

T'AI CHI FOR THE ELDERLY

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T'ai Chi is becoming increasingly popular in the United States as both an ideal exercise for lifelong well being and as a complementary therapy in health-care settings that serve geriatric populations. This article will answer the following questions: What is T'ai Chi? What are the health benefits of T'ai Chi? How is it different from other forms of exercise? How does it benefit the elderly population? What are some examples of using T'ai-Chi in treatment programs for the elderly? How does one go about learning it and applying it to treatment?

WHAT IS T'AI CHI?

T'ai Chi is a slow, graceful Chinese exercise that enhances relaxation skills, mental focus, and physical alignment while building leg strength, endurance, and stability.¹ Also written as "T'ai Chi Ch'uan", "Taiji," or "Taijiquan," it is ideal for increasing stamina, flexibility and coordination. Most traditional forms take 12-20 minutes to perform and over 1 year to learn. Although there are a variety of interpretations and styles, all authentic T'ai Chi forms are characterized by certain postures and patterns of movement (Figure 1). Even though it looks quite simple to do, it takes years to master the depths and subtleties of T'ai Chi.

T'ai Chi was originally developed by Chinese martial arts experts around the 13th century A.D. in order to advance their skills. It is a synthesis of martial arts exercise and sitting meditation. Tradi-

tional T'ai Chi forms incorporate highly complex movement patterns throughout the entire sequence which are based on blocks, kicks and punches. T'ai Chi is a form of Qigong, a Chinese term for energy cultivation.

For many centuries, T'ai Chi was practiced privately, passed on from father to son in the Chen Village in northern China. Beginning in the mid-1800s it became popular in martial arts circles as an advanced self-defense method. In the early 20th century, T'ai Chi became popular in China as a health exercise. Adults of all ages practice the flowing postures every day. Many older adults begin learning Tai Chi after retirement.

In the late sixties, T'ai Chi began to take root in the United States and Europe. Grand master Cheng Man Ching, of the Yang Style lineage, came to New York and was one of the first to teach this ancient exercise openly to non-Chinese students. Since then, thousands of students across the United States and Europe are finding this combination of movement and mental focus an excellent approach to maintaining health.

WHAT ARE THE HEALTH BENEFITS OF T'AI CHI?

In the past decade, medical researchers have begun to study the physical and emotional health benefits of practicing T'ai Chi.² A small number of randomized, controlled studies have pointed to the positive effects of T'ai Chi practice on cardiovascular systems,^{3,6} physical bal-

ance,⁷⁻¹⁰ and emotional health.^{4,11} In addition, a preliminary study suggests that the practice of T'ai Chi may have a positive impact on the immune system at the cellular level.¹²

Although there is a need for continued research on the health benefits of T'ai Chi, preliminary, randomized studies suggest T'ai Chi has positive emotional and physical health outcomes.

HOW DOES T'AI CHI DIFFER FROM TRADITIONAL THERAPEUTIC EXERCISE?

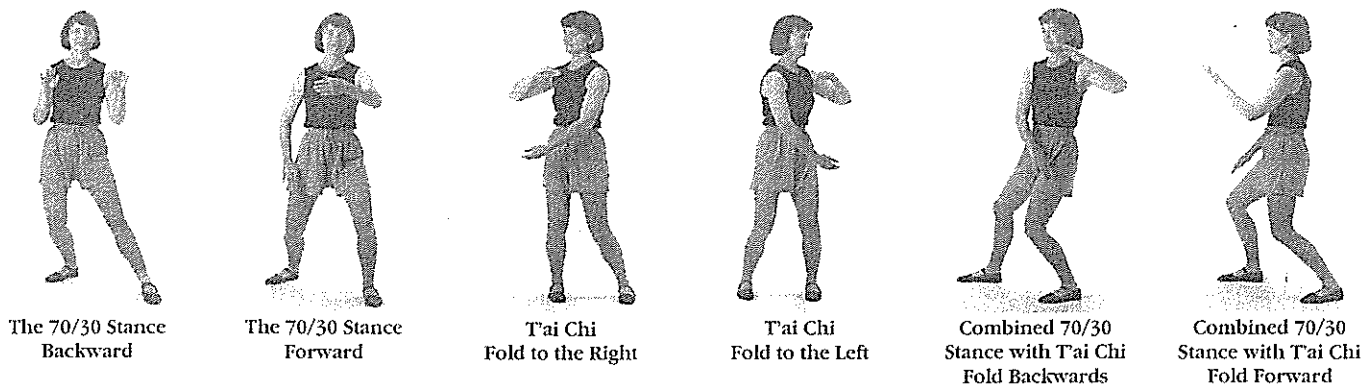
Mind-body Exercise

T'ai Chi is an exercise that recognizes the mind-body connection. A T'ai Chi class or practice generally begins with a few moments of quiet while focusing on slow, natural breathing to help calm the mind, relax the body, and bring attention in to the present moment. This process of *centering* is rarely seen in our western forms of exercise. By taking time to center, clients are less likely to allow their mind to wander which can increase tension in the body and can affect performance of the form. For those of you who have practiced any type of exercise requiring balance, you understand the need for a strong focus on the present moment.

Attention to Breathing and Posture

Although we were taught in great detail about the importance of good posture in physical therapy classes, there is generally very little taught about the im-

Figure 1. Basic T'ai Chi Postures and Movements



(Explanation of Figure 1 can be found in the box on page 24.)

portance of breathing other than it being a respiratory exchange of carbon dioxide and oxygen. Deep breathing, segmental breathing, and diaphragmatic breathing patterns are utilized when a pulmonary condition exists, however, not as a routine component of exercise. In Eastern cultures, the process of breathing has always been considered inseparable from health. In Chinese, the word "chi" or "qi" describes "vital energy" and breathing is central to this. To optimize the flow of "qi", it is important to relax and let each breath be deep and long. The entire T'ai Chi form is performed with natural diaphragmatic breathing. Breathing awareness is a vehicle for bringing attention to the present moment. By maintaining a slow, deep, and even breathing pattern throughout the form, T'ai Chi becomes a very safe exercise for those with cardiopulmonary conditions. Following some basic guidelines on breathing awareness and control, clients can begin to decrease their resting heart rate and respiration rate.

The beginning posture in T'ai Chi is called "the horse stance." It promotes diaphragmatic breathing by the way in which it emphasizes relaxed and natural body alignment. The head is "as if suspended from above" at the crown. Both feet are flat, parallel, and hip-distance apart. The knees are slightly bent and weight is evenly distributed between the feet. Teaching and learning the form requires a continual emphasis on posture.

Slow, Relaxed Movement

Most exercise programs focus on exertion and straining as a means of achieving increased strength and endurance. T'ai Chi facilitates both strength and endurance through slow, relaxed move-

ment. With the knees bent and the body relaxed in proper alignment, dramatic load-bearing benefits occur. The continuous movement in a flexed stance promotes endurance. The slower and lower the movement, the greater the strength and endurance benefit.

Integrated Movement

The head, trunk, and pelvis rotate as a single *column* aligned over the stable base of the feet. All arm and hand movements are initiated by the upright rotation of the *column*. There is no twisting of the spine.

Weight Separation

During transitions and weight shifts onto the back foot, the weight is ideally one hundred percent on one foot, keeping the body upright. Commonly referred to as *separating the weight* or *empty leg and full leg*, it contributes to better balance and increased leg strength.

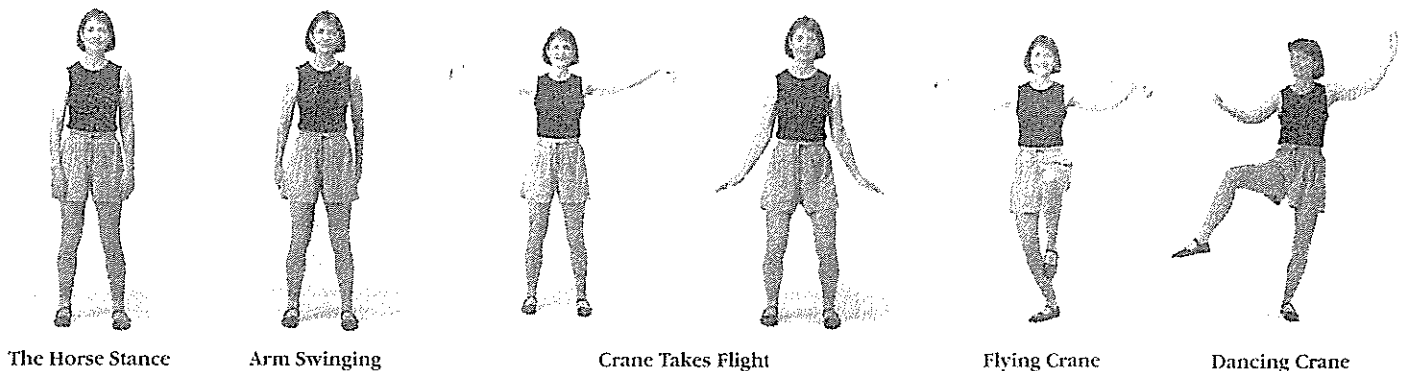
HOW DOES T'AI CHI BENEFIT THE ELDERLY POPULATION?

The T'ai Chi Fundamental Form, a shortened Yang style form developed by Tricia Yu,¹ is ideally suited for the elderly population. To simplify the learning process of the form, it has been broken down into twelve movement patterns. These movement patterns are a series of exercises that are practiced to reinforce the body positions repeated throughout the Fundamental Form. Like the Fundamental Form, the specific Movement Patterns follow a motor development progression and can constitute a complete exercise program on their own. Central to the performance of each movement pattern is the emphasis on diaphrag-

matic breathing. Because older adults often develop shallow breathing patterns, instruction in slow, deep breathing is of great benefit. It helps to prevent a potential rise in blood pressure during exercise and contributes to lowering the resting heart rate.

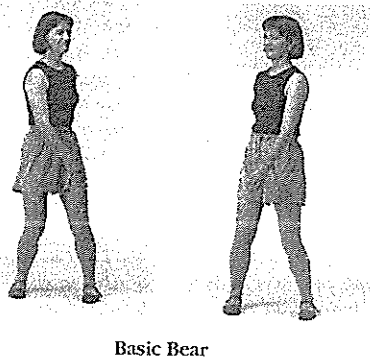
The first movement pattern is called *arm swinging* (Figure 2) and it reinforces the concept of relaxed arm movement. Many older adults need to learn how to release tension in the shoulders and upper body before beginning the T'ai Chi form. This exercise not only teaches that concept but also helps those who have lost normal arm swing during gait. The next movement pattern, *Crane Takes Flight* (Figure 2) teaches the bent knee position which is maintained throughout the form while raising the relaxed arms against gravity. In addition to the strength and flexibility benefits of this pattern, functionally it can be used for transfer training. Progressing from practicing with support to without support can also enhance balance. Other movement patterns progress from weight shifting in double limb support to maintaining single limb support. The benefits to the elderly in terms of balance have been well documented in the FICSIT (Frailty and Injuries: Cooperative Studies of Intervention Techniques) studies which were research projects funded by the National Institute on Aging. In a meta analysis of the results from 8 FICSIT sites, moderate, regular exercise including T'ai Chi had a positive effect on reducing reported falls in the elderly.⁷ In two of the movement patterns, "The Flying Crane" and "The Dancing Crane" (Figure 3), balancing on one foot in a continuous weight-shifting pattern challenges both static and dynamic balance.

Figure 2



Arm movements can be added later when support is no longer needed. Following are some examples of how T'ai Chi has been used with actual geriatric clients.

Figure 3



INCORPORATING T'AI CHI INTO TREATMENT

T'ai Chi can be successfully incorporated into treatment programs for many different types of diagnoses with the elderly population. Some of these diagnoses include: arthritis, CVA, auto-immune disease, chronic back pain including spinal stenosis, balance disorders, orthopedic conditions including hip and knee replacements and cardiopulmonary disorders. Any geriatric client with a history of anxiety or depression may appreciate this approach. Many T'ai Chi forms, including the T'ai Chi Fundamental Form¹ and the ROM Dance¹³ (based on T'ai Chi) are on video and help to increase compliance for those who have Video Cassette Recorders (VCRs).

Following are some actual examples of clients who have benefited from T'ai Chi. (1) E.L. was an 80-year-old male who fell and fractured his left proximal humerus. Because of his medical history which included diabetes, high blood pressure and poor circulation, surgical repair was not considered. He wore a sling for eight weeks and was then referred to physical therapy. On initial examination, E.L. demonstrated both limited left shoulder and left elbow range of motion and strength. His balance was poor (score on the Tinetti Balance Assessment was 14/28) and he had started using a cane after he fell. Treatment during the first visit included modalities, gentle mobilizations to the shoulder and passive range of motion. He was instructed in Codman's exercises. During

subsequent visits, along with traditional shoulder exercises such as pulleys and PNF patterns, T'ai Chi movement patterns were initiated. The "Arm Swinging" exercise is an excellent progression from Codman's as the patient stands upright and swings both arms in a relaxed fashion. This can then be progressed to "Basic Bear" which involves pelvic and trunk rotation with relaxed swinging arms. E.L. had lost considerable trunk rotation while wearing a sling and using a cane. As his shoulder abduction improved, "Crane Takes Flight" was added which involves slowly lowering the arms from a position of ninety degrees of abduction as the knees are bent in a semi-squat position. This pattern helped facilitate shoulder strengthening as well as balance training. The slow, relaxed movements coordinated with the diaphragmatic breathing allow a much less painful way to exercise. Although many elderly clients have experienced the "no pain, no gain" approach sometimes used in physical therapy, most will greatly appreciate a gentler approach. Especially in the upper extremities, T'ai chi encourages an "undoing" of muscle action rather than "doing." The arms generally follow the action of the torso and "go along for the ride." Elderly clients who have either experienced an acute upper extremity injury or who have just carried around years of accumulated muscle tension, greatly benefit by learning how to exert less tension in the shoulder/cervical area. (2) T.M. was an 86 year old female with COPD and a history of breast cancer. The radiation treatments had destroyed much of her lung tissue and she was on continuous oxygen. She also had arthritis in the cervical spine. A retired physical education teacher, T.M. was a very determined and motivated woman whose goal was to be able to walk to her mailbox. On initial evaluation, her Tinetti Balance Assessment was 11/28 and she was unable to stand without support. She used a walker for short distances with a basket to carry her portable O₂ tank. Her resting heart rate was 90 bpm and after 50 feet of ambulation, her heart rate rose to 110 bpm. Because of her poor balance and COPD, T'ai Chi exercises were initiated in a sitting position using a video called "The ROM Dance." These exercises are easily modifiable and were modified for T.M. Due to her arthritic cervical spine, overhead reaching was

limited. After two weeks of outpatient therapy, she was progressed to standing T'ai-Chi movement patterns with support of a counter. Principles which were taught included postural alignment, relaxed movement and diaphragmatic breathing. Within just another 2 weeks, her resting heart rate was decreased to 70 bpm and her exercise heart rate was in the 80's (Remember, it's very slow movement!). She was able to progress to performing both "Relaxed Arm Swing" and "Crane Takes Flight" without support. At the end of eight weeks, she had progressed to a 4-prong cane. Because her Medicare coverage ended, T.M. elected to continue by private pay so that she could start learning the T'ai-Chi form. Although her endurance improved enough to walk to the mailbox, she did not feel ready to start a group class. When clients find treatments such as this that are completely compatible for them, they are more likely to be willing to pay privately for therapy.

How Does One Go About Learning T'ai Chi and Applying it to Treatment?

With increasing community interest in T'ai Chi, the challenge is to provide an adequate number of well-trained instructors and to find quiet space in exercise facilities to support T'ai Chi practice. Learning T'ai Chi properly requires feedback from an experienced teacher. However, if no classes are available, T'ai Chi videos and books can offer information and some instruction. Basic concepts of this Eastern exercise approach need to be well understood before applying them to treatment. Some of the nuances of this form are different from those we have learned as traditional exercise, but once learned will greatly enhance a more holistic approach to health care.

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Tricia Yu, M.A., creator of the Tai Chi Fundamentals program, is director of the Tai chi Center in Madison, WI, one of the oldest and largest schools in the United States. She has practiced T'ai Chi daily for 30 years and studies with Yang Style T'ai Chi masters Benjamin Pang Jeng Lo and William C.C. Chen. She is certified by Master Chen.

"Whoever can swallow the breath like the tortoise or pull the breath in and circulate it like the tiger or guide and refine the breath like the dragon, shall live a long and healthy life."

Master Ge Heng

Basic T'ai Chi Postures and Movements

The 70/30 Stance 70/30

Stance, Forward, and Back Positions
The T'ai Chi Stance, or 70/30 Stance, provides a wide, stable base of support. When the weight is forward, more (70%) is on the front foot. When the weight is on the back foot, it supports up to 100% of the weight. During all weight shifts, the knees maintain a flexed position, and the feet remain flat with weight evenly distributed over the entire soles. The body stays upright throughout the movement. Moving forward and back in this stance strengthens the quads, lengthens the calf muscles, and promotes increased ankle range of motion.

The T'ai Chi Fold

A key area of focus in T'ai Chi is the place where the hip joint forms a crease at the top of the femoral triangle. This area is called the "Kwa" in Chinese. As the weight shifts, the head, trunk, and pelvis move as a unit in the direction of the weighted foot. This creates a diagonal "fold" in loose clothing at the hip area. This "T'ai Chi Fold" is a powerful wind-up motion in many sports activities. Both feet remain flat throughout the movement, with knees bent and the body upright. The knee maintains alignment with the weighted foot. There is no twisting of the spine.

The 70/30 Stance with the T'ai Chi Fold
70/30 Stance with T'ai Chi Fold and 70/30 Stance, Forward Position
This combines the wind-up with forward motion and demonstrates an important component of traditional T'ai Chi practice. Both feet remain flat and firmly rooted throughout the movement. While turning or "folding" at the Kwa or hip joint, the pelvis and trunk move as a unit. There is no twisting of the spine. The body remains in an upright position; shoulders maintain alignment over hips.