

Effects of Tai Chi on Body Composition and Heart Rate Variability during COVID-19 Pandemic among Chinese College Students: A Pilot Study

Min Wang*, ** Dr.Rojapon Buranarugsa*** Dr.Sawitri Wanpen**** Shuxun Chi** Dr.Kurusart Konham****, *****¹

ABSTRACT

Objective: COVID-19 restrictions have further reduced college students' opportunities for physical activity (PA). This pilot study aimed to assess the effects of 6-week simplified Tai Chi (TC) on body composition and heart rate variability (HRV) among college students. Methods: This single-arm, single-blind, pilot study enrolled 6 beginners from 45 individuals. Body composition and HRV were assessed at the beginning and end of the TC exercise intervention, respectively. The intervention was performed twice a week for 6 weeks, each session lasting 45 minutes and consisting of warming-up, practice and cooling-down exercises during COVID-19 Pandemic. Results: the 6-week simplified TC did not improve body composition. However, there was a significant increase in changes in body fat ratio and body fat and a significant decline in changes in skeletal muscle mass and limb skeletal muscle index. However, it showed an increase in the high-frequency (HF) ($p < 0.05$) and SDNN component, and reduced low-frequency (LF) and low-frequency/high-frequency ratio (LF/HF) of HRV among college students. Conclusion: Only 6-week simplified TC do not effective for reducing fat and increasing muscle mass, but it can significantly increase parasympathetic levels and reduced sympathetic activations during COVID-19 epidemic. TC appears to be a highly effective intervention for improving parasympathetic nervous system activity among college students in pandemic conditions.

Keywords: Fat reduction; Muscle mass; High-frequency; Parasympathetic nervous system activity

¹Corresponding author: Assistant Professor, Dr.Kurusart Konharn, Ph.D, School of Physical Therapy, Faculty of Associated Medical Sciences, Khon Kaen University, Khon Kaen, Thailand, E-mail: mf_thailand@yahoo.com

*Postgraduate Program in Exercise and Sport Sciences, Graduate school, Khon Kaen University, Khon Kaen, Thailand.

**School of Physical Education, Huzhou University, Zhe Jiang, China.

*** Faculty of Education, Khon Kaen University, Khon Kaen, Thailand.

****School of Physical Therapy, Faculty of Associated Medical Sciences, Khon Kaen University, Khon Kaen, Thailand.

*****Research Center in Back, Neck, Other Joint Pain and Human Performance (BNOJPH), Khon Kaen University, Khon Kaen, Thailand.