

## **Abstract**

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**Title:** Postural stability measured by the Y-balance test in girls who practice sports aerobics and sports gymnastics.

**Objectives:** The aim of this diploma thesis is to find out the difference in postural stability in girls from sports aerobics and artistic gymnastics. Compare the athletes from different age categories and see if the postural stability improves with age. The diploma thesis also tries to clarify the effect of hypermobility on postural control.

**Methods:** 79 girls – 42 from sports aerobics and 37 from sports gymnastics – participated in this research. Probandes were from 8 years old to adult girls. All the measurements were done in the gyms of the participating clubs from October 2021 to February 2022. The girls were measured by Y-balance test which tests their dynamic postural balance and by Beighton score which tests their hypermobility. Microsoft Excel 365 and statistical software R (version 4.0.3.) were used for evaluation of results. The results were processed using a linear regression model. As a level of statistical significance was considered  $\alpha=0,005$ .

**Results:** This study showed that there are statistically significant differences in postural stability between girls from sports gymnastics and sports aerobics. The significant difference is in evaluation of all age groups together and also separately in group 11-13 years for dominant and nondominant lower extremity and in group 8-10 year for nondominant lower extremity. On the other side there hasn't been confirmed improving of postural control with ages neither worsening with higher level of hypermobility.

**Keywords:** postural balance, Y-balance test, hypermobility, Beighton score, sports aerobics, sports gymnastics, age