Abstract

The presented thesis is focused on the influence of postural stability changes on respiratory muscle strength. The aim of this thesis was to determine whether the respiratory muscle strength will change during the increased demands on postural stability, and if so, then how exactly. The theoretical part summarized the findings about the diaphragm and its postural stabilizing function, about the connection between breathing and postural control as well as about the influence of body position on respiratory muscle strength. In the practical part of the thesis, the values of the maximal respiratory mouth pressures were measured (PI max and PE max) on 21 healthy subjects ranging from 20 to 26 years of age using the spirometer in three postural situations – standing, standing on the balance surface and standing on the balance surface with no visual control. Throughout the whole group, there were no significant statistical differences (p ≥ 0.05) in the outcome values of the measured postural situations. Two trends were observed in the changes of values of PI max and PE max. During the increased demands for postural stability the value of PI max was higher for 29% and lower for 71% of the measured individuals. The value of PE max was higher for 33% and lower for 67% of the measured individuals. This thesis is mainly a physiological study which could contribute to the revelation of neuropsychological postural control mechanism in relation to the respiratory muscles activity.

Keywords
diaphragm, postural stability, respiratory muscle strength, maximal inspiratory and expiratory mouth pressures