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**"Tai chi: physiological characteristics and beneficial effects on health"**

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**OBJECTIVES:** To assess the characteristic effects of Tai Chi Chuan (TCC) exercise on metabolism and cardiorespiratory response, and to measure its effect on cardiorespiratory function, mental control, immune capacity, and the prevention of falls in elderly people.

**DESIGN:** A review of controlled experimental studies and clinical trials designed with one of two aims: either to assess physiological responses during the performance of TCC or to assess the impact of this exercise on general health and fitness.

**MAIN OUTCOME MEASURES:** Metabolic rate, heart rate, blood pressure, ventilation, maximal oxygen uptake (VO(2)MAX), immune capacity, falls, and fall related factors.

**SUBJECTS:** A total of 2216 men and women.

**RESULTS:** Under review were 31 original studies, published in Chinese or English journals that met the criteria for inclusion. Most of the papers written in Chinese had not been introduced into the Western literature. Nine of these studies showed that TCC can be classified as moderate exercise, as it does not demand more than 55% of maximal oxygen intake. When this form of exercise and others conducted at equal intensity were compared, TCC showed a significantly lower ventilatory equivalent (VE/VO(2)MAX). Evidence provided by cross sectional and longitudinal studies suggests that TCC exercise has beneficial effects on cardiorespiratory and musculoskeletal function, posture control capacity, and the reduction of falls experienced by the elderly.

**CONCLUSIONS:** TCC is a moderate intensity exercise that is beneficial to cardiorespiratory function, immune capacity, mental control, flexibility, and balance control; it improves muscle strength and reduces the risk of falls in the elderly