

# Older subjects who regularly practice Tai Chi found to have better arterial compliance

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Exercise which can achieve both cardiovascular function and muscle strength "would be a preferred mode of training for older persons", say investigators

Experienced practitioners of Tai Chi, the traditional Chinese mind-body exercise now enjoyed worldwide, have been shown in a study of older subjects to have improved expansion and contraction of arteries according to cardiac pulsation (arterial compliance) and improved knee [muscle strength](#).

The findings, say the investigators, of better muscle strength without jeopardising arterial compliance suggest that Tai Chi may well be a suitable exercise for older people to improve both [cardiovascular function](#) and body strength. A number of studies, they explain, have shown that strength training to improve [muscle function](#) and offset the effects of ageing have also been accompanied by a decline in arterial compliance. "Evidence that [strength training](#) could change arterial compliance in middle-aged and older subjects is still elusive," they note.

As background to their report, the investigators explain that arterial stiffness - when an artery fails to distend or rebound in response to [pressure changes](#) - is closely associated with cardiovascular diseases, possibly through elevated blood and pulse pressure and atherosclerosis. Arterial compliance, therefore, has been identified as an important predictor of [cardiovascular health](#) in the elderly and a [therapeutic target](#) for [physical exercise](#) in the prevention of cardiovascular disease.

The study, published online today in the *European Journal of Preventive Cardiology*, involved 65 [elderly subjects](#) from Hong Kong, 29 recruited from local Tai Chi clubs who had each practised Tai Chi for at least 1.5 hours a week for three years, and 36 controls with no Tai Chi experience. All subjects' physical activity levels were defined according to metabolic index units as light, moderate and heavy - but there were no differences between the two groups.

Initial results showed that the Tai Chi subjects were better in almost all haemodynamic observations - including blood pressure, vascular resistance, and [pulse pressure](#). Measurements also showed that both large and small artery compliance was significantly higher in the Tai Chi group (by 40-44%). Additional analysis showed that the Tai Chi subjects had greater average muscle strength in both their knee extensors and flexors.

Tai Chi is well known for its aerobic affects. Significant improvement in cardiopulmonary function has been found in Tai Chi practitioners when compared with sedentary controls, and Tai Chi training has been shown to improve cardiopulmonary function in patients with chronic heart failure and myocardial infarction. The effect of Tai Chi training in lowering blood pressure has also been extensively reviewed.

"However," said principal investigator Dr William Tsang from the The Hong Kong Polytechnic University in Hong Kong, "this is the first study to investigate the possible effects of Tai Chi on arterial compliance by comparing older Tai Chi practitioners with non-practitioners similar in age and activity level. The improvement in arterial compliance could have resulted from a combination of aerobic training, stretching, mental concentration and calm meditation during Tai Chi movement."

The study findings showed that older Tai Chi practitioners have better arterial compliance and knee muscle strength than their healthy

counterparts. And, because Tai Chi can be practised at any time, anywhere, and without the constraints of equipment or a gymnasium, Dr Tsang added that this traditional Chinese exercise could be a good exercise strategy for older adults, both for vascular health and for muscle strengthening.

**More information:** Lu X, Hui-Chan CWY, Tsang WWN. Tai Chi, arterial compliance, and muscle strength in older adults. *Eur J Prevent Cardiol* 2012; [DOI: 10.1177/2047487312443483](https://doi.org/10.1177/2047487312443483)

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