

## **Abstract**

Title of the thesis: Evaluation of postural stability and function of deep stabilization system of the spine in dancers

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**Objectives:** The aim of this thesis is to assess static and dynamic postural stability and function of deep stabilization system of the spine in modern dancers and to compare the results with general population that does not perform any regular physical activity. Next to analyse the relations between postural stability and function of deep stabilization system of the spine in both groups.

**Method:** This study is designed as observational comparative pilot study which included 16 modern dancers in experimental group and 11 women who do not perform any regular physical activity in control group. To evaluate the function of deep stabilization system of the spine a battery of seven tests by Kolář was created and used. Five basic testing protocols of NeuroCom Smart EquiTest, a computerized dynamic posturography device, were used to measure postural stability. Data from EquiTest were processed in NeuroCom Balance Manager software. All results were statistically analysed using Microsoft Office Excel 2016. Data were compared between groups and a correlation between postural stability and function of deep stabilization system of the spine was analysed.

**Results:** Statistically significant differences in favor of dancers were found in three deep spine stabilization system tests and in total score. In postural stability tests statistically significant difference was found only in latency of right lower limb in small forward translation in MCT with control group performing better than dancers. Statistically significant correlation was revealed between deep spine stabilization and reaction time in LOS test in dance group and between deep spine stabilization and equilibrium score of COND6 in SOT in control group.

**Key words:** modern dance, postural stability, computerized dynamic posturography, NeuroCom Smart EquiTest, core