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Health Tips

Tai Chi is a good choice of physical activity. It is not difficult to learn and relatively safe to practise.

To attain physical fitness and mental harmony, consider making Tai Chi part of your daily routine!

In this Issue Page

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Tai Chi for Health

Tai Chi (or Tai Chi Chuan) is a traditional Chinese exercise that combines rhythmic and flowing patterns of body movements with coordinated breathing and mindful meditation. Being a low impact exercise with emphasis on technique over strength, Tai Chi carries less risk of musculoskeletal injury and is particularly popular among the elderly. In fact, almost everybody can learn Tai Chi, regardless of age or athletic ability. Besides, it can be practised indoors or outdoors and at any time without the need of special equipment.

There are many styles of Tai Chi (usually named after the Chinese family from which it originated), each of which has its own movement form. Although the exercise intensity varies depending on the style or form practised, Tai Chi is generally regarded as a moderate-intensity aerobic exercise at about 3 - 6 metabolic equivalents (METs).[1] From the health perspective, there is little difference in what style and form people choose to learn and practise.

Health Benefits of Tai Chi

Epidemiological and clinical studies have demonstrated that regular Tai Chi practice produces multiple physiological and psychosocial benefits to people who practise it. Tai Chi has also been used as a complementary therapy for people with chronic conditions.[2, 3]

Musculoskeletal Health and Prevention of Falls

One of the most consistently demonstrated health benefits of Tai Chi is its positive effects on musculoskeletal health and the prevention of falls. A set of Tai Chi would consist of typical posture (such as semi-squatting), hand techniques (such as ward off, roll back, push, press, split or elbow strike), gaits and movements (such as step forward, step backward, brush knee and push) that are performed as a specific form of locomotion.[1] Systematic review of various studies on the effects of Tai Chi as an intervention to enhance balance and reduce falls in older adults supported the effectiveness of Tai Chi in improving muscle strength, joint flexibility, balance, posture control and gait stability.[3-6] Pooled results of two randomised controlled trials reported that Tai Chi practitioners had 85% and 62% lower risk of falls than control groups at the 24th week and 52nd week of regular practise respectively.[6]

In Hong Kong, studies also found associations between regular Tai Chi practice and higher bone mineral density (at the spine, greater trochanter, Ward's triangle and proximal femur), greater quadriceps muscle strength, longer single-stance time (on the non-dominant leg) and greater magnitude of trunk bend-and-reach in early postmenopausal women.[7] Tai Chi as an exercise was also sufficient in intensity to retard bone loss at the hip in community-living elderly women aged 65-74.[8] In stroke patients, a 12-week modified Tai Chi exercise programme could improve standing balance that outlasted training for 6 weeks.[9]

Cardiovascular and Respiratory Functions

Tai Chi is unique in that it creates similar circulatory responses with little or no strain on the heart and lungs that traditional aerobic exercise creates. In older individuals, regular practice may delay the decline of cardiovascular and respiratory functions.[3] A systematic review of 22 studies on the effect of Tai Chi on blood pressure found notable reduction in blood pressure (3-32 mmHg systolic; 2-18 mmHg diastolic) and no adverse effect to the practitioners observed.[10] Another systematic review of 29 studies reported that Tai Chi could be a beneficial adjunctive therapy for some patients with cardiovascular diseases and associated risk factors (including reduction in blood pressure, improvement in lipid profile and reduction in fasting glucose).[11]

Local studies showed similar findings as well. After two 1-hour Tai Chi sessions per week for 10 weeks, one study on 20 healthy Chinese women aged 30-50 showed significant reductions in systolic blood pressure, total cholesterol and low-density lipoprotein cholesterol.[12] Another study randomly assigned 104 community-dwelling sedentary, middle-aged Chinese men and women (with no known cardiovascular and pulmonary diseases, neurological or musculoskeletal disorders) into a Tai Chi, walking and control group. Results showed similar health effects for the Tai Chi and walking groups. For the Tai Chi group, there was significant reductions in fasting blood glucose (with a mean of 0.16 mmol/L for men and 0.22 mmol/L for women), body weight (approximately 1.0 kg for men and 0.3 kg for women) and waist circumference (approximately 2.5 cm for men and 5.0 cm for women) upon completion of a 12-week programme. Besides, the maximum oxygen intake improved by 22% in men and 15% in women after practising Tai Chi.[13]

As deep diaphragmatic breathing of Tai Chi regulates the respiratory system, it is postulated that Tai Chi may also help in respiratory disorders, such as chronic obstructive pulmonary disease (COPD) and asthma. However, there are limited data on the use of Tai Chi for chronic respiratory conditions. In Hong Kong, a single blind, randomised controlled trial with 206 COPD patients in the community who were randomly assigned into either a Tai Chi group (comprising two 60-minute sessions of modified Tai Chi each week for three months), exercise group (combined breathing techniques with self-paced walking as an exercise) or control group (with instructions to maintain usual activities with no extra exercise recommended) found that Tai Chi was able to improve respiratory function in COPD patients and reduce the number of COPD exacerbations. No significant change was observed in the exercise group, while the control group appeared to have deteriorated respiratory functions.[14] In Taiwan, another study of 30 asthmatic children showed that those enrolled in a 12-week Tai Chi programme had significant improvement in respiratory functions and milder asthmatic symptoms as compared to the control group.[15]

Psychological Well-being

By integrating gentle body movements with deep breathing and mind concentration, Tai Chi is effective in helping practitioners achieve a state of relaxation in the body and a sense of inner calm. More importantly, Tai Chi has incorporated a structured cognitive component in that practitioners are required to choreograph the slow movements according to visual imagery (such as 'Hand Strums the Lute', 'White Crane Spreads its Wings' or 'Embrace Tiger Return to Mountain'). Thus, Tai Chi may have additional benefits toward cognitive functions or delaying age-related cognitive decline.[16] A systematic review and meta-analysis of 40 studies published between 1980 and 2009 pertaining to the psychological effects of Tai Chi in eastern and western populations reported that one hour to one year of regular Tai Chi significantly increased psychological well-being, including reduction of stress, anxiety and depression, as well as enhanced mood and self-esteem in community-dwelling healthy participants and patients with chronic conditions.[17] Likewise, local studies showed that Tai Chi was effective in promoting psychological well-being among nursing home residents[18], alleviating depressive symptoms in older adults with depression[19], maintaining attention and memory function in community-dwelling elders[20], and improving cognitive function in older persons at risk of cognitive decline.[21]

Since it is common for Tai Chi to be practised in groups, it would also enhance social health, especially among elders. In addition, Tai Chi can improve the quality and duration of sleep. The magnitude of benefit achieved is comparable to pharmacological treatments.[22] A systematic review of 20 randomised controlled trials involving eight complementary and alternative medicine interventions for treating sleep disorders found evidential support for Tai Chi in the treatment of chronic insomnia.[23]

Immune Activity Functions

While exercise in general benefits the immune system, the combination of mind-body interactions and non-strenuous movements in Tai Chi may in a way lessen the activity of hormones known to suppress immunity and produce immune-boosting effects. A few studies examining the impact of Tai Chi on immunological capacity reported improvements in a number of immune related blood markers, such as increase in the levels of immunoglobulin G, the numbers of lymphocytes and other natural killer cells in the blood following the practice.[1-3] Another randomised controlled trial observed that Tai Chi could augment elder's immune responses to varicella-zoster virus (the virus causing shingles). The study randomly assigned 112 healthy older adults aged 59-86 into either a Tai Chi or health education programme. After 16 weeks, both groups were vaccinated against varicella. Results showed that the Tai Chi group had significantly higher levels of increase in immunity (24% increase) than the health education group (13% increase). While Tai Chi alone induced an increase in immunity that was comparable in magnitude with that induced by vaccine alone (28% increase), Tai Chi combined with vaccine resulted in a substantial increase in immunity of about 40%.[24]

Tai Chi in Motion

Tai Chi is practised by millions of people around the globe, primarily as a health exercise. In the United States, the 2002 National Health Interview Survey revealed that about 5 million people aged 18 and above had used Tai Chi for health; over 2.5 million used Tai Chi for mind-body practices during the 12 months before enumeration.[25]

In Hong Kong, the actual number of Tai Chi practitioners is not known. However, a household survey face-to-face interviewed over 5 000 Hong Kong citizens aged 7 and above in 2008 on their participation patterns of physical activity and reported that 3% of respondents who participated in sports at least once in the three months before enumeration cited Tai Chi as the most often participated sport. Females (4.4%) and people aged 60 and above (12.2%) were more likely than their respective counterparts to report so (Table 1). Furthermore, Tai Chi (10.3%) ranked second (after swimming of 14.7%) by all respondents as a sport most eager to learn. Among people aged 60 and above, Tai Chi (20.6%) was their first choice.[26]

Table 1: Tai Chi as the most often participated sport by sex and age group

	Proportion
Sex	
Male	1.6%
Female	4.4%
Age group	
19 and below	< 0.1%
20-39	0.1%
40-59	4.1%
60 and above	12.2%
Overall	3.0%

Base: Respondents aged 7 and above who participated in sports at least once in the three months before enumeration.

Source: Consultancy Study on Sport for All – Participation Patterns of Hong Kong People in Physical Activities, 2009.

Getting Started with Tai Chi

Tai Chi is not difficult to learn and relatively safe to practise. Yet, in order to prevent injuries due to wrong postures or movements, those who plan to start a Tai Chi programme are encouraged to initially take a class with a qualified Tai Chi instructor who can teach how to regulate breathing and position the body properly. In Hong Kong, there are many governmental and non-governmental organizations, community centres or health clubs which run Tai Chi classes. For example, the Leisure and Cultural Services Department <http://www.lcsd.gov.hk> organizes community Tai Chi classes for people aged 6 or above in various districts, and these classes are free of charge for seniors aged 60 and above. Qualified Tai Chi instructors can also be found through the Hong Kong Tai Chi Association (http://www.hktaichi.com). There are also good DVDs, videos and books with instructions on getting started with Tai Chi and for self-practice at home.

Beginners should consider learning shorter movement forms first. Do not expect to be able to do all the movements perfectly right away. Practitioners can then gradually and methodically build up to more complex and longer movement forms. Regular practice can help develop the flexibility and agility needed for mastering the forms (Tai Chi masters work on the forms continuously for years and become proficient at it). While most practitioners do Tai Chi in the same place and at the same time, people who have an erratic schedule can practise Tai Chi whenever they have 10 or 15 minutes (e.g. during breaks at work). To reap the greatest health benefits, Tai Chi should be practised on a regular basis. Most Tai Chi programmes tested in medical research with positive physiological or psychological outcomes consist of once or twice weekly sessions for at least 8 weeks.

The World Health Organization recommends adults to do: (a) at least 150 minutes of moderate-intensity aerobic physical activity throughout the week, or at least 75 minutes of vigorous-intensity aerobic physical throughout the week, or an equivalent combination of both; (b) muscle-strengthening activities involving major muscle groups on 2 or more days a week. Elders with poor mobility should also include physical activity that can enhance balance and prevent falls on 3 or more days per week.[27] Tai Chi is a good choice of physical activity for them.

As with starting any exercise programmes, people suffering from chronic illnesses (such as hypertension, heart disease, stroke, diabetes, arthritis or other joint problems) and those who have not exercised for a while should check with a doctor before starting Tai Chi. In accordance with individual health status (e.g. previous joint operation) and levels of mobility and flexibility, it is possible to modify Tai Chi (e.g. range of movement). It is also important to wear appropriate clothing that allows freedom of movement and well-padded non-slippery shoes. Always warm up before the practice and cool down afterwards. Do not practise with an empty or full stomach. Replenish extra fluid before and after Tai Chi. If feeling unwell, stop practising and seek medical advice if necessary.

To attain physical fitness and mental harmony, consider making Tai Chi part of your daily routine!

Physiotherapy Series: "Simplified Tai Chi Chuan — 24 Forms for Healthier Body and Mind"

The Department of Health is launching a new DVD entitled "*Simplified Tai Chi Chuan — 24 Forms for Healthier Body and Mind*" to help the public to know more about Tai Chi Chuan and its health benefit. The features of the DVD include:

1. Explanation of the characteristic and benefits of TCC from a modern medical view
2. Explanation of the correct steps and common errors from a biomechanical view
3. A physiotherapist-designed warm up exercise (with simplification to suit learners with different abilities)
4. Multi-angle illustration of movement (views from the front, back, sides and top)
5. Use of signs to assist learning
6. Simplification of certain steps to suit learners of different abilities
7. 3 different types of demonstrations (individual movement, groups of movements and beginning to end demonstration)
8. 8 illustrated strip posters with detailed instructions on the movements and warm up exercise to aid revision

The DVD will be an excellent supplementary learning package for those who has basic idea on TCC or are learning Simplified TCC-24 Forms under the guidance of an instructor.

Filmed in Cantonese with subtitles in Traditional Chinese and English, the DVD is priced at HK$ 20 and will be available for sale at Elderly Health Centres or Central Health Education Units of DH in early May 2012. For enquiries, please call 2121 8621 or browse www.elderly.gov.hk.

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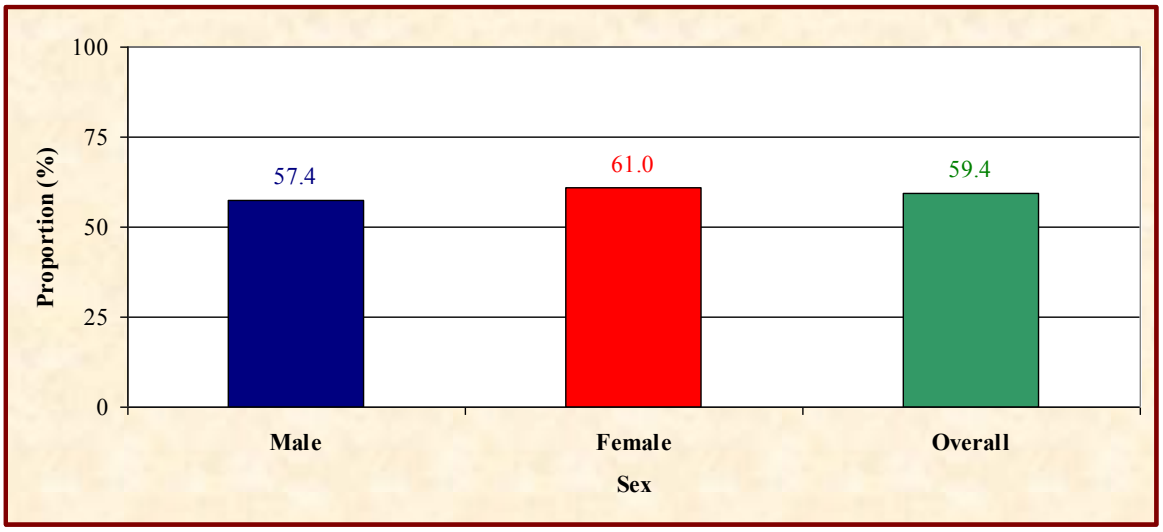
Data Brief

Walking is a good and inexpensive all-round mode of physical activity that can be done just about anywhere and anytime. Every bit of short walks, long walks or stair-climbing helps get fit and improve general health. For most people, walking is a safe and effective form of exercise for weight control. Having a sufficient 'daily dose' of walking can reduce the risk of developing a number of chronic illnesses, including high blood pressure, heart disease, stroke, depression, diabetes mellitus and some types of cancer (e.g. colon cancer).

The Behavioural Risk Factor Survey conducted by the Department of Health in April 2010 showed that 59.4% of adults aged 18-64 spent a daily average of 30 minutes or more on walking. While any walking is far better than none, health benefits obtained from a brisk walk is better than a stroll. A brisk walk means walking at a rate that makes people slightly out of breath but still be able to talk, feel a bit sweaty and get the heart beating slightly faster. To maximize the health benefits from walking, members of the public are encouraged to walk more briskly!

To encourage the public (especially those who seldom exercise) to take up 'fitness walking' on a frequent basis, the Leisure and Cultural Services Department set up 33 walking tracks in the 18 districts and produced a booklet "*Promotion of Fitness Walking*" in 2010. To learn more about 'fitness walking' or for illustrations and information of the walking tracks (e.g. track lengths), please refer to the booklet "*Promotion of Fitness Walking*" at http://www.lcsd.gov.hk/specials/sportforall/pdf/fitness.pdf (Chinese version only).

Proportion of adults aged 18-64 spent a daily average of 30 minutes or more on walking by sex



Source: Behavioural Risk Factor Survey, April 2010.

News Bites

Women who are physically active in their teens are less prone to cognitive impairment in later life, a study in the United States (US) reports.

The study involved 9 344 women aged 65 and above recruited from four metropolitan areas in the US, and assessed the relationship between their physical activity status in teenage years, at age 30, at age 50, in late life and the cognitive function in late life. Self-reported physical activity was assessed by using a modified Paffenbarger Physical Activity Questionnaire, while cognitive function was assessed by using a modified Mini-Mental State Examination. Results showed that women who were physically active in teenage years, at 30 years, at 50 years and in late life had a respective 35%, 20%, 29% and 26% lowered risk of cognitive impairment in old age than those who were inactive, after adjusting for a number of significant confounders (including age, years of education, marital status, smoking, body mass index, diabetes, hypertension and depressive symptoms). When physical activity status for all four ages were analysed together, teenage physical activity was most strongly associated with lower risk of cognitive impairment in old age. For women who were physically inactive at teenage but became physically active at age 30 and age 50, they also had significantly lower risks of cognitive impairment in old age than those who remained physically inactive throughout life, although not to the degree that women who were active as teenagers had.

The results suggest that people should start becoming physically active at an early age and maintain physically active across the life course to minimise the risk of cognitive impairment in old age.

[Source: Middleton LE, Barnes DE, Lui LY, et al. Physical activity over the life course and its association with cognitive performance and impairment in old age. J Am Geriatr Soc 2010; 58: 1322-6.]

Non-Communicable Diseases (NCD) WATCH *is dedicated to promote public's awareness of and disseminate health information about non-communicable diseases and related issues, and the importance of their prevention and control. It is also an indication of our commitments in responsive risk communication and to address the growing non-communicable disease threats to the health of our community.*

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