

T'ai Chi (PART 1)

Ancient Exercise for Contemporary Life

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photo by Jim Wildeman

Learning objective

To become acquainted with T'ai Chi as a form of nonimpact exercise for building endurance and enhancing flexibility, balance, and coordination.

This article is the first in a two-part series introducing T'ai Chi to health and fitness instructors and program directors. It summarizes key elements in the practice of T'ai Chi and describes its basic movements and elements of mind/body integration. It includes descriptions of a simplified version developed to make T'ai Chi more accessible, and provides resources for finding T'ai Chi classes, videos, and books. The second article in this two-part series outlines basic principles of T'ai Chi and summarizes recent research of the health and fitness effects of T'ai Chi.

T'ai Chi or T'ai Chi Ch'uan (also spelled T'aiji or T'aiji Quan) means "Supreme Ultimate Boxing." Developed more than 700 years ago by Chinese martial artists, this nonimpact exercise form builds endurance and enhances flexibility, balance, and coordination. Unlike many exercise programs that focus on exertion and straining as a means to achieving increased strength and endurance, T'ai Chi movements are slow, relaxed, and smooth. "In T'ai Chi, although one moves, there is also inner stillness. In practicing the form, slower is better. If it is slow and the inhalation is deep and long, the *qi* (life force) sinks to the *tan tien* (storehouse of energy located in the belly)"(1).

Basic T'ai Chi Postures and Movements

Although there are many variations, most T'ai Chi forms include the following stances and movements, which are repeated throughout the sequence.



The Horse Stance

Beginning movement (Horse Stance, center position).

The Horse Stance emphasizes relaxed, natural body alignment. The head is "as if suspended from above" at the crown. Both feet are flat, parallel, and hip-distance apart; knees are slightly bent. Weight is evenly distributed between both feet.

The 70/30 Stance

Ward off movement (70/30 Stance, forward position).

Push movement (70/30 Stance, back position).

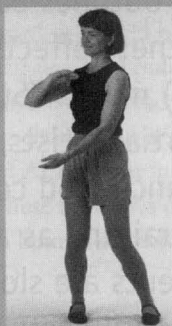
The T'ai Chi Stance, or 70/30 Stance, provides a wide, stable base of support. When the weight is forward, more (70%) is on the front foot. When the weight is on the back foot, it supports up to 100% of the weight. During all weight shifts, the knees maintain a flexed position and the feet remain flat 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.



Folding the "Kwa"

Cloud Hands movement (Horse Stance with folding of the Kwa).

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



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T'ai Chi is a choreography of movements that look like an effortless, slow motion dance. Although there are a variety of interpretations and styles, all authentic T'ai Chi is characterized by certain postures and patterns of movement (see sidebar). At first, it looks quite simple to do. After months of practice, many discover that, like any art, it has depth and subtlety that take years to explore. T'ai Chi is a daily exercise routine that can be practiced for a lifetime. Most forms take about 15 minutes to complete and can be practiced almost anywhere.

Instead of using television or loud music as distraction during exercise, T'ai Chi practice is mindful, with a focused awareness of the body and external environment. Ideally, the mind remains both alert and calm while in motion (Figure 1). T'ai Chi was developed as a means of integrating the mind, body, and spirit to function in harmony with the external world. "T'ai Chi uses mind, not force; it is continuous and not broken. Naturally there is no injurious practice" (1). This ancient art was developed to cultivate mental as well as physical strength and flexibility. The Chinese have practiced T'ai

T'ai Chi is based on the perspective that mind and body are not separate; rather, they are different expressions of qi: energy, or life force. The principles that promote health of the body naturally are healthy for the mind, and vice versa. These same principles apply to all interactions.

Key to the practice of T'ai Chi is bringing focus into the present moment. This is done to integrate the mind with the body and to cue awareness of the environment. We are often absorbed by worries about the future or events of the past—sometimes to the extent that we are unaware of what is actually occurring in the present.

According to the principles of T'ai Chi, this depletes our qi. When we bring our attention to what is actually occurring, we gather our qi. We are more alive in the present moment, aware of our body's signals, and more sensitive to others and to what is occurring.

"Centering" for Mind/Body Integration

T'ai Chi practice begins with a few moments of quiet while focusing on slow, natural breathing to help calm the mind, relax the body, and bring attention fully into the present moment. This process is called "centering." It is an essential component of all T'ai Chi practice that reinforces mind/body integration and includes the following elements:

- *Bring your attention into the present moment.*
- *Feel the movement in your body as you breathe. Stay with it for several breaths.*

Figure 1. Elements of mind/body integration.

Chi for centuries, and its popularity in the United States is burgeoning.

Accessing T'ai Chi

Although there has been growing interest in T'ai Chi as a health exercise, the question has been: How can T'ai Chi become more accessible to people of a wide range of ages and conditions? Many beginners find it difficult to perform the movements and remember the sequence. After only a few classes they become discouraged and drop out. Originally developed by martial arts experts for advancing their skills, traditional T'ai Chi forms incorporate highly complex movement patterns throughout the entire sequence (Figure 2).

T'ai Chi encompasses several styles or forms, each originating from three main branches named after their founders, Yang, Chen, and Wu. To add to the confusion, many interpretations of these styles have emerged throughout T'ai Chi's long history, resulting in numerous variations in forms. To help address this issue, a number of

- *Relax.*
- *Notice the position of your body. Keep your body upright and naturally aligned.*
- *Bring awareness into your hands and fingers, then into your feet.*
- *Relax as you check in again with your breathing, head, hands, and feet.*
- *Notice any sounds, sights, smells, and the feeling of the external environment.*

Fostering the Flow of Qi

When the mind is calm and tuned to the body, there is increased awareness of the body's subtle energy. The dynamics for optimum flow of qi include the following:

- *Relax and let each breath be deep and long.*
- *Feel your bones and joints connected like a string of pearls: light, nimble, and loosely strung together.*
- *Move effortlessly; be both relaxed and lively.*

The bones are the pearls; the joints are the threads. The muscles and tendons are relaxed, moving with minimal effort. The slow movement cleanses the fluid that lubricates the joints. According to Chinese medicine, the qi of the joints can become stagnant or blocked by inactivity and by tension. Moving with the joints loose and relaxed promotes the flow of qi, enhancing health and well-being.

(Adapted with permission from T'ai Chi Fundamentals for Health Care Professionals and Instructors [3].)

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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 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 Folding of the "Kwa"

Preparation for Brush Knee and Twist Step (70/30 Stance, back position with folding of the Kwa).

Brush Knee and Twist Step (70/30 Stance, forward position).

The Brush Knee and Twist Step combine 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.



Single-Limbed Stances

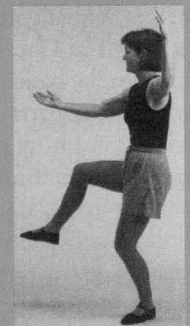
Golden Pheasant Stands on One Leg Movement (single-limbed stance).

Separate Arms and Kick Movement (single-limbed stance).

The kicks and knee strikes are executed while standing on one leg with the supporting foot at the diagonal and the body upright. There



is a horizontal crease in the "Kwa" of the stable foot, with the tailbone maintaining alignment with the heel. This stance helps increase flexibility in the hip area and contributes to better balance.



(Reprinted with permission from T'ai Chi Fundamentals for Health Care Professionals and Instructors [3].)

simplified versions of T'ai Chi have emerged during the past few decades, making it more accessible to the general public (Figure 3).

Simplified Versions of T'ai Chi

A group of martial arts experts in China created the *24 Forms*, based on Yang Style T'ai Chi, the most popular style worldwide. The movements themselves have not been simplified, but the sequence includes fewer repetitions and takes less time to learn and practice than the traditional form. This shortened sequence has become a standard T'ai Chi form in China, and there are videos available in the United States that teach *24 Forms*.

Scientists at Emory University developed a version of T'ai Chi to study as part of the *Frailty and Injuries Cooperative Studies on Intervention Techniques* (2). They identified several therapeutic elements of T'ai Chi, including slow, continuous movement, weight shifting, postural alignment, and progressive knee flexion. These were incorporated into a 10-movement form (see Recommended Reading). Dr. Tingsen Xu, who taught this version of T'ai Chi to older adults in the study, created a video, titled *T'ai Chi: A Gift of Balance*, which demonstrates these movements.

T'ai Chi instructor Tricia Yu, M.A., developed *T'ai Chi Fundamentals*, a simplified, systematic approach for mastering T'ai Chi basics, which maintains the integrity of the traditional Yang Style form (3). She targeted critical elements from the traditional form that enhance balance, coordination, strength, and endurance and that modified or eliminated areas of difficulty that students encountered consistently in learning T'ai Chi. The T'ai Chi Fundamentals form begins with simple, basic movements and progresses to complex patterns in later parts of the sequence. The program includes a series of warm-up exercises that reinforce the movement patterns repeated throughout T'ai Chi. Physical therapist Jill Johnson, M.S., P.T., G.C.S., analyzes the movements for their clinical applications and functional benefits. The program includes instructional videos, a manual, and training workshops for therapists and instructors.

Exercise Programs Integrating T'ai Chi Principles

T'ai Chi instructor Justin Stone popularized a version of *T'ai Chi Chih* (T'ai Chi Ruler), an ancient Chinese health exercise (4). It involves rocking back and forth in a position similar to

the basic T'ai Chi stance with the hands held about one foot apart. It provides practice in some of the mind/body integration elements found in T'ai Chi and is accessible to most ambulatory adults. The program includes videos, books and teacher training.

Occupational therapist Diane Harlowe teamed up with T'ai Chi instructor Tricia Yu to create the *ROM Dance: Range of Motion Exercise and Relaxation Program* (5.) Developed for individuals with chronic pain and other limiting conditions, it blends

medically recommended range-of-motion exercises with the mind/body integration principles of T'ai Chi. These principles include bringing attention into the present moment, diaphragmatic breathing, postural alignment, slow movement, relaxed movement, and awareness of movement. The ROM Dance can be performed standing with or without support. There is also a version for people using wheelchairs. Grants from the Arthritis Foundation partially funded initial development, research, and creation of instructional media. This program, based in T'ai Chi principles, is now an established, reimbursable therapeutic

intervention used in hospitals, clinical settings, home health care, and long-term-care facilities. Participants in these programs have a wide range of conditions, including arthritis, lupus, fibromyalgia, chronic pain, Parkinson's disease, mental illness, and stroke. Instructor training workshops, videos, audiotapes, and a manual for therapists are available for this innovative program.

Applications for Health Promotion

T'ai Chi as a complementary therapy is becoming increasingly popular in health-care settings that serve geriatric populations and people with chronic conditions. In addition, a growing group of healthy individuals want to learn T'ai Chi. Classes are popping up all over (Figure 4). For example, in the authors' city of Madison, Wisconsin, two hospital wellness programs, four health clubs, four senior centers, an assisted living facility, and a number of churches offer T'ai Chi classes.

The city parks and recreation department, the YMCA, the University of Wisconsin Extension, and a national sports medicine center also sponsor classes. The university offers credit for T'ai Chi classes in its kinesiology department. For the past two summers, the Wisconsin Department of Health and Family Services has sponsored noontime T'ai Chi classes for state

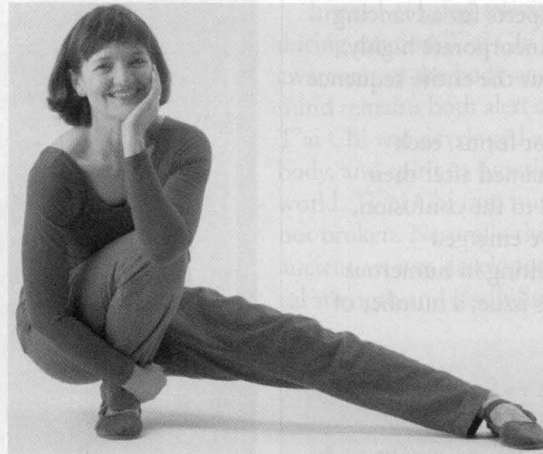


Figure 2. This low squatting position is characteristic in most T'ai Chi forms. To perform traditional forms of T'ai Chi correctly, the practitioner must be able to get into this position.

Educational Videos and Books About T'ai Chi

Many T'ai Chi resources are not marketed nationally. If you cannot find a resource in your local bookstore, contact the distributors listed below, who specialize in T'ai Chi videos and books. Direct contact information for a resource is provided if the resource is not available from a distributor.

Videos: Yang, Chen, Wu, and Simplified Styles of T'ai Chi Yang Style

Simplified Yang Style T'ai Chi, by Benjamin Pang Jeng Lo, phone: 415-221-0944.
Yang Long Form and Yang Short Form, by William C.C. Chen, phone: 212-675-2816;
 Web site: <http://members.aol.com/tcc60moves>.
T'ai Chi: Exercise for Life Long Health and Well-Being, by Tricia Yu.
Yang Style T'ai Chi, China's Living Treasures, Volumes 22 and 25, by Ye Xiao Long.

Chen Style

Chen 19 Movement Form and Chen 38 Movement Form, by Chen Xiao Wang, Web site: <http://chentaijiquan.com>.
Chen Style T'ai Chi, by Ren Guang Yi, phone: 718-358-5284.

Wu Style

Traditional 100 Form Wu Style, by Jiang Jian Ye.
Wu Tai Chi Ch'uan. China's Living Treasures. Volumes 28 and 29, by Wang Han Da.

Simplified Style

Simplified 24-Movement Taiji and Applications, by Liang Shou-Yu.
T'ai Chi Fundamentals: Simplified Exercises for Beginners, by Tricia Yu.
T'ai Chi Fundamentals For Health Care Professionals and Instructors, by Tricia Yu and Jill Johnson.
Tai Chi: A Gift of Balance, by Tingsen Xu.

Videos that Teach T'ai Chi Principles

ROM Dance in Sunlight [also Moonlight and Seated Versions], by Diane Harlowe and Tricia Yu.
Silk Reeling Exercises. China's Living Treasures, Volume 15, by Zhang Xue Xin.
T'ai Chi Chih: A Gentle Approach to Health and Enlightenment, by Justin Stone. Web site: www.taichichih.org.

Books on T'ai Chi

Body Mechanics of T'ai Chi Ch'uan, by William C.C. Chen.
Dao of Taijiquan, by Jou Tsung Hwa.
The Essence of T'ai Chi Ch'uan, by Benjamin Lo, et al.
The ROM Dance: A Range of Motion Exercise and Relaxation Program, by Diane Harlowe and Tricia Yu.
T'ai Chi, by Cheng Man-Ching and Robert Smith.
T'ai Chi Fundamentals for Health Professionals and Instructors, by Tricia Yu and Jill Johnson.

Distributors of T'ai Chi Videos and Books

<i>Wayfarer Publications</i> www.tai-chi.com 323-665-7773, information 800-888-9119, ordering	<i>Uncharted Country Publishing</i> www.taichibealth.com www.romdance.com 608-280-9730, information 800-488-4940, ordering	<i>Dragon Door Publications</i> www.dragondoor.com dragondoor@aol.com 651-645-0517
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Figure 3. Several different versions of T'ai Chi exist. Videos and books can help acquaint you with the various forms.

employees, which are also open to the general public. And third-party payers reimburse classes at an established T'ai Chi Center as a health-promoting activity.

The photograph of the group T'ai Chi class shows a noontime practice on the roof of Madison's Monona Terrace Community and Convention Center. Space is donated by the convention center, and the Wisconsin State Department of Health and Family Services funds classes. Hundreds of state office workers and other local residents have attended this series of free T'ai Chi classes.

Given community interest, the challenge now is to provide an adequate number of well-trained instructors and to designate quiet space in exercise facilities to support T'ai Chi practice. In addition to introductory classes, a few communities are fortunate to

T'ai Chi schools are usually listed under the following telephone book categories:

- T'ai Chi
- Martial Arts
- Exercise and Physical Fitness

Introductory classes can often be found at

- YMCA, YWCA
- Hospital and HMO community wellness programs
- University extension and credit programs
- Park and recreation department programs
- Health clubs
- Senior centers

Figure 4. Where to find T'ai Chi classes.



(photo by Henry A. Koshollock/Capital Times)

have an established T'ai Chi school. Learning T'ai Chi properly requires feedback from an experienced teacher. However, if no classes are available in a geographic area, T'ai Chi videos and books can offer information and some instruction (Figure 4).

Long accepted in China as an ideal exercise for lifelong well-being, the ancient art of T'ai Chi has potential for widespread use in fitness programs and therapies of the new millennium. Or, as one T'ai Chi master puts it, "It is no wonder that many thousands of people in the United States have found T'ai Chi Ch'uan a sound exercise for the body as well as an effective spiritual preparation for facing everyday problems" (6).

Condensed Version and Bottom Line

T'ai Chi was originally developed more than 700 years ago by Chinese martial artists. It has become popular in the U.S. as a nonimpact exercise for building endurance and enhancing flexibility, balance, and coordination. Several versions of T'ai Chi exist, including a simplified form that is quite accessible to the general public. T'ai Chi classes can be found in many places, including hospitals, health clubs, senior centers, and churches.



Betty Chewning, Ph.D., is director of the Sonderegger Research Center and associate professor, School of Pharmacy, University of Wisconsin-Madison. Her research addresses patients' health behaviors and decision-making related to prescribed regimens and self-care. Dr. Chewning has practiced T'ai Chi for 25 years.



Tricia Yu, M.A., is director of the T'ai Chi Center in Madison, Wisconsin, one of the oldest and largest schools in the United States. She provides training for health professionals and fitness instructors nationwide on simplified versions of T'ai Chi. She has practiced T'ai Chi for 29 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.



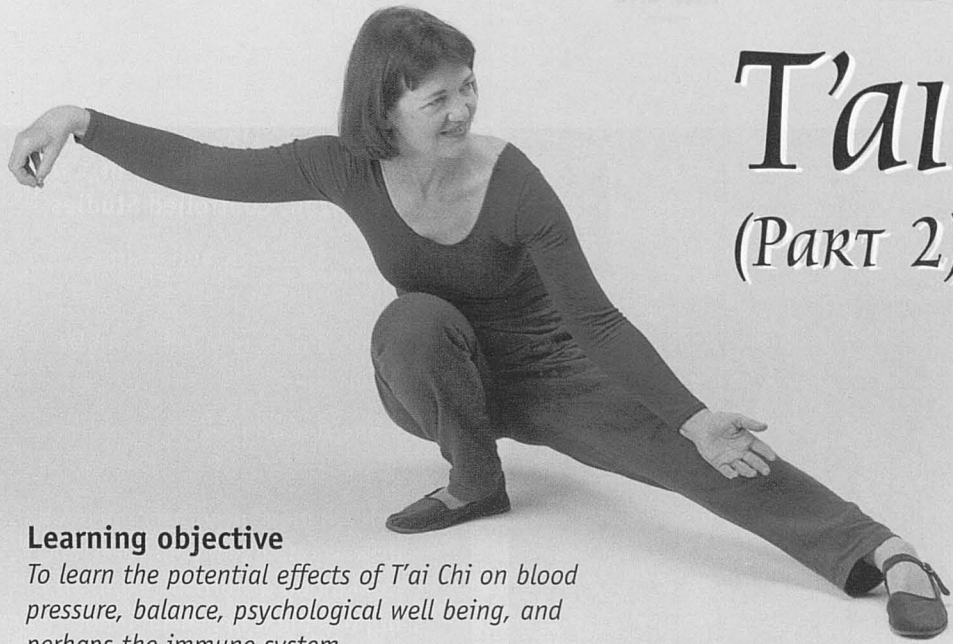
Jill Johnson, M.S., P.T., G.C.S., is a geriatric clinical specialist in physical therapy at the New England Center for Integrative Health. Ms. Johnson has published numerous research articles on geriatric rehabilitation and has received a grant from the Physical Therapy Foundation to study falls in older adults. She practices both yoga and T'ai Chi and leads T'ai Chi Fundamentals workshops nationwide.

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Recommended Readings

- Bottomley, J. *T'ai-Chi: Choreography of Body and Mind. Complementary Therapies in Rehabilitation: Holistic Approaches for Prevention and Wellness*. Davis C. (Editor), Thorofare, New York: Slack Inc., 1997.
- Downs, L. T'ai-Chi. *Modern Maturity*. June-July, p. 61-64, 1992.
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T'ai Chi

(PART 2)

by Betty Cheuning, Ph.D.,
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Learning objective

To learn the potential effects of T'ai Chi on blood pressure, balance, psychological well being, and perhaps the immune system.

This second article in our two-part series on T'ai Chi describes the basic principles of this ancient form of exercise and recent research on its health effects. The earliest research on T'ai Chi tended not to meet the standards of contemporary research that demand a rigorous randomized and well-controlled study design. Recently, however, well-designed studies have begun to confirm that T'ai Chi practice can have a positive effect on the cardiovascular system, physical balance, and emotional health. Preliminary research even indicates that T'ai Chi may have a positive impact on the immune system. This article describes research findings and suggests resources for additional information. Finally, we discuss the implications for future research.

Effects on Health

Principles of T'ai Chi

T'ai Chi is an ancient Chinese exercise form that combines relaxed, slow movement with a calm, alert mental state. T'ai Chi practice focuses on certain principles that foster natural postural alignment and reinforce proper body mechanics inherent in virtually all physical activity. *T'ai-Chi Classics*, written by the old masters, states, "The movement is rooted in the feet, propelled by the legs, guided by the torso and expressed in the fingers"(1). The practitioner keeps his or her body relaxed and upright, focusing throughout the exercise sequence on natural diaphragmatic breathing.

Health Impact of T'ai Chi

As more people in the West practice T'ai Chi, medical research has followed. In the past decade, several studies have reported positive effects of T'ai Chi on blood pressure, balance, emotional health, and the immune system.

Blood Pressure

One study comparing the effects of T'ai Chi, aerobic exercise, and a nonexercise support group on heart rate and blood pressure of patients in a cardiac rehabilitation program found that diastolic blood pressure decreased significantly only in the T'ai Chi group ($p < .01$) (2). In the study, 126 postcardiac infarction patients (90 males, 36 females; average age 56; age range 39 to 80) were randomly



Health Effects of T'ai Chi in Randomized, Controlled Studies

- reduced diastolic and systolic blood pressure
- reduced reports of falls by older adults
- reduced fear of falling by older adults
- reduced mood disturbance (tension, depression, anger, confusion, and total mood disturbance) and an improvement in general mood among women

(See T'ai Chi research Web site:
<http://members.aol.com/slccarresearch/taire1.htm>.)

assigned to T'ai Chi, an aerobic exercise class, or the nonexercise support group. Participants attended their exercise or support group sessions twice weekly for three weeks, and then once weekly for another five weeks. Heart rate and blood pressure were recorded before and after each session. Eight weeks later, significant reductions in systolic blood pressure occurred in the two exercise groups ($p < .05$ for both groups), but only the T'ai Chi group experienced a significant drop in diastolic pressure.

Consistent with these findings are two other reports of decreased blood pressure in people randomly assigned to T'ai Chi or a comparison group (3, 4). A study by Young et al. of 62 formerly sedentary adults (60 years or older) found systolic and diastolic blood pressure reduction in participants in an aerobic exercise group and a T'ai Chi group (4). At baseline, the participants' systolic blood pressure readings were between 130 and 159 mm Hg. After 12 weeks, systolic blood pressure had fallen an average of 7 mm Hg in the T'ai Chi group and an average of 8.4 mm Hg in the other group.

Balance and Falls

Falls are a major concern for older adults. In a meta-analysis of the results from an eight-site, randomized, clinical study (Frailty and Injuries: Cooperative Studies of Intervention Techniques, or FICSIT), T'ai Chi was identified as a potential strategy for reducing falls (5). A 15-week study of persons 70 and older, comparing T'ai Chi exercise, balance training, and an education group, found T'ai Chi to excel in fall prevention (3). T'ai Chi was found to

- reduce the onset of falls by 47.5%, after adjusting for fall risk factors
- reduce the fear of falling
- increase participants' confidence in doing what they would like

At a four-month follow-up, participants were asked the following questions about the impact of treatment on their daily lives.

1. Has participation in this program had any noticeable effect on your life?
2. Has participation in this program changed your sense of confidence in any area?
3. Are there any areas in which you feel less confident?
4. Has participation in the program affected your daily living activities in any way?
5. Has your normal physical activity changed as a result of your participation in this study?
6. Do you feel that you benefited from participating in this program?

Although both T'ai Chi and balance-training participants reported increased confidence in balance and movement, only T'ai Chi participants reported that their daily activities and overall lives had been positively affected. The authors of the study suggest, "When mental as well as physical control is perceived to be enhanced, with a generalized

sense of improvement in overall well-being, older persons' motivation to continue exercising also increases.”

Emotional Health

The practice of T'ai Chi may have a positive impact on mental health as well as physical health (6). One study compared the psychological changes associated with 16-week moderate-intensity and low-intensity exercise training programs in participants treated with or without a cognitive element (i.e., relaxation therapy). Participants were healthy, sedentary adults. They were randomly assigned to either a control group, moderate-intensity walking group, low-intensity walking group, low intensity walking group with Benson's relaxation response (7), or a T'ai Chi exercise group. Participants engaged in the T'ai Chi activity as a group three times a week for 45 minutes. Data for women and men were analyzed separately because baseline scores were significantly higher for women than men on several variables related to mood, trait anxiety, and negative affect. Mean baseline scores, however, were still within the average range of published scores.

At the end of the 16-week intervention, women in the T'ai Chi group reported reduced tension, depression, anger, confusion, and mood disturbance, and improved general mood. Women in the moderate-intensity walking group reported greater satisfaction with their physical attributes; men in this group reported increased positive affects. No other differences were observed between groups on measurements of mood, self-esteem, personality, or life satisfaction. In general, men in all groups showed improved psychological scores post-testing compared with pre-testing, but there were no significant differences between groups.

Given the study's intention to compare responses in exercise groups that were or were not treated with relaxation, it is interesting that only T'ai Chi had a significant impact on psychological outcomes for women. These findings also underscore the importance of considering gender differences in planning and evaluating interventions to improve physical and emotional health.

It is worth noting that small but significant aerobic improvements (peak $\dot{V}O_2$) occurred in the moderate-intensity walking and low-intensity groups for women but not in the T'ai Chi group. For men, the same small but significant improvements occurred in the moderate-intensity walking and low-intensity walking plus relaxation response groups.

Immune Response

One nonrandomized study has attempted to trace the impact of T'ai Chi exercise at the cellular level, studying the

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T'ai Chi Principles

Postural Alignment

The body remains upright in proper postural alignment throughout the sequence. The head is uplifted at the crown and the occiput. Shoulders stay relaxed.

Breath Awareness

Natural diaphragmatic breathing is maintained throughout the entire sequence. The belly expands with the inhalation and contracts with the exhalation. This allows the lungs to fill more completely with air. Breath awareness is a vehicle for bringing attention into the present moment.

Active Relaxation

Relaxation is often associated with being unfocused or sleepy. Active relaxation integrates physical relaxation with a calm mental alertness. This is considered to be an optimal state of functioning that promotes the flow of *qi*, or life force, within the body. T'ai Chi training reinforces this mind/body integration both while a person is still and while a person is in motion. It is a skill learned gradually through practice.

Minimal Effort

Most exercise programs focus on exertion and straining as a means to achieve increased strength and endurance. When practicing T'ai Chi, one conserves energy, using minimal effort so that the body actually feels heavier. This is called *sung*, a combination of relaxed and heavy.

Slow Movement

T'ai Chi's continuous slow movements are performed in a flexed stance, increasing endurance and load-bearing capacity. The knees remain bent and the body relaxed in proper alignment throughout the sequence. The slower and lower the movement, the greater the exercise benefit.

Separating the Weight

During transitions and weight shifts, the weight is balanced 100% on one foot while the body maintains a relaxed, upright position. Combined with the slow movement, this contributes to better balance and increased leg strength.

Integrated Movement

The trunk and pelvis initiate all arm movements. They rotate as a single column aligned over the stable base in the feet. There is no twisting of the spine. The upper body is relaxed and in proper alignment; the weight sinks directly into the legs and feet. When the upper body is tense, it is more difficult to sense this natural alignment.

(continued from page 19)

effect of T'ai Chi on T-lymphocytes in older participants (8). T-lymphocytes are an indicator of an immune response. The researchers compared 30 healthy participants who practiced T'ai Chi and 30 healthy (age-matched) participants who served as a control group. Immediately after T'ai Chi, a marked increase of active T-lymphocytes occurred. At rest, the total number of T-lymphocytes and the number of active T-lymphocytes increased significantly in the T'ai Chi group compared with the controls. Randomized, controlled studies are needed to explore these findings.

Condensed Version and Bottom Line

Preliminary, randomized studies suggest T'ai Chi has positive emotional and physical health outcomes with respect to blood pressure and balance. While more research is needed to define the conditions under which an impact is most likely and for whom it is most beneficial, initial findings suggest that T'ai Chi can be a useful addition to health and fitness programs. There is a need for well-designed research to evaluate the effects of T'ai Chi exercise on a range of ages and health domains (i.e., respiratory system, immune system, and psychological outcomes). Gender differences also will need examination, and it would be useful to understand the physiological dynamics underlying the effects of T'ai Chi. Last, there is a need for research to identify issues in the implementation and maintenance of the practice of T'ai Chi.

Author's (B.C.) Note:

I was introduced to T'ai Chi in the summer of 1974, in a 6:30 a.m. class taught outside beside a lake. Little did I know that 25 years later, I would still be doing T'ai Chi beside that same lake, still at 6:30 a.m., even in the Wisconsin winter! The beauty of the morning itself became a teacher as I adopted the moves our teacher had demonstrated. Through the practice by the lake, I came to feel more connected to my natural world, watching the seasons come and go as I relaxed and focused on my breath, my balance, my posture. In the midst of my young family, T'ai Chi became a haven. Over time, the flow of movements became more important than the details. It helped me get successfully through much professional travel, the stress of tenure review, organizational conflicts, and more. At age 53, I'm actually more committed to my practice than I've been at any time before. T'ai Chi goes with me to hotel rooms, ocean sand bars at sunset, my mother's living room as I dodge coffee tables, and piers with pelicans watching languidly. When traveling, one favorite location for practicing T'ai Chi is golf putting greens at dawn! This quiet, mindful ancient exercise has been my rock in a fast-track life. I look forward to the time when quiet spaces are available in mainstream fitness and sports medicine environments to support the practice of this meditative exercise for many others as well.



Betty Chewning, Ph.D., is director of the Sonderegger Research Center and associate professor, School of Pharmacy, University of Wisconsin-Madison. Her research addresses patients' health behaviors and decision-making related to prescribed regimens and self-care. Dr. Chewning has practiced T'ai Chi for 25 years.



Tricia Yu, M.A., is director of the T'ai Chi Center in Madison, Wisconsin, one of the oldest and largest schools in the United States. She provides training for health professionals and fitness instructors nationwide on simplified versions of T'ai Chi. She has practiced T'ai Chi for 29 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.



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(Where to buy the Yamax pedometer: New Life Styles: 888-748-5377; www.digiwalker.com. Accusplit Corporation [selling Yamax pedometer under the name Accusplit Eagle]: 800-935-1996; accusplit.com.)

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