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The consequences of interrupting adapted physical activity program on a population of elderly subjects

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Exercise is generally recommended for elderly subjects although the effects of the different programmes used in the adapted physical activity (APA) centers are not always properly verified. The aim of this study was to evaluate the response of elderly subjects attending classes of APA to a moderate aerobic physical activity.

In 15 subjects (2/13 M/F), mean age 67,8±13,8 yrs, body mass index 23,7±3,5 Kg/m2 attending an APA class we evaluated ankle joint mobility (inclinometer), hand strength (Jamar hand grip), walking speed and step length (10 and 20 meters), aerobic capacity and endurance (6 Minute Walk Test-6MWT), lower extremity function (SPPB: short physical performance battery), posture (sagittal images), and peripheral microcirculation (Laser doppler flowmetry). The subjects were evaluated in the following 3 stages: at the end of a 8-months APA period, after 4 months of inactivity and 4 months after recommencing of a new period of the same programme. All the subjects included in the study performed a training programme of APA twice a week for 1 hour each. The training programme consisted in 10 minutes of organic activation, 30 minutes of moderate physical activity at 45-65% of VO2 peak and toning, 20 minutes of exercises on the floor: breathing and stretching. After 4 months of inactivity, the subjects investigated showed a significant and widespread reduction of the gait parameters investigated: 6MWT (446.5 ± 91.4 vs 429 ± 89.4 mt, $p < 0.01$); 10 meters (step length: 0.67 ± 0.09 vs 0.63 ± 0.08 mt – time: 7.6 ± 1.7 vs 8.5 ± 1.7''); 20 meters (step length: 0.71 ± 0.08 vs 0.67 ± 0.06 mt – time: 14.0 ± 2.1 vs 15.4 ± 2.0''). After 4 months of training there was a significant, even if partial recovery of the parameters investigated in comparison to the results achieved after the inactivity period,: 6MWT (438.05 ± 92.3 mt, $p < 0.01$); 10 meters (step length: 0.65 ± 0.07 mt – time: 8.0 ± 1.7'', $p < 0.01$); 20 meters (step length: 0.68 ± 0.07 mt, $p = 0.15$ – time: 14.6 ± 2.1'', $p < 0.01$). The 4 meter walking speed (SPPB) evaluated in the subjects investigated was correlated with 10 mt ($r = 0.69$, $p < 0.01$) and 20 mt ($r = 0.6$, $p < 0, 05$). The length of the step measured in the 10 and 20 meters tests was correlated with the ankle mobility (10 mt: $r = 0.7$, $p < 0.01$; 20 mt: $r = 0.62$, $p < 0.5$). The results of this study show that in a population of elderly subjects a programme of APA, as scheduled and performed in this study, significantly improves the gait parameters. However, a short interruption of the APA training significantly reduced the walking speed and step length. This study, in addition to underlining the importance of the APA programmes, also shows that it is necessary to reduce or avoid interruptions of these physical activities.

References

[1] Benedetti MG, et al. (2008) Effects of an adapted physical activity program in a group of elderly subjects with flexed posture: clinical and instrumental assessment. J Neuroeng Rehabil. 5: 32.
[2] Marini M, et al. (2008) Role of adapted physical activity to prevent the adverse effects of the sarcopenia. A pilot study. Ital J Anat Embryol. 113:217-25.

Key words

Adapted physical activity, Sedentary , Gait speed.

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