

Effectiveness of Tai Chi training to alleviate metabolic syndrome in abdominal obese older adults: a randomised controlled trial

Parco M Siu, Angus P Yu, Doris S Yu, Stanley S Hui, Jean Woo

Abstract

Background Metabolic syndrome (MetS) is a serious public health problem in Hong Kong and worldwide. Older adults (age ≥ 50 years), the age group with the highest prevalence of MetS, may prefer specific exercise modalities that are suitable for them to manage MetS. This study examined the effectiveness of Tai Chi to improve the MetS parameters in older adults with central obesity.

Methods In this three-arm, single-blinded, randomised controlled trial, we recruited Chinese adults aged 50 years or older with central obesity (male participants with a waist circumference [WC] ≥ 90 cm and female participants with a WC ≥ 80 cm) from the Hong Kong community. Participants were randomly assigned to either the control group (who received no intervention), the fitness group (who received 12-week of generic fitness intervention), or Tai Chi group (who received 12-week of Yang-style Tai Chi intervention [three sessions weekly]). The National Cholesterol Education Program (NCEP) ATP III-defined MetS parameters and hip circumference were assessed before and after the experimental period. The primary endpoint was the change in WC at 12 weeks after randomisation. Data were analysed by generalised estimated equation (GEE) and one-way ANOVA with Tukey post-hoc test. Written informed consent was obtained before the study began. All experimental procedures received human ethics approval (HSEARS20140928001). This study was registered on ClinicalTrials.gov, NCT03107741.

Findings Between March 10, 2016, and Nov 19, 2016, 142 Chinese adults were randomly assigned to either the control group (n=51), the fitness group (n=43), or the Tai Chi group (n=48). At 12 weeks after randomisation, ten (21%) of 48 participants in the Tai Chi group, seven (16%) of 43 participants in the fitness group, and five (10%) of 51 participants in the control group were no longer diagnosed with central obesity. Intervention \times time effects were found in WC (GEE, $p=0.020$), indicating that the difference in change in WC between control, fitness, and Tai Chi groups after 12 weeks was associated with the interventions. WC was decreased by about 2% in the Tai Chi group while it was increased by about 1% in both the fitness and control groups. The decrease in WC in the Tai Chi group was significantly larger than that of the control group (One-way ANOVA, $p=0.044$) and fitness group ($p=0.022$).

Interpretation A 12-week of Tai Chi training reduced central obesity indicated by the decrease in WC. The improvement in central obesity after Tai Chi training suggested that Tai Chi is a suitable exercise modality for older adults to manage central obesity, and thus to reduce the risk of associated diseases.

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Contributors

APY performed the experiments. PMS, DSY, SSH, and JW designed the study. PMS and APY analysed and interpreted the data. PMS and APY wrote and edited the Abstract.

Declaration of interests

We declare no competing interests.

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School of Public Health,
Li Ka Shing Faculty of Medicine,
The University of Hong Kong,
Pokfulam, Hong Kong Special
Administrative Region, China
(P M Siu PhD, A P Yu MPhil);
The Nethersole School
of Nursing, Faculty
of Medicine (Prof D S Yu PhD),
Department of Sports
Science and Physical Education,
Faculty of Education
(Prof S S Hui EdD),
and Department of Medicine
and Therapeutics, Faculty
of Medicine (Prof J Woo MD),
The Chinese University
of Hong Kong, Shatin, Hong
Kong Special Administrative
Region, China

Correspondence to:
Dr Parco M Siu,
School of Public Health,
Li Ka Shing Faculty of Medicine,
The University of Hong Kong,
Pokfulam, Hong Kong Special
Administrative Region 852,
China
pmsiu@hku.hk