



# A systematic review of the health benefits of Tai Chi for students in higher education

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## ABSTRACT

**Background.** The poor health consequences of stress are well recognized, and students in higher education may be at particular risk. Tai Chi integrates physical exercise with mindfulness techniques and seems well suited to relieve stress and related conditions.

**Methods.** We conducted a systematic review of the health benefits of Tai Chi for students in higher education reported in the English and Chinese literature, using an evidence hierarchy approach, allowing the inclusion of studies additional to randomized controlled trials.

**Results.** Sixty eight reports in Chinese and 8 in English were included – a combined study sample of 9263 participants. Eighty one health outcomes were extracted from reports, and assigned evidence scores according to the evidence hierarchy. Four primary and eight secondary outcomes were found. Tai Chi is likely to benefit participants by increasing flexibility, reducing symptoms of depression, decreasing anxiety, and improving interpersonal sensitivity (primary outcomes). Secondary outcomes include improved lung capacity, balance, 800/1000m run time, quality of sleep, symptoms of compulsion, somatization and phobia, and decreased hostility.

**Conclusions.** Our results show Tai Chi yields psychological and physical benefits, and should be considered by higher education institutions as a possible means to promote the physical and psychological well-being of their students.

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**Table 1**  
Keywords used in English-language literature search

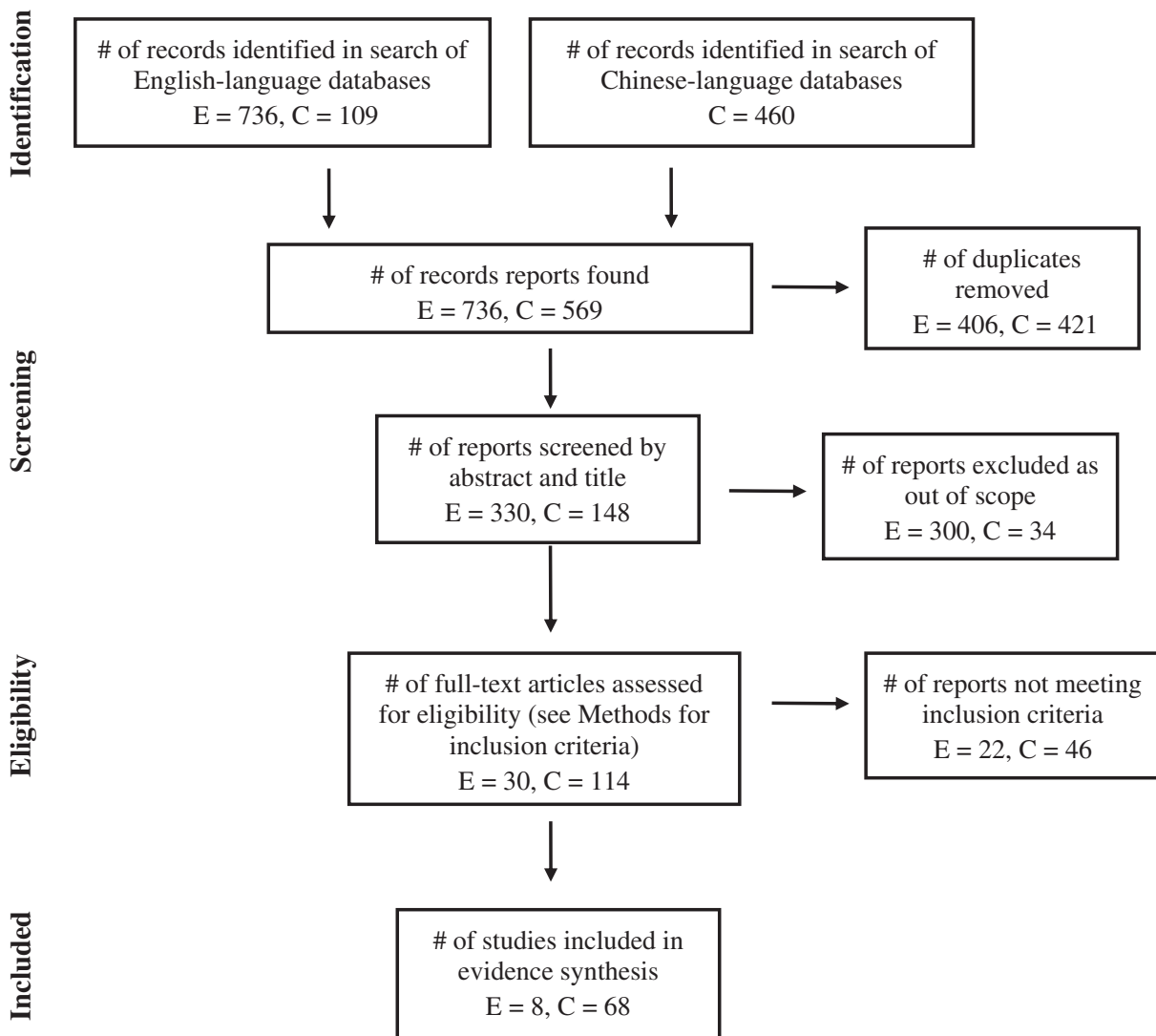
Set one – terms related to students		
Student Undergraduate	College student Postgraduate	University student Graduate
Set two – variant names of Tai Chi		
Tai Chi	Taiji	
Set three – terms for physical and mental health		
Health	Mental	Physical
Depression	Stress	Well-being
Quality of life	Anxiety	Psychological
Physiological		

## Introduction

Excess stress is widely recognized as a major health problem worldwide (Thoits, 2010). Chronic stress has been linked repeatedly to increased mortality, morbidity and decreased functioning of the

immune system, as well as diminished cognitive function and poorer mental health (Juster et al., 2010). Students in higher education who face the pressures of a heavy workload, examinations and entrance restrictions on favored courses, such as those used in medical schools, are particularly at risk of long-term stress and the resulting higher likelihood of burnout (Dyrbye et al., 2010, 2006; McManus et al., 2002). The prevalence and severity of many psychological conditions in students have increased over recent years, with consequences such as poor concentration and compromised productivity, which can be devastating for their productive involvement in future careers (Hunt and Eisenberg, 2010; Knight, 2013). It has also been shown that students' physical health may deteriorate, with some students exercising and sleeping less once they begin studying (Wolf and Kissling, 1984).

A large body of research has investigated how students may react to stressors (Alzahem et al., 2011; Zhang and Goodson, 2011). Maladaptive ways of coping with stress include excessive alcohol use (Park and Levenson, 2002) and unhealthy eating habits (Wichianson et al., 2009), as well as denial and avoidance (Maclean et al., 2007), – these may provide temporary relief but exacerbate stress in the long term. In contrast, adaptive coping strategies are generally associated with



**Fig. 1.** Combined flow diagram for Chinese and English database searches\* \*Number of reports: E = English, C = Chinese.

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