EFFECTS OF EXERCISE IN GAIT KINETICS IN ELDERLY MEN
Moniz Pereira Vera, João Filipa, Veloso António
(Faculty of Human Kinetics, Portugal)

INTRODUCTION: Gait is a complex motor pattern very important to the autonomy and the quality of life. The loss of physical function with aging, some injuries or diseases may induce changes in the gate pattern (GP) and therefore affect the quality of life of the elderly. On the other side, exercise is associated with the maintenance of physical function and autonomy in the elderly. Thus, the purpose of this study was to verify if exercise of moderate/elevated intensity can maintain some kinematics parameters of GP through aging.

METHOD: Two groups participated on the study: five young (21.8 (0.45) y) males and three old males (69.3 (8.4) y). All participants participated in structured exercise 4 times a week and didn’t have any gait pathology.

The variables tested were: Stance Duration (STD), Double Support Duration (DSD), Swing Duration (SWD), Stride Velocity (SV) and Heel Horizontal Velocity at Initial Contact (HHVIC).

The software used for movement analysis was SIMI Reality Motion Systems and SPSS 14.0 was used to made statistical analysis (Mann-Whitney Test).

RESULTS AND DISCUSSION: Through aging, STD and DSD, with the need of finding greater stability and prevent the loss of balance during the stride[3], have tendency to increase with the need of finding greater stability and prevent the loss of balance during the stride[3]. However, between these two groups, no differences were found and the values obtained (STD: young – 61%, old – 59%; DSD young – 21.8%, old – 17.67%; SWD young – 39%, old – 41%) agree with the ones referred as normal by Winter (1991).

SV, a valid and practical measure for mobility and a reflection of activity of daily living function, seems to decrease with aging[2]. Nevertheless, no differences were found between these two groups and the results obtained (young: 1.54m/s; old: 1.64m/s) were, in general, superiors to those found in the references[1, 2].

Although SV seems to decrease with aging, the HHVIC appears to increase. This velocity rapidly reduces to zero after the start of weight bearing and this reduction results from friction between the heel and the floor. If the friction of the ground is low, the potential for a slip-induced fall increases drastically[3]. However, no differences were found for this variable between these two groups and the values obtained (young: 0.30 m/s; old: 0.43 m/s) were very different comparing with the data referred by Winter (1991).

CONCLUSION: There were no differences for all the kinematics parameters compared between groups and, in general, the two groups obtained the normal values found in the literature for the young. So, it’s possible to conclude that exercise practise allows the maintenance of these kinematics parameters through aging and therefore the maintenance of functionality and quality of life.

REFERENCES:

Keywords: Gait, Elderly, Exercise