

# Tai Chi, Qigong and the Treatment of Dementia

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## ABSTRACT

Dementia includes a variety of cognitive impairments often associated with advanced aging. Individuals who have it have difficulty performing normal cognitive functions. Tai chi and qigong are forms of traditional Chinese medicine (TCM) that are being used to treat various kinds of dementia. This article summarizes some recent studies on the use of tai chi and qigong on patients suffering from dementia. Several studies have found that the use of tai chi or qigong have been significantly more beneficial in slowing down or even reversing mental decline when compared to the control group.

**Keywords:** Tai Chi; Qigong; Traditional Chinese Medicine; TCM; Dementia; Alzheimer's Disease; Cognitive Impairment

**Abbreviations:** TCM: Traditional Chinese Medicine; CDR: Clinical Dementia Rating; MoCA: Montreal Cognitive Assessment; CDR-SB: CDR-Sum of Boxes; TUG: Timed Up and Go; GDS: Geriatric Depression Scale; AMCI: Mild Cognitive Impairment; TDCS: Transcranial Direct Current Stimulation

## Introduction

Tai chi [1-5] and qigong [6-71] [pronounced chee gong or chee kung] are ancient forms of traditional Chinese medicine (TCM). They are both mind-body practices that involve breathing, mindfulness, meditation and a variety of slow, gentle movements. One might reasonably say that all tai chi includes qigong when practiced correctly, but not all qigong is tai chi. Tai chi originated as a martial art, but in recent years its focus has shifted more toward health benefits. Qigong is not considered a martial art. There is no need to go into the nuances between these two tools of traditional Chinese medicine except to say that qigong is easier to learn than tai chi. Both have been effective in treating Parkinson's disease [72], cancer [73-82], cognitive impairment [83-92] and a wide range of other ailments [93-101]. The purpose of the present article is to summarize and discuss how tai chi and qigong are being used to treat patients with dementia.

## Recent Studies

The internet and the PubMed [102] database were used to search for recent studies involving tai chi or qigong in the treatment of dementia. A recent study conducted in the United States [103,104] compared the effectiveness of stretching exercises (n = 106), standard tai

chi (n = 107) and cognitively enhanced tai chi (n = 105) on improvement of global cognition and dual-task walking costs in 318 older adults who had self-reported memory decline and a Clinical Dementia Rating (CDR) global score of 0.5 or less at baseline. The primary measurements used were changes in Montreal Cognitive Assessment (MoCA) having a range of 0-30 and dual-task walking costs measuring the difference between single and dual-task gait speed from the baseline to 24 weeks, measured in percentages. Secondary outcomes included Trail Making Test B, Digital Span Backwards, CDR-Sum of Boxes (CDR-SB) and physical performance tests. Assessments were at 16, 24 and 48 weeks. Three hundred and four (304) of the 318 participants completed the 24-week assessment. The cognitively enhanced tai chi group outperformed the other two groups at the end of 24 weeks; the effects persisted at 48 weeks as well. The conclusion was that the cognitively enhanced group's therapy was superior to that of the other two groups. The 24-week program consisted of practicing tai chi two hours a week for the 24 weeks. The cognitively enhanced group performed the normal tai chi moves, but also uttered words and phrases while holding the various tai chi positions that were designed to improve balance and flexibility.

The tai chi enhanced group experienced three times greater improvement in cognitive skills compared to the stretching group. Li, et

al. [105] provided cognitive training for mild cognitive impairment to two groups. One of the groups also received tai chi training. In the first 12 months, the tai chi group had additional positive effects. The tai chi group received additional training after the first 12 months with the result that cognitive impairment was further delayed. Liu, et al. [106] assessed the effectiveness of tai chi improving cognitive, physical and emotional function among persons with dementia by conducting a systematic review of research on online databases. One group added tai chi to their regular exercise routine while the control group merely did exercise without the additional tai chi training. They found that tai chi improved cognitive function with people who have dementia ( $p = 0.007$ ) but might not improve Timed Up and Go (TUG) and Geriatric Depression Scale (GDS) scores. Wang, et al. [107] searched various databases and found 40 randomized control trials that concluded that tai chi and qigong can improve cognitive function in patients with neurological disorders. They concluded that tai chi and qigong were effective in improving cognition in patients with Parkinson's disease, stroke, dementia, traumatic brain injury and mild cognitive impairment. Yang, et al. [108] examined whether non-pharmaceutical multi-component exercise training that combined tai chi with aerobics and theraband therapy has a positive effect against age-related neurocognitive and physical deterioration in elderly people who have mild cognitive impairment (aMCI).

Evaluations were performed before and after 12-weeks intervention and also after 24-week follow-up. The study found that the intervention resulted in significant improvement in various neurocognitive functions, especially in memory and frontal-related cognition, as well as better performance on functional fitness, including cardiopulmonary endurance, agility and muscle strength. The beneficial effects remained after 24 weeks. The study concluded that such intervention may protect against age-related neurocognitive and physical deficits and could delay, or even reverse, the progression of MCI to dementia. Yi, et al. [109] conducted a study whereby adults over 65 either walked in an urban forest or did qigong exercises in the same forest. Both groups participated in twelve two-hour sessions over a six-week period. Neurological scores were computed for cognition, geriatric depression and quality of life. Electroencephalography, bioimpedance and heart rate variability were measured. Both groups were shown to have had distinctive neuropsychological and electrophysiological benefits as well as beneficial effects in terms of preventing dementia. The qigong group showed alleviated depression and an increased bioimpedance phase angle in the upper body. Xu, et al. [110] conducted a randomized trial to assess the effect of tai chi combined with transcranial direct current stimulation (tDCS) on the improvement of cognitive function of patients having mild cognitive impairment (MCI). The single-blind trial of 180 participants was conducted from April, 2018 to February, 2020.

Participants were divided into four groups – tai chi combined with tDCS (TCT), tai chi combined with sham tDCS (TCS), walking combined with tDCS (WAT) and walking combined with sham

tDCS (WAS). Assessment for global cognitive function, attention, executive function and memory was done at baseline and after 12 weeks. The TCT group showed significantly greater improvement in MOCA scores, memory quotient scores and digit-symbol coding task reaction time compared to the other three groups ( $p < 0.05$ ). Hsu, et al. [111] conducted a randomized controlled trial of 80 Taiwan patients having mild to moderate cognitive impairment to determine whether a three-month program using Chan-Chuang qigong would be effective in improving muscle strength, muscle endurance, exercise capacity and quality of life. The qigong group showed significant improvement over the control group in muscle strength, muscle endurance and exercise capacity after two and three months ( $p < 0.05$ ). Physical quality of life improvement was significant for the qigong group ( $p = 0.01$ ) but differences in mental quality of life between the two groups was not significant ( $p = 0.83$ ).

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None.

## Conflict of Interest

None.

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