

Biomechanical approach to Tai-Chi. Relaxation and stability

S. Tassani¹, J. M. Font-Llagunes², J. Noailly¹

¹Universitat Pompeu Fabra, Department of Information and Communication Technologies, Barcelona, Spain

²Biomedical Engineering Research Centre, Universitat Politècnica de Catalunya, Department of Mechanical Engineering, Barcelona, Spain

e-mail: simone.tassani@upf.edu

Resumen

Tai Chi is an ancient martial art based on stability and elasticity and it is usually suggested as physical activity for the wellbeing of elder people. In the last few years several studies were presented about the beneficial effect of Tai Chi. Nonetheless, the variability of teaching methods within this discipline creates difficulties in the univocal evaluation of the discipline and its effects [Lauche, 2013]. However, the study of the discipline reveals that all are based on the concept of relaxation in order to teach both stability and elasticity. Accordingly, the present study aims to measure the effect of relaxation over the stability of the subjects.

The statokinesigram of 10 subjects was acquired. Foot-ground contact forces were recorded by using a force plate (100Hz sampling). Subjects were asked to stand over the force-plate for one minute. Each subject was analysed three times to simulate different conditions: control, tense and relaxed conditions.

Four different parameters were computed for each subject: mean distance, RMS distance, mean velocity and 95% confidence circle area. For significant results a Wilcoxon paired non-parametric test was used to compare results of different condition (significance 0.05).

The only parameter showing a difference of variance was the mean velocity ($p < 0.001$).

Velocity of both control and relaxed condition were found significantly smaller than the tense one, suggesting a reduced stability of the latter. It is important to notice how the extremely common task of standing can be influenced by the simulation of a tense stance.

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References

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