

## **Abstract**

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**Title of the thesis:** Evaluation of the stabilizing ability of pole dancers

**Objectives:** The main aim of the study is to assess the static and dynamic postural stability in women regularly practising pole dance, and to compare their stabilizing ability to women from healthy general population, who do not practise sport regularly. The next aim is to focus on the evaluation of the effect of pole dance exercise on the activity of vestibular system in static and dynamic postural stability, and compare the results to the same control group of women.

**Methods:** The study is designed as observational, comparative and cross-sectional. 34 women within the range of 18-30 years of age took part in the study and were divided into 2 groups. Experimental group (n=17) consisted of pole dancers, whereas women without regular physical activity (n=17) represented control group. The measurement of static and dynamic postural stability was performed using dynamic computer posturograph *NeuroCom SMART Equi Test (MCT)*, *Rhythmic Weight Shift (RWS)* and *Head Shake – Sensory Organization Test (HS-SOT)*. Collected results of both groups were analyzed using *Microsoft Excel 2016* and compared.

**Results:** In SOT protocol, no statistically significant differences were found between the groups, Composite reached  $p = 0,47$  favoring pole dancers. In Latency parametr of MCT test a significant difference was recorded in condition LL-Forward ( $p = 0,03$ ) and LR-Forward ( $p = 0,01$ ), also favoring pole dancers, Composite almost reached statistical significance ( $p = 0,06$ ) in favor of pole dancers. Neither WS nor SS did not show any significant differences between the groups, after addition of parameters from Deviation from Symetry for WS and SS, the difference for SS reached significance ( $p = 0,05$ ) in favor of pole dancers. DCL during RWS test did not reveal any statistically significant differences between the groups. HS-SOT testing showed significant difference in favor of dancers in SOT COND2 vertical ( $p = 0,03$ ) and in SOT COND5 roll ( $p = 0,01$ ). EQSR parameter revealed significant difference also in SOT COND 2 vertical ( $p = 0,04$ ) favoring dancers.

**Conclusion:** The study did not demonstrate conclusively, that pole dancers show better postural stability in comparison to women not practising sport. Statistically significant differences were shown under several testing conditions only. The results imply a positive

effect of this sport on vestibular system. However, significant difference was shown only in certain testing parameters. To gain more complex knowledge about the postural stability in pole dance sport, further investigation is needed.

**Key words:** Pole dance, postural stability, posture, stability, NeuroCom SMART EquiTest, vestibular system.