

## **Abstract**

**Author:** Bc. Veronika Szabóová

**Title:** Comparative analysis of selected muscles activity during ropeclimbing, pull-up and its modifications.

**Objectives:** The aim of the theoretical part of this thesis is to make a search of the available studies in the field of ropeclimbing and its training methods. The aim of this study is to evaluate the coordination of the selected muscles in terms of its timing during three specific training exercises compared to legless ropeclimbing.

**Methods:** The theoretical part of the thesis was elaborated on the basis of information from printed and electronic sources in the Czech and English language in the form of a research. In the practical part of the thesis the activity of ten selected muscles during ropeclimbing, pull-up and its modifications was monitored. The main research method was the surface electromyography. The representative sample of 11 participants examined in the study was properly chosen from active competitors in ropeclimbing. The study evaluates the order of muscle activation compared to the legless ropeclimbing as the reference movement. The treshold method was used for detection of the muscle activity. The Spearman correlation coefficient was used to evaluate the relationship between the variables and for statistical testing.

**Results:** In terms of timing of observed muscles the average movement cycle of the legeless ropeclimb has shown statistically significant difference in 90,9 % of participants compared to the average movement cycle of chin-up, low ropeclimb pull-up and high ropeclimb pull-up in the same individual. According to the research we cannot claim that the variations of ropeclimb pull-ups are more suitable option in term of timing of the observed muscles than chin-ups in general. Results of the study have shown that the grip height during the ropeclimb pull-up affects the timing of the observed muscles and consequently the coordination rate with the legless ropeclimb.

**Klíčová slova:** chin up, EMG, kinesiological analysis, electromyography, ropeclimbing pull-up, timing, treshold method.