MANAGING MODERN COMPLEX HEALTH CONDITIONS WITH A ANCIENT MINDFULNESS EXERCISE - TAI CHI.

What does the current evidence tell us?

Jenny Lucy
Senior Physiotherapist
Wheatbelt Health Network Northam
Physio-Chi Owner and Trainer
www.physio-chi.com

What is Tai Chi?

- Tai Chi is form of mindfulness mind-body exercise that is based on slow, flowing choreographed movements.
- Tai Chi is not just for older or frail adults, it has something to offer every age.
- Traditionally Tai Chi is the soft end of the martial arts. “Tai Chi Chuan” Tai Chi’s formal name translates as “supreme fist” with tai chi’s origins in the martial arts and being used for self-defence.
- Although tai chi began as a martial art, it has been influenced by the Chinese healing arts and philosophy.
- While most exercise requires you to push yourself harder, Tai Chi relaxes your body, so your body moves more freely, integrating your entire Musculo-skeletal system instead of isolating certain muscle groups.
- All these features combine to produce a form of exercise that carries over in practical ways to help function in everyday life.

Tai Chi versus Qigong

Tai Chi promotes the flow of qi, life force energy. Qigong is also mind body exercise, with more similarities to tai chi than differences. Both involve good posture, gentle movements, integrate breath and movement, and use cognitive skills such as imagery and visualisation to heighten awareness.

There are many styles of tai chi, each style named for the family who developed them, the earliest dated to the 17th century. There are many offshoots of these styles, and new ones are evolving constantly. Some feature shortened and simplified routines.

Meditation in Motion:

The meditative state you are in during tai chi may help explain its broad benefits, which are far beyond what you would expect from moderate physical activity. Meditation develops new brain cells connections and changes in the brains physical structure, resulting in better cognitive skills, such as learning and memory.

Meditating has also been shown to engage the frontal lobe connections that directly influence the brains limbic system, which controls emotions.

For the person who struggles to clear their mind to meditate, the active meditation of tai chi enables participants to focus on breath and movement and achieve the calm meditative state of mind.

The Eight Ingredients of Tai Chi

As described by Peter M Wayne Ph.D. Medical Editor of Harvard Health Publishing ,a researcher on tai chi at Harvard Medical School ,published in a special health report "An Introduction to Tai Chi" in 2015:

The research of the eight active ingredients of Tai Chi is a conceptual framework to evaluate the clinical benefits of Tai Chi, these are all synergistic and interwoven.

1. Awareness
2. Intention
3. Structural Integration
4. Active Relaxation
5. Strengthening & Flexibility
6. Natural, freer breathing
7. Social Support
8. Embodied Spirituality

What does the current evidence tell us?

The first RCT of Tai Chi was published in China in 1988, Tai Chis emergence as a mainstream form of exercise appears to parallel the scientific study of Tai Chi.

"From sensori-motor to dual tasking of postural control- a Tai Chi solution to balance disorders in older adults." William Tsang PT PH.D. Professor William Tsang, Dept Physiotherapy, Open University of Hong Kong.

- The world population is aging, by 2050 20% of the world's population will be 60 years or older, 20 % will be 80 years and older.
- Falls in elderly, some 35% of older adults aged >65 years fall once or more per year. (Tinetti et al 1988.)
- Fall rate increase with age 34% 65 to 74 years age, 35% 75 to 84 years age, 51% 85+ years age. (Whitney et al.)
- Fall related injuries are the leading cause of death in this age group.

- Balance Control & Aging- degeneration in the vestibular sensory epithelium causes a 40% reduction in subjects 70 years + (Rosenthal & Rubin 1975)
  Impaired vision, multiple fallers have impaired depth perception, contrast sensitivity and low visual acuity (Lord & Dayhew 2001)-
  Decreased joint proprioception (Yan & Hui-Chan 2001)-
  Decreased muscle strength 20-40% from ages 20 to 70s(Stahlberg et al 1989)-
  A relationship between knee and ankle weakness exists (Whipple et al 1987)
- Elderly Tai Chi practitioners in a posturography trial had reduced body sway, the elderly Tai Chi practitioners attained the similar level of balance control performance as young healthy subjects under what could be considered more functional contexts. (Tsang, Wong, Fu & Hui-Chan 2004.)
- Findings showed that subjects who had practiced Tai Chi for 8.5 years achieved significantly greater knee extensor and flexor strength. (Tsang & Hui-Chan 2005)
- Tai Chi practitioners attained significantly faster movement times versus no difference in simple finger pointing task, with better accuracy and less wrong movements than the control subjects. (Kwok, Hui-Chan & Tsang 2010).

RESEARCH ABSTRACTS

1. Tai Chi for falls prevention: the effect of group exercise.

Binns,E; Taylor,D;Hale,L; Schluter,P; et al

Abstract: To investigate the effectiveness of a modified Tai Chi programme compared with a low-level exercise programme to reduce falls in a community dwelling older adult with a falls risk. About a third of adults over 65 years will experience a fall in any one year.

Results: Participants in a once per week Modified Tai Chi class reduced falls 64%, twice per weeks class 63%, once per week low level exercise class 50% reduction in falls risk.

Social contact was second most important benefit stated.

Published 2011

2. Tai Chi for Risk of Falls. A Meta-analysis

J Am Geriatr Soc.2017 Sep;65(9);2037-2043

Raphael Lomas-Vega, Esteban Obrero-Gaitan, Francisco J Molina-Ortega, Rafael Del- Pino-Casado.

Abstract: To analyse the effectiveness of tai chi for falls prevention.

Results: In at risk adults and older adults, tai chi practice may reduce the rate of falls and injury-related falls over the short term (<12 months) by approximately 43% and 50 % respectively.

3. Effects of Mind-Body exercises (Tai Chi/Yoga) on Heart Rate Variability Parameters and Perceived Stress: A Systematic Review with Meta-Analysis of Randomised Controlled Trials

Liye Zou; Jeffer Eidid Sasaki; Gao-Xia Wei; Tao Huang; Albert S. Yeung, Octavio Barbosa Neto; Kevin W. Chen and Stanley Sai-chuen Hui

Journal Of Clinical Medicine Published 31 October 2018.

Abstract: Background: Heart rate variability (HRV) as an accurate, non-invasive measure of the ANS can reflect mental health (e.g Stress, depression, or anxiety). Tai Chi and Yoga as the most widely practiced mind-body exercises, have shown positive outcomes of mental health. HRV has been increasingly applied clinically and research fields for its ability to monitor the dynamic equilibrium between sympathetic and parasympathetic nervous activity. Generally, a high resting HRV reflects good health and high tolerance for stress and resilience, while reduced HRV is associated with a higher risk to develop mental illness as well as a slow recovery process.

Results: This current meta-analysis provided strong support about the positive effects of Tai Chi/Yoga on HRV parameters and perceived stress.

4. Tai Chi Exercise in Patients with Chronic Heart Failure:

A Randomised Clinical Trial

Dr Gloria Y.Yeh, MD, MPH, Dr Ellen P. McCarthy, PhD, Dr Peter M. Wayne, PhD, et al

Arch Intern Med. 2011 April25;171(8):750-757.

Abstract: Background was to investigate whether tai chi, as an adjunct to standard care, improves functional capacity and quality of life in patients with HF.

Results: At completion of the study there were no significant differences in the change in 6 minute walk distance and peak oxygen uptake when comparing tai chi and control groups; however patients in the tai chi group had greater improvements in quality of life (Minnesota Living with HF Questionnaire)

5. Tai Chi Exercise for Treatment of Pain and Disability in People with Persistent Low Back Pain: A Randomised Controlled Trial

Amanda M. Hall, Chris G. Maher, Paul Lam, Manuela Ferreira and Jane Latimer

Arthritus Care & Research, Vol 63, No.11, November 2011, pp1576-1583.

Abstract: Objective: To determine the effect of tai chi exercise on persistent low back pain. 160 volunteers with persistent nonspecific low back pain.

Results: Tai chi exercise reduced bothersomeness of back symptoms by 1.7 on a 0-10 scale, reduced pain by 1.3 on a 0-10 scale, and improved self-report disability by 2.6 points on the 0-24 Roland-Morris Disability Questionnaire Scale. It showed that a 10-week tai chi programme of 18 x 40-minute sessions improved pain and disability outcomes and can be considered a safe and effective intervention for those experiencing long-term low back pain symptoms.

6. Treating Depression with Tai Chi: State of the Art and Future Perspectives

Jian Kong, Georgia Wilson, Joel Park, Kacie Pereira, Courtney Walpole, and Albert Young.

Front. Psychiatry 10:237.12 April 2019

Abstract: Major Depressive Disorder (MDD) is one of the most prevalent mental illnesses in America. Current treatments for MDD are unsatisfactory given high non-response rates, high relapse rates, and undesirable side effects. Accumulating evidence suggests that Tai Chi can significantly regulate emotion and relieve the symptoms of mood disorders.

The findings recommended Tai Chi could be a potential solution to the shortage of mental health providers worldwide. A modified Tai Chi was recommended to exclude the complex transitions of traditional forms of Tai Chi, making it easier to learn and potentially a stronger intervention.

While Tai Chi has demonstrated its potential in mood regulation and relieving depressive symptoms, its underlying mechanism of action requires further research.

7. Mindfulness-based interventions in multiple sclerosis: beneficial effects of Tai Chi on balance, coordination, fatigue and depression.

Janina M Burschka, Philipp M Keune, Ulrich Hofstadt-van Oy, Patrick Oschmann and Peter Kuhn

BMC Neurology 2014, 14:165

Abstract: Tai Chi is particularly suitable for patients with motor deficits as it challenges coordination and balance. The purpose of the study was to explore the therapeutic value of structured Tai Chi training for coordination, balance, fatigue, and depression in mildly disabled patients with MS.

Results: following the intervention, the Tai Chi group showed significant, consistent improvements in balance, coordination, and depression, relative to the TAU (treatment as usual) group. Additionally, life satisfaction improved. Fatigue increased in the TAU, whereas it remained stable in the Tai Chi group.

8. A randomised controlled trial of 8-form Tai Chi improves symptoms and functional mobility in fibromyalgia patients.

Kim D. Jones, Christy A. Sherman et al.

Clin Rheumatol. 2012 August; 31(8):1205-1214.

Abstract: Previous researchers have found that 10-form Tai Chi yields symptomatic benefit in patients with fibromyalgia (FM). The purpose of this study was to further investigate earlier findings and add a focus on functional mobility. The study conducted a parallel-group RCT FM modified Yang-style Tai Chi programme compared to an education control. 101 subjects randomly assigned those in the Tai Chi group compared to the education group demonstrated clinically and statistically significant improvements in FIQ scores (Fibromyalgia Impact Score), BPI pain severity, BPI pain interference, sleep, and self-efficacy for pain control. Functional mobility variables included TUG, static and dynamic balance, were significantly improved with Tai Chi compared to the education control.

The education control met parallel to Tai Chi condition in amount of time and attention.

9. Effect of tai chi versus aerobic exercise for fibromyalgia: comparative effectiveness randomised controlled trial

Chenchen Wang, Christopher H. Schmid et al

BMJ 2018;360:k851

Abstract: To determine the effectiveness of tai chi interventions compared with aerobic exercise, a current core standard treatment in patients with fibromyalgia; and to test whether the effectiveness of tai chi depends on its dosage or duration.

Results: Tai Chi mind-body treatment results in similar or greater improvement in symptoms than aerobic exercise, the current most commonly prescribed non-drug treatment, for a variety of outcomes for patients with fibromyalgia. Longer duration of Tai Chi showed greater improvement.

10. Tai Chi and Postural Stability in Patients with Parkinson's Disease

Fuzhong Li, PhD., Peter Harmer, PH.D., et al

N Engl J Med. 2012 February 9;366(6):511-519

Abstract: People with Parkinson's have substantially impaired balance, leading to diminished functional ability and an increased risk of falling. Although exercise is encouraged by health care providers, few programs have been proven effective.

Results: The tai chi group performed consistently better than the resistance-training and stretching groups in maximum excursion (limits of stability tests) and in directional control. The tai chi group also performed better than the stretching group in all secondary outcomes (gait, strength, functional reach, TUG, motor scores and Unified Parkinson's Rating Scale and number of falls). Results maintained 3 months post intervention.

Tai Chi training appears to reduce balance impairments in patients with mild-moderate Parkinson's disease, with additional benefits of improved functional capacity and reduced falls.

11. Tai Chi exercise versus rehabilitation for the elderly with cerebral vascular disorder: a single-blinded randomised controlled trial

Wenchao Wang, Masayuki Sawada et al

Pyschogeriatrics 2010; 10:160-166

Abstract: Purpose of the study was to examine the cognitive effect on the elderly with CVD using P300 measurement, in addition to the General Health Questionnaire (GHQ) and Pittsburgh Sleep quality Index (PSQI).

Results: There were significant effects on Sleep Quality, GHQ, anxiety/ insomnia score and severe depression score. Tai Chi may be a useful adjunct to rehabilitation for the maintenance of cognitive function, and for the improvement of sleep quality and depressive symptoms in the elderly.