

Abstract

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Title: Evaluation of the influence of regular slackline activity on the dynamic postural stability of the sport population aged 20-30 years

Aim: The aim of this work is an attempt to objectively evaluate the influence of regular slackline sporting activity on dynamic postural stability in comparison with a standard named “Athles Norm 20-30” (further stated as “Norm AN”) set for sporting population aged between 20 – 30 years.

Methods: The measurements were carried out in the Laboratory of kinesiology at the Faculty of Physical Education and Sport, Charles University. There were tested 10 participants aged 20-30 years doing the slackline sport for long time. For testing the dynamic postural stability were used the Sensory Organization Test, Unilateral Stance and Head Shake – Sensory Organization Test. The measurements on the NeuroCom Smart Equi Test were preceded by carrying out the Stork Standing Balance Test both in standardized form and modification. After specifying the statistic difference between the measured values and Norm AN there was used the Welch Test with the significance level of $\alpha = 0.05$. For evaluating the correlations there was used the Pearson Test. As a high degree of reliability there was accepted the value of $r \geq 0.70$.

Results: There were recorded significantly better results in the Equilibrium Score parameter within the Sensory Organization Test in terms of SOT 1 and SOT 4 in favour of the group of slackliners, as well as in the parameter of Sensory Analysis by the components of Somatosensory Ratio and Visual Preference. On the contrary, the Unilateral Stance Test did not show statistically significant differences within the gained data in comparison with the Norm AN as well as the Head Shake-Sensory Organization Test in comparison with the control group. The correlation between the Unilateral Stance and Standing Stork Balance Test was not proved, however there came out the dependence of the number of slackline active years upon maintaining the postural stability together with the significance of somatosensory system during doing this activity. There was further observed that an important role is played there by visual control.

Key words: slackline, dynamic postural stability, posture, stability, dynamic computer posturography, NeuroCom, Smart Equi Test, physiotherapy