

THE COMPARISON OF GAIT CHARACTERISTICS BETWEEN OLDER TAI-CHI CHUAN PRACTITIONERS AND NON PRACTITIONERS

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KEY WORDS: Tai-Chi Chuan, gait, older adult

INTRODUCTION: Tai-Chi Chuan (TCC) is a traditional Chinese exercise, which recently has become popular in the western world. The reported benefits of TCC exercise, include increased lower extremity muscle strength, improved balance, improved cardiopulmonary function, and improved overall wellness (Koh T.C., 1981). However, up to the present time, there have been no studies that have proven the effects of TCC exercise on walking performance. The purpose of this study is to determine whether or not TCC exercise has a beneficial effect on the normal speed of walking in older adults.

METHODS: Twenty-four older healthy women over 55 years old were recruited for this study, 12 subjects (weight: 69.7 ± 16.4 kg; height: 161.4 ± 7.2 cm) practiced TCC exercise at least twice per week. The remaining subjects (weight: 74.5 ± 21.2 kg; height: 160.3 ± 6.7 cm) practiced walking regularly, with the exception of one who swam. The health status screening examinations were used to determine the subjects' health status. Imprint foot recordings of normal-paced walking were utilized for data collection (Boenig D.D., 1977). After completion of the screening examinations, each subject was required to have adequate preliminary practice and then to complete 3 trials of ink imprint recordings with specific rest periods provided in between trials. Six gait characteristics were measured and analyzed for the test, including step length, step width, left foot angle, right foot angle, velocity, and cadence. Mann-Whitney U test was used to determine the difference between two groups in all temporal-spatial gait characteristics (significant level = 0.05).

RESULTS AND DISCUSSION: The anthropometric data and exercise patterns were similar when comparing both groups. All gait characteristics between the two groups did not reach a significant level. However, most TCC practitioners reported that TCC had improved their leg strength and overall balance in the health screening questionnaires. These findings indicated a tendency towards better walking performance in the TCC exercise group.

CONCLUSIONS: TCC exercise is as beneficial as regular walking for maintaining optimum walking performance and its dynamic nature may result in the unique benefits of improved balance and ease of movement that a walking program does not provide. Therefore, it is important to study specific biomechanics and motor control that are related to balance function in TCC exercise population in order to evaluate its benefits to an aging population.

REFERENCES:

- Koh, T.C. (1981). Tai Chi Chuan. *American Journal of Chinese Medicine*, **IX**(1), 15-22.
Boenig, D.D. (1977). Evaluation of a clinical method of gait analysis. *Physical Therapy*, **57**, 795-798.