Abstract

This thesis focused on demonstrating the connection between compression force and change in centre of gravity in standing. The theoretical part summarised the findings regarding motor control of leg and hand kinesiology, the importance of maximal muscle contraction of the grip and the importance of centre of gravity.

METHODS: In this study, 57 probands aged 15-35 years were randomly divided into two groups A (31 probands, 17 females; 29 right upper limb dominant) and B (14 probands, 8 females; 14 right upper limb dominant). A total of 12 measurements of maximal grip strength were performed for each proband, 6 measurements for the right upper limb and 6 measurements for the left upper limb; for a given upper limb, 3 measurements were always performed with weight transfer to the heels and 3 with weight transfer to the toes. Assessment and control of weight transfer was performed using the PhysioSensing platform in the Static Analysis module. All total data from each measurement were then statistically processed using Jamovi version 2.2.5.

RESULTS: The main results of the study and the results of the sub-analysis show that there was no statistically significant result (for all results: $p>0.05$) in changes in grip strength when weight was transferred to the heels or toes.

CONCLUSION: The results of this study do not support any correlation between change in center of gravity and change in hand grip strength.