

Abstract

Title: Development of improvement in muscle strength, coordination and speed in sport climbing in children of elementary school age

Objectives: The aim of this diploma theses is to investigate whether there will be an improvement of muscle strength, coordination and speed in children of elementary school age who attend club of sport climbing and compare results with control group. Another aim of this study is to indicate the relationship between the examined parameters.

Methods: This is a quantitative study - quasi-experiment in which 28 probands aged 7-11 years participated. They were deliberately selected and divided into two groups (climbers, non-climbers). Coordination measurements were performed using eight special tests, measurements of muscle strength were performed using three climbing tests and speed was measured by time of climbing on one route. The measurements were performed two with an interval of 3 months - in October 2019 and in January 2020.

Results: A statistically significant improvement ($p < 0.001$) was noted in coordination, specifically in rhythmic ability. Other improvements, which, however, no longer reached the level of statistical significance, was recorded in coordination in tests for differentiation ability, orientation ability, ability to rebuild; also in tests for muscle strength –bent – arm hang, finger hang and in the speed of climbing.

Moderate dependence was found between the climbing speed and grip strength, differentiation ability and rhythmic ability. Weak dependence was found for bent – arm hang, orientation skills, ability to associate, ability to rebuild and for finger hang.

Keywords: children, climbing, coordination, muscle strength, speed