

Bachelor's thesis „Monitoring of the impact of external load on timing of shoulder girdle muscles during abduction in scapular plane - pilot sEMG study“ is focused on the changes of muscle activation pattern in response to increase of strength demands. Theoretical part contains a review on factors influencing the movement outcome and the strength capability of musculoskeletal system.

Experimental part is based on pilot sEMG study monitoring the impact of external load on timing of shoulder girdle muscles during abduction in scapular plane. Thirteen subjects (10 females, 3 males) at the age range from 20 to 30 years (median 21 years) were included in this study. The experiment consisted of 3 model situations: A) without external load, B) with light load (1kg) and C) with excess load (3-10kg).

All muscles were activated earlier with increasing load. The differences between mean onset times of individual muscles were decreasing with increasing load.

Results of this study support the theory of coordination-strength functional reserve of musculoskeletal system. Discussion summarizes possible consequences and possibilities of using this phenomenon; both in testing, therapy and monitoring its effects.