

ABSTRACT

Title: Possibilities of influencing the lower limbs force in fire sport competitors

Objectives:

The goal of the thesis is to find out the level of force and explosive force in chosen fire-sportsmen's lower limbs and to verify the possibilities of influencing its level with the help of a specific plyometric training.

Methods:

The research group consisted of fire-sportsmen whose level of muscle force and lower limbs explosive force was explored with the help of entrance tests. To find out the level of the lower limbs muscle force we used the Cybex machine, the level of the explosive force was tested on the Kistler force boards. We assessed muscle force of knee flexors and extensors, which was evaluated with the help of the moment of muscle force (circular motion) in a concentric muscle activity at an angular velocity $60^{\circ}\cdot\text{s}^{-1}$. In explosive force, we assessed maximum force and upward leap height produced. After the entrance tests the sportsmen went through an intervention programme consisting of a specific plyometric exercise. This intervention programme was concluded with an output testing, which was identical with the entrance one and the aim of which was to find out the current level of the parameters assessed.

Results:

The result of the thesis is a record of a muscle force and a lower limbs explosive force level in chosen fire-sportsmen before and after the intervention. Those outputs are recorded in the charts and graphically represented. We can find there the average performances of the whole group as well as individual sportsmen. The average output of the group got better in all parameters observed, except for the maximum force produced in the second type of the upward leap. If we focus on the individual performances we can see that there are sportsmen in the group who got better or worse in different tests.

Keywords:

Fire sport, explosive force, testing.