A study on balance ability levels among youths with different physical activity background

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**Background:** Balance is one of the primary abilities developed during the motor and skeletal evolution. Regular and specific training throughout the lifespan could improve the balance and, in turn, the execution of complex motor patterns as well as of the normal daily activities (Ricotti, 2011).

**Aim:** In this study we investigate the relation between the balance abilities and different types of physical activities (PA) in youths.

**Method:** Thirty-six subjects (age: 24±17 years; male/female: 18/18) were enrolled and grouped into two PA categories: the **exergame** group includes subjects who use Nintendo Wii Balance Board gaming at least twice a week (n=12), and the **sport** group includes subjects who practice sport at least twice a week (n=12). Subjects who do not practice sports or physical activity were enrolled as **control** (n=12). The postural control was assessed by means of normal standing balance tests (for 30s) with open eyes (OE) and closed eyes (CE), respectively; a force plate (AMTI Model OR6-7) was used to acquire data of the centre of pressure (CoP) sway. According to previous study [2], we were able to select two variables from CoP sway: the total displacement of sway (DOT) and the mean velocity. The mean velocity was estimated for antero-posterior (MV$_{AP}$) and lateral-lateral (MV$_{LL}$) directions, respectively. Statistical analysis was carried out with SPSS (SPSS Inc, Ver. 20). Significance of differences was assessed by one-way ANOVA followed by Bonferroni post-hoc test (95% confidence level).

**Result:** ANOVA revealed significant differences among groups for the three variables. We found that the mean of DOT and MV$_{AP}$ was significantly decreased in the exergame’s group compared with the others study groups. Of note, the differences were higher for CE than OE test.

**Conclusion:** Our findings suggest that the balance ability reaches a mastery level during the youth age-period. However, a specific program of balance training using the exergaming approach could improve the proficiency level of the aforementioned ability more than conventional sport training.

**References**


**Keywords**

Balance Ability; Exergaming; CoP Assessment.