

Tai Chi for Fall Prevention

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Abstract

Treatment of injuries, due to falls, is one of the most expensive health conditions. Evidence has shown tai chi being one of the two effective exercises to prevent falls. Dr Paul Lam's "Tai Chi for Arthritis" program is proven by the world largest study on older adults for fall prevention, and also to improve health and the quality of life.



Update – CDC Recommends Tai Chi for Arthritis for fall prevention.



NB: CDC recommends the *Tai Chi for Arthritis* program which is exactly the same as *Tai Chi for Arthritis and Fall Prevention* except the later has additional emphasis on fall prevention. Both programs are evidenced based to effective at preventing falls.

[U.S. Administration for Community Living Falls Prevention Grantee Tai Chi for Arthritis Information and Guidance.](#)

Falls and Tai Chi

According to the US Centers for Disease Control and Prevention (CDC), one in three adults over the age of 65 fall each year. Treatment of injuries due to falls is the most expensive health cost, estimated 2015 by CDC to be 31 billion dollars per year in USA.

There are many studies on measures to prevent falls. [A recent review of 111 randomised trials](#) involving over 55,000 subjects singled out tai chi and individually prescribed exercise programs to be effective. There remain skeptics who see tai chi as too gentle an exercise to have such significant effects. True, tai chi movements appear to be gentle and graceful, but like the force beneath a seemingly calmly flowing river, tai chi movements contain much power and internal strength. What is fascinating is that the fear of falling often results in more falls; hence, confidence in "not falling" will help to reduce falls. With regular practice, tai chi improves balance by strengthening muscles and co-ordination; at the same time, it strengthens the mind, thereby improving calmness and confidence in not falling. Thus, both physically and mentally, tai chi is an extremely effective exercise for fall prevention. A great bonus, at the same time, tai chi also improves almost all aspects of health!

An Evidence Based Approach

In addition to established manuals and consistent instructor training world-wide, the Tai Chi for Arthritis program is evidence based. The following are several examples.

Similar to other western countries, the New South Wales Health Department of Australia experiences high costs related to injuries due to falls—far higher than from injuries of any other source including road trauma.^{iv} In 2001, the Department funded the [world's largest fall prevention study](#) in a community setting. The majority of participants were taught the Tai Chi for Arthritis program. ^{vi} This study found that recurring falls were reduced by nearly 70%. It also found that building confidence—a fundamental component of the Tai Chi for Arthritis program—correlates closely to the reduced rate of falling. This study was one of the two listed on the CDC official site as evidence of tai chi preventing falls.





Since then, and based on the evidence of the study, the New South Wales Health Department has funded many tai chi for fall prevention programs using Tai Chi for Arthritis. One of these was conducted in the town of Ford. For two years, approximately 20% of the population participated in tai chi classes. An evaluation by the Health Department, taken of the 576 persons age 65 or over, sampled 31 participants. It was found that 99% of the participants had improved balance and flexibility and 100% improved strength.

In addition to the New South Wales Health Department, the Aged Care Department in Victoria, the South Australia Health Department, and Sport and Recreation Department, among others around the world, have funded training for Tai Chi for Arthritis programs.

A Greater South Health Area Service (GSHAS) program [was studied by the Australian National University](#). The GSHAS, which covers a total population of 452,643 distributed over an area of 166,000 square kilometers, has implemented and provides ongoing support for the Tai Chi for Arthritis program on a not-for-profit basis for eight years. A research team from the Australian National University studied the recent three years (Feb 2007 to June 2010) during which the Tai Chi for Arthritis program was followed by 1.7% of the target population. There were 119 classes in 49 locations at a cost estimated to be 76 AU\$ per person per year. The outcome shows significant improvement in fall rate and general well being. Interestingly, falls and fear of falling are a relatively minor factor in participants' motivation to join the tai chi classes. Instead, people keep coming to tai chi classes because they experience a range of physical, social and cognitive benefits which they find overwhelmingly positive. These benefits include improvements in physical function, psychological health and well-being, and social vigour—all relatively evenly distributed among the participant body. Such benefits address a range of issues which pose challenges for the elderly and ageing population in rural communities.



In 2000, the Accident Compensation Corporation (ACC) in New Zealand, a national government body that has a no-fault policy and compensates all accidents and injuries in the country, realised that prevention is often much cheaper than treatment. Their medical experts recommended using tai chi, among other exercises, to prevent falls. Being new to tai chi, the ACC's initial foray into contracting for tai chi instruction was met with several challenges. For example, instructors taught different styles of tai chi, making it difficult to assess outcome and enforce safety standards; one major provider, who franchised instructors nationally, based the teaching on Chen style, which was too complex and martial. Additionally the teaching methodologies were not geared to learning styles of older adults and did not focus on safety. However, once the ACC adapted the less complex and easier to learn Tai Chi for Arthritis program, more positive results were obtained.

As the ACC discovered, tai chi encompasses a vast number of styles and forms; plus there are a myriad ways of teaching tai chi. In translating medical evidence to benefit a community, not only is content important, but equally so is the teaching method. The ACC worked with Dr Lam to install a training program that included safety and quality control. Within a year, instructors were trained and excellent quality was maintained with minimal cost. By 2009, approximately 80% of the ACC's 700 trained instructors were using the Tai Chi for Arthritis program, delivering Tai Chi to over 35,000 people.

How Tai Chi Works

No matter what forms of tai chi, if specific tai chi principles are incorporated into tai chi practice, the result will be better balance and reduced falls. The principles are:

1. Movement control

Tai chi movements are slow, smooth and continuous, helping to strengthen internal muscles, like the deep stabilisers that support and strengthen the spine. Additionally, tai chi practitioners move against a gentle resistance to build full muscular strength. Slow and smooth movements calm the mind, helping to reduce falls resulting from sudden movements that lead to significant blood pressure drop, especially in elder people taking medication that can cause change of blood pressure.



2. Weight transference

Tai chi practitioners are mindful of transferring weight with each step, helping to improve mobility, coordination and balance. This, in addition to emphasis on upright and supple posture, further strengthens muscles.

3. Integration of mind and body

Tai chi is an internal art, which stresses the integration—and balance—of mind and body. Tai chi practitioners focus, calm their minds, and loosen and relax their joints and ligaments. A number of studies indicate that being confident results in less falls, since the fear of falls increases the risk of falling. Practicing a mindbody exercise, such as tai chi, builds confidence, thus alleviating the fear of falling.



Why Tai Chi for Arthritis for Fall Prevention Works

Factors that make the Tai Chi for Arthritis program so effective include a high standard and consistent training of instructors throughout the world—one of the reasons CDC has listed this program and is promoting it for fall prevention.

Tai Chi for Arthritis incorporates a progressive stepwise teaching method that simplifies and enhances the student's ability to learn. The teaching method also encourages students through specific positive feedback and minimal corrections, thereby enhancing their enjoyment of learning and creating a sense of achievement. Instructor training

also includes understanding the principles listed above and working with students to incorporate them into real life situations. Because of the allure of the Tai Chi for Arthritis form itself and the standardised teaching method, students tend to adhere to this tai chi program much more than in a regular exercise program.

Extra Benefit: Reduction of the Burden of Chronic Diseases.

Investing in tai chi programs can have cost savings in other areas. As the practice of tai chi improves many aspects of health, it can also be an ideal preventive intervention. The U.S. National Institute of Health's National Center for Complementary and Alternative Medicine suggests that people practice tai chi for a variety of health-related purposes, such as:

- for benefits associated with low-impact, weight-bearing, aerobic exercise;
- to improve physical condition, muscle strength, coordination, and flexibility;
- to improve balance and decrease the risk for falls, especially in elderly people;
- to ease pain and stiffness—for example, from osteoarthritis;
- to improve sleep;
- for overall wellness.





The largest study about the practice of tai chi by people with arthritis, published in the *Arthritis Care and Research Journal*, found that the Tai Chi for Arthritis program not only reduced pain, but also improved the quality of life. It has also been found to improve standing balance for people with strokes as well as six out of eight measurements of quality of life for older adults. A study, published in the *Journal of Alternative and Complementary Medicine*, followed 82 older women divided into tai chi and control groups. After six months, those practicing tai chi significantly increased knee extensor endurance and bone mineral density and had less fear of falling than the control group.

A most exciting study has shown regular tai chi practice improves genetic components that are associated with health and wellness at the molecular level, e.g. tai chi practitioners have improved chromosomal markers relating to health and significant slowing (by 5–70%) of the age-related methylation losses.

The May 2009 issue of the Harvard Health Newsletter suggests that while tai chi is often described as “meditation in motion”, it could well be called “medication in motion”. For, in addition to preventing falls, tai chi programs have been shown to be helpful for a number of medical conditions including: arthritis, lower back pain, low bone density, breast cancer and its side effects, heart disease and heart failure, hypertension, Parkinson’s disease, sleep problems, and stroke.



“A growing body of carefully conducted research is building a compelling case for tai chi as an adjunct to standard medical treatment for the prevention and rehabilitation of many conditions commonly associated with age,” says Peter M. Wayne, assistant professor of medicine at Harvard Medical School and director of the Tai Chi and Mind-Body Research Program at Harvard Medical School’s Osher Research Center.

Tai Chi Has an Important Role in the Future of Health Management.

Research has demonstrated that the practice of tai chi improves many components of health. Tai Chi for Arthritis, in particular, has been shown to help prevent falls and improve health and the quality of life. Additionally, it may prevent and/or improve the management of chronic diseases, particularly for our ageing population, and thus be an effective measure to save significant health care costs. The Milken Institute reports that the annual economic impact on the U.S. economy of the most common chronic diseases is calculated to be more than one trillion dollars. However, if the impact of seven chronic diseases—diabetes, pulmonary conditions, hypertension, mental disorders, heart disease, cancers and stroke—could be prevented, by midcentury the annual GDP could be reduced by six trillion dollars a year. Tai chi has an important role to play in preventing these chronic conditions and improving health and wellness.

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