

## **Abstract:**

**Title:** Evaluation of the immediate influence of physical activity on the quality of postural functions of basketball players

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### **Problem definition:**

Difficulties in the evaluation of the quality of postural functions and in the establishment of a so-called ideal posture stem from the diversity of views of different authors. Posture is definitely not the same as standing, but unfortunately many of the tests for postural functions evaluation focus only on that. Postural stability can be measured using device methods as well, but these devices are not available everywhere. Therefore, I have tried to create my own set of tests, which would best meet all requirements: simplicity, speed, availability and complexity of testing and evaluation of the quality of postural functions.

Physical activity is followed by fatigue of the organism (decreased muscle strength, impaired movement coordination, ...). In my thesis I try to explain how fatigue manifests itself on the quality of postural functions and how to best assess the quality of postural functions using simple tests.

### **The aim:**

The aims of this thesis are to develop an appropriate set of tests for evaluation of the quality of postural functions and to investigate the effects of different types of physical activity on the quality of postural functions.

### **Method of solution:**

Research was conducted on a group of eleven male probands (basketball players of USK Praha with an age average of 14 years and 11 months). All probands were tested in various stages of training - always before physical activity (training) and after

it. Testing was conducted using selected tests assembled for the purpose of this thesis. Probands were assessed by two independent reviewers.

### **Results:**

The quality of postural functions, evaluated by the proposed set of tests, worsened after an intense strengthening training by an average 25,19% and after training focused on game technology by 12,41%. The hypothesis that after physical activity the quality of postural functions worsens was confirmed. Moreover, the research demonstrated that after strengthening training the deterioration of the quality of postural functions is more pronounced than after game training. Of the total of 264 assessments carried out by two independent reviewers 51 were different. Assessments differed by a maximum of 1 point.

### **Conclusion:**

Research in this thesis involved only a small sample of probands, thus, the results cannot be generalized to the wider population. However, I hope that this thesis may serve to further research of this issue and that it is the first step in preventing the overload of the musculoskeletal system, and the emergence or deterioration of postural functions disorders.

### **Keywords:**

posture, postural stability, deep stabilizing muscles, evaluation of postural functions, physiology and pathophysiology of physical exertion, fatigue