects of the intervention on falls. All included trials reported outcomes of functional balance tests or tests that utilized a computerized balance platform. Seven of the ten included trials reported some statistically significant improvements relating to balance following an intervention that included a manual therapy component. The ability to draw conclusions from a number of the studies was limited by poor methodological quality or very low participant numbers.

Conclusion: There is little to no evidence to support the role that manual therapy may play in preventing falls and there is only limited evidence to support the role of manual therapy in improving balance.

The accuracy of kinesiology-style manual muscle testing to distinguish congruent from incongruent statements under varying levels of blinding: Results from a study of diagnostic test accuracy☆

Anne Jensen[*], Richard Stevens, Timothy Kenealy, Joanna Stewart, Amanda Burls
*Corresponding author.
E-mail address: anne.jensen@wolfson.ox.ac.uk

Introduction: Healthcare practitioners have been using muscular strength testing to assess neuromusculoskeletal system integrity since early last century. In the 1970s, another application of manual muscle testing (MMT), called Applied Kinesiology (AK), was developed by Dr. George Goodheart. Its premise is that a muscle will be less able to resist a force when there is aberrant nervous input, and muscles are labeled as either strong or weak accordingly. Since then, other MMT techniques have been developed that assess a patient's response to semantic stimuli. Monti et al. found that, following the speaking of congruent statements, a muscle was able to resist significantly more force compared to after speaking incongruent statements. A congruent statement is defined as one which the speaker believes to be true, whether or not their belief reflects actual reality. It was found that congruent statements usually result in a strong MMTs, while incongruent statements usually result in weak MMTs.

While the reproducibility of this assessment tool has been investigated, its accuracy has not yet been firmly established. The aim of this study was to estimate the accuracy of MMT to distinguish congruent from incongruent spoken statements.

Methods: Twenty-five healthcare practitioners who routinely perform MMT in response to spoken statements were recruited. Additionally, 25 healthy test patients (TPs) were recruited who had little/no prior experience with MMT. The practitioners tested the anterior or lateral deltoid on one side only. On a computer monitor, TPs were shown pictures of common, emotionally neutral items, and were instructed to make a simple true statement or a simple false statement about the identity of the object. In the first testing scenario, practitioners also viewed a computer screen showing either the same picture as the TP or a blank screen. Immediately following the TP's statement, the practitioner performed a MMT, and recorded the result as weak or strong. Each practitioner performed 40 MMTs broken up into 4 blocks of 10 statements each. In between each testing block, a second scenario was enacted in which the practitioner guessed the verity of the statement without performing MMT. The primary outcome was the percentage correct in the first testing scenario when the practitioner's screen was blank. The secondary outcome was the percentage correct in the second testing scenario when the practitioner guessed the verity of the TP's statement without MMT.

Results: A total of 25 unique practitioner—TP pairs were included in the study. The mean accuracy (1° outcome) was 68.8% with 95% confidence interval (CI) of 64.9—72.7%, and with a range of 55.0—87.5%. The mean accuracy for the guessing/control condition (2° outcome) was 48.4% (95% CI 45.0—51.8%). The years of a practitioner's MMT experience and self-ranked MMT expertise did not significantly correlate with a practitioner's MMT accuracy.

Conclusion: Manual muscle testing used to distinguish congruent from incongruent spoken statements is significantly more accurate than chance and, therefore, its use may have merit in the management of specific cases. The variation between practitioners, from highest accuracy to lowest, suggests there is much yet to be learned about the skills involved and possible influencing factors.

Improving flexibility with a mind-body approach: A randomized controlled trial using neuro emotional technique[☆]

Anne Jensen [*], Adaikalavan Ramasamy, Katie Marten, Michael Hall
*Corresponding author.
E-mail address: anne.jensen@wolfson.ox.ac.uk

Background: General flexibility is a key component of health and wellbeing. A lack of flexibility has been associated with an increased risk of developing musculoskeletal injuries and athletic underperformance. The cause of reduced flexibility can be multifactorial, with both physical and mental/emotional etiologies. It has been previously shown that stretching regularly may quickly improve flexibility; however, when it is discontinued, gains are promptly lost. An alternative intervention with greater durability is needed. We hypothesized that Neuro Emotional Technique (NET), a technique previously shown to be effective at reducing stress, may also be effective at improving general flexibility. The aim of this study was to examine the effects of NET, a mind-body technique, on general flexibility.

Methods: Forty-five healthy volunteers (23 men and 22 women) were recruited from the general population. This randomized controlled trial consisted of 1 experimental arm and 2 control arms with 15 participants in each arm. Prior to group allocation, general flexibility of each participant was assessed by a blind assessor. The primary outcome employed was the change in general flexibility through the Sit-and-Reach Test (SR) score. Participants also completed questionnaires about demographics; usual water and caffeine consumption; and activity level. In addition, participants completed an anxiety/mood psychometric. After initial assessment, participants were randomly allocated to a group: (1) experimental group, received two 20-min sessions of NET; (2) the active control group, receiving two 20-min sessions of stretching instruction; and (3) the passive control group, receiving no intervention or instruction. Following completion of all sessions, participants were re-assessed by the same blind assessor.

Results: Forty-three participants completed the study, with one person in the experimental group and one person in the active control group dropping out due to scheduling difficulties. Baseline data showed each group to be similar in demographics, usual water and caffeine consumption, and activity level. The mean (SD) of change in the SR scores for the NET group was +3.1 cm (2.5); for the Stretching Instruction group (active controls) was +1.2 (2.3); and for the passive controls was +1.0 (2.5). This shows that, while all three groups showed some improvement, the difference in improvement between the NET group and either control groups was statistically significant ($p < 0.05$). The difference between active controls and passive controls was not statistically significant. Usual water or caffeine consumption, activity level or psychometric scores did not predict or influence outcomes.

Discussion: Findings obtained in this study are unique because few studies have tested the effectiveness of a mind-body therapy on general flexibility. Limitations of this study include its lack of control for other potential confounders, such as other dietary influences and sleep amount or quality. In addition, while group allocation was not divulged, participants may have speculated. Future research in this area should focus on the acute effects of NET on flexibility, and also should include follow-up assessments to ascertain durability of effect.

Conclusion: The present findings suggest that NET may have a positive effect on SR test results.