

Effects of Yoga and an Ayurveda preparation on gait, balance and mobility in older persons

Comment to:

Effect of combined Taiji and Qigong training on balance mechanisms: A randomized controlled trial of older adults

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Dear Editor,

Six months of a combination of *Taiji* and *Qigong* training improved the balance in 33 healthy older adults compared to 16 others in a wait-list control group [1]. While evaluating the changes in sensory and biomechanical balance mechanisms, it was inferred that *Taiji-Qigong* improves balance through better vestibular inputs and wider stance.

Yoga is another Oriental practice which was shown to improve the hip extension, increase the stride length and decrease anterior pelvic tilt, hence improving the gait in older adults [2].

The present randomized controlled trial evaluated the influence of (i) Yoga and (ii) a poly-herbal Ayurveda preparation on measures of gait, balance and mobility in older people staying in a home. Sixty-nine older persons were stratified based on age (5 year intervals from 60 to 95 years) and gender. They were randomly allocated to three groups i.e., Yoga, Ayurveda and a Wait-list control group. There were 23 subjects in each group (with seven males in the Yoga group and six males each in Ayurveda and Wait-list control groups) with average ages (\pm S.D.) of 70.1 \pm 8.3 years, 72.1 \pm 9.0 years and 72.3 \pm 7.4 years, respectively.

All three groups were assessed at baseline and after six months for (i) gait and balance using the Tinetti balance and gait evaluation test [3] and (ii) mobility using the timed up and go (TUG) test [4]. The Tinetti test has different maneuvers related to balance (9 items) and gait (7 items). The test was scored using a three point ordinal scale. A score of 0 represented maximum impairment, while a score of 2 represented none. A score for gait and another score for balance was obtained for each person. For the TUG test participants sat in a chair placed 3 m from a wall. They were instructed to rise from the chair, walk at their normal pace to the wall, turn

around, return to the chair, and sit down. This task was timed and the number of steps taken was noted. Lower scores indicated higher levels of functioning.

The yoga session was for 75 minutes daily, for 6 days a week. It included loosening exercises (*sithilikarana vyama*, 5 minutes), breathing exercises (10 minutes), physical postures (*asanas*, 20 minutes), voluntarily regulated breathing (*pranayama*, 10 minutes), yoga-based guided relaxation (15 minutes) and devotional songs (*bhajans*, 15 minutes). This is an integrated approach of yoga, derived from principles in ancient yoga texts which described yoga as promoting health at all levels [5].

The Ayurveda group received a poly-herbal preparation (*Rasayana Kalpa* [i.e., a 'rejuvenating tonic'] in Sanskrit) which was not specifically targeted at improving balance. The dose was 10g twice a day [6]. It contained the following herbs (the Sanskrit names are given in parenthesis): *Withania Somnifera* (ashwagandha roots, 2 g), *Phyllanthus Emblica* (amalaki, 1 g), *Sida Cordifolia* (bala, 0.25 g), *Terminalia Arjuna* (arjuna, 0.25 g) and *Piper Longum* (pippali, 0.5 g). The other contents were: sugar (4 g), honey (2 g), water and clarified butter (*ghee*) in the amount required to get the correct semi-solid consistency.

The wait-list control group continued with their normal routine which included reading, watching television, playing indoor games and talking to friends.

The data were analyzed using a repeated measures analysis of variance (ANOVA) followed by *post-hoc* analyses with Bonferroni adjustment. All three groups had comparable baseline values with respect to measures of gait and balance as well as mobility. At the end of six months, the Yoga group (n=18 at follow-up) showed a significant increase in the overall scores for gait ($p<0.001$) and balance ($p<0.01$), while the Ayurveda (n=12 at follow-up) and Wait-list control (n=20 at follow-up) groups showed no significant change ($p>0.05$). For the TUG test both Yoga and Ayurveda groups showed a significant decrease in the number of steps taken to complete the test ($p<0.001$ and $p<0.01$, respectively).

Normal gait and balance depends on several factors including free joint mobility, appropriate timing and intensity of muscle action as well as normal sensory input [7]. Yoga practice improved the joint mobility in rheumatoid arthritis patients [8]. In persons with normal health there was an improvement

in the muscle strength [9], visual perceptual sensitivity [10] and the ability to balance on a stabilometer [11].

The changes in the present study may be attributed to the beneficial effects of yoga mentioned above, while the changes in the Ayurveda group could be related to improved muscle strength and better sensory perception as hypothesized in traditional Ayurveda texts [6].

Sincerely,

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