Tai Chi Chuan

Tai chi chuan, otherwise known as the "supreme ultimate" fist (or boxing) is a form of moving meditation that seeks to incorporate controlled body movements along with an intense focus on calming the body and mind. Although this internal integrative exercise originates from an external, fast-paced fighting form of Shao-lin Temple Boxing martial arts, today's application as a slow, mind-body practice seeks relaxation and non-action.[1]

The application of tai chi (TC) involves no equipment, uses a small area no larger than a desk space, and takes as little time as 10-15 minutes each day. TC yields the best results if practiced before breakfast and before bed. While the focus is intense (demanding a calm but concentrated mind) the body must stay loose and cat-like.[2] Movements are a smooth shifting of weight from one foot to the other while moving the upper body as if swimming in air. Breathing should occur naturally with body movements, never ceasing but always moving in and out like the ebb and flow of the tide. Tai Chi proponents claim that the slow breathing and controlled movements promote deep breathing, digestion, the functioning of the internal organs and blood circulation."[3]

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The symbol of TC stems from the Tao philosophy and contains the eight trigrams surrounding the yin-yang as a pictogram of the energy balance of the universe. The half-circle, yin-yang symbol demonstrates the equal and opposite nature of life's energy. Taoist philosophy claims that one can not exist without the other. When yin increases, the yang yields and vice versa. Yang represents heaven and sun, with a hard, masculine and mature nature while yin is representative of Earth, moon, and the soft nature of the feminine. Tai chi practice seeks to balance these two life forces.

Tai chi history is rich in myth and mystery. While some four different theories of origin may be found, the philosophy of the Tai Chi stems as far back as the writings of Confucius and Lao Tzu. The earliest mention of the art dates back to the 1800's when Sanyou Wang Zhongyueh wrote The Treatise of Tai Chi Chuan.[1] Through the years, different forms resulted from specific alterations within family lineage. Most traditional styles consist of 128 postures made of a repetition of 37 key stances. The oldest form is the Wu style, but Chen, Yang, and Sun styles are also present today. Congruent in all theories is the fact that each method was developed and handed down through family lineage, each generation teaching the next.

The proposed mechanism of action surrounding the benefits of TC is not entirely clear. However, the primary traditional goal of tai chi is to cultivate, store and correctly move chi or qi within the body. Chi translates as "wind" but in TC is more closely related

to the intrinsic energy that flows through the body. TC seeks to increase the amount and quality of chi, and to ensure that it flows freely. Energy is brought up from the ground to the legs into the dan tien (the physical and spiritual body center located just below the navel) and then is redistributed throughout the body at will. While purists adhere to this mindset, many contemporary practitioners seek the benefits of a controlled coordination of body and breathing as a moving meditation. Opposite of the heavy exhaustion secondary to strenuous exercise and subsequent lactic acid build up, proponents claim that tai chi movements generate a general sense of well being and "high-spirited" energy and an accelerated removal of lactic acid.

Adherence to precise movements is essential for the greatest TC benefits. The slow and continuous motion involved in the tai chi stances forces the body to work harder than regular walking by stressing tissues and thereby helping to develop muscle and bone.[4]

Perhaps tai chi's most notable mechanism of action involves achieving the calming effects secondary to activating the parasympathetic nervous system. The decrease of blood pressure due to increased activity of the parasympathetic system is well noted in medical literature.[5] TC acts on the parasympathetic system to produce a rest and repose state with decreases in heart rate, blood pressure, and increases in vessel dilation and anabolic activity.[4]

Indications & Populations

Tai chi offers a multitude of health benefits. Since TC is a low impact and gentle exercise, elderly patients may receive the benefits of exercise while decreasing muscle and joint soreness. Aside from the calming benefits to all age groups TC can also provide advantages in the following ways:

- Posture- The focus on correct body positioning supports the claim that Tai Chi develops and maintains good posture for all ages.

- Improved range of motion- The challenging yet gentle movements of tai chi incorporate wide sweeping movements of the limbs and increasing range of motion. Because tai chi is a gentle exercise, even people with osteo- and rheumatoid arthritis can use TC to help maintain functional mobility.

- Balance and fear of falling- Tai chi practice lends increased balance to practitioners of all ages. Studies show that tai chi develops proper posture and balance, decreasing fall risk and fear of falling in the elderly.[6,7] Further, tai chi can prevent the decline in functional balance and gait (Tinetti Balance and Gait scales) in older individuals.[8,9,10]

- Cardiovascular fitness- Although TC is not considered a cardiovascular form of exercise, recent meta-analysis of seven controlled clinical studies reveals cardiovascular benefits and enhanced immune response with regular tai chi practice.[11]

- Increased bone and muscle mass- Clinical studies support the traditional tai chi proponent's claim of bone and muscle strengthening as a benefit of advanced practice.[4]

- Decreased pain- Tai chi can also decrease the pain associated with the coronary artery spasms of angina pectoris and decrease the need for nitroglycerin and other medications in some patients using tai chi consistently.[1] Because of the calming effects on the sympathetic nervous system, tai chi can also relieve tension associated with stress and reduce migraine, hypertension and anxiety.[5]

- Quality of life – Tai chi offers the stress reducing and spirit uplifting benefits associated with other forms of moving meditation.[12] According to one study, tai chi also has a favorable impact on psychosocial indices of frailty with improved sleep and decreased joint stiffness.[13]

- For the health care professional- Tai chi also has indications for health care practitioners in general and manual therapists in particular. The calming, meditative benefits of tai chi can be had just about anywhere, anytime, and without equipment. The ability to reduce stress and induce calm makes tai chi invaluable to the health care provider seeking to center the self during a busy day. Manual therapists can gain added benefit from tai chi practice through a focus on proper posture and body mechanics. Tai chi teaches practitioners to "root the legs" and move energy up from the ground and through the dantien (body center) just below the navel. Movement achieved in this way focuses on good body mechanics and mirrors the classic physical therapy mantra: maintain a center of mass over a base of support.

Contraindications

People with health concerns should visit a health care provider before beginning tai chi exercises. No matter how gentle the exercise style, tai chi may cause some minor

discomfort during, and muscle pain after, exercise.

Tai chi is contraindicated:

- Directly after eating
- When sick or extremely tired

Tai chi should be modified in position and intensity in cases of

- Pregnancy
- Hernia, back problems (disc movement)
- Joint problems, muscle sprains, fracture, severe osteoarthritis.

Certification for Teaching

Certification varies depending on the style and demands of the certifying agency. For example, certification is offered by schools nationally recognized by the Institute of Integral Qigong. Locally, tai chi certification is offered by the Chi Arts Association & Hsing Chen Internal Arts in Huntington Beach, California.[14] Some schools offer continuing education units to nurses and bodyworkers.[15]

Generally, a practitioner attends tai chi classes for a period of time (months to years[11]) until proficiency is established in a particular style. A candidate must understand the traditional history and applications of tai chi before being considered for certification. Some schools ask the candidate to perform the moves and stances involved in their style, either in person or via video tape. More traditional schools may ask candidates to also demonstrate proficiency in other aspects of tai chi, such as push-hands and weapons forms.[16]

Critical Analysis

A discussion of tai chi must include an examination of chi or qi. Traditional tai chi practitioners claim to move energy from the earth and universe to the dan tien where it can be distributed throughout the body. Chi energy is purported to be the causative factor for

improved body conditioning, increased calm and awareness, and uplifting psychological benefit. Since the essence of chi is shrouded in philosophy and mystery, a lack of literature supporting its presence is not surprising. However, practitioners subjectively claim that some change is occurring within the body to elicit the effects noted above. Objective evidence of the physiological changes includes decreases in blood pressure, heart rate, respiratory rate, and perspiration; the skin warms, and the practitioner is visibly calmer to observers. Practitioners also claim an increase in awareness and ability to focus. An explanation to all of these effects is found in the suppression of the sympathetic nervous system (SNS) and the stimulation of the parasympathetic nervous system (PNS).

The effects of catecholamine (epinephrine etc) release as part of sympathetic drive, causing an overall body stimulation and a release of cortisol, explains the symptoms of the fight or flight mode of survival. Prolonged exposure to this survival mode adversely affects digestion, focus, and the immune system. By simply achieving a state of calm though TC by activation of the (PNS), the effects of the SNS are reversed. The touted health benefits associated with TC may simply be the result of the PNS lowering the potentially harmful effects caused by prolonged exposure to catecholamines and cortisol, leading the scientific mind to conclude that the catecholamine, cortisol and hemodynamic response to tai chi may be found in any form of meditation. The effects and benefits assigned to chi by TC practice may be nothing more than the physiological effect of achieving a state of calm by activating the PNS.

In an experiment conducted to compare blood pressure and NK cells in tai chi practitioners, Zee describes “significantly increase” levels of NK cells and immediate decrease in BP directly following practice.[1] Unfortunately no reference is given. However,

the belief that TC decreases the effects of cortisol on the immune system, enabling the body to establish normal immune cell levels in a once stressed body seems reasonable.

Much of the literature exploring the effects of tai chi is preliminary. More controlled clinical evidence will be necessary to confirm the claims made by tai chi proponents. Among the most promising research to date is the meta-analysis work of Penelope Klein[11] and a multi-community study of tai chi by Lin, et al; the first reporting increases in peak VO_2 and immunity with decreases in stress and hypertension, and the second describing a decreased fall risk in elderly practitioners. The meta-analysis comprised of randomized and clinical controlled trials revealed that TC is effective in lowering BP and stress levels. However, the number of subjects varied widely as did the diagnosis, type of TC, and the control groups, making longitudinal analysis in any one aspect of TC difficult. Lin's study revealed that the 44% decrease in falls among villagers who practiced TC was made statistically insignificant as a result of the decline in injurious falls by the control group, calling into question the study design. Limitations included a focus only on falls resulting in injury, and variance in self reporting of exercise compliance and balance improvement. TC seemed to increase balance best in older individuals in good health rather than poor health.

Although direct evidence of chi escapes current observation abilities, tai chi practice does provide the calming benefits of a moving meditation combined with benefits as a result of good posture, body mechanics and maintenance of muscle and bone.

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