Abstract

Title:
Musculoskeletal assessment analysis of triathletes

Objectives:
The main aim of this master degree thesis is the diagnostics of the current condition of the complex kinesiological examination of musculo-skeletal system in elite performance triathletes of the Czech National Team level (Junior and U23 categories), including compensational exercises specifically devised for triathletes. Furthermore with the help of the selected data this study is expected to draw some basic conclusions and establish the typical postural characteristics of athletes related to the sport of triathlon.

Methods:
In this thesis we have used following testing methods: complex musculo skeletal examination including evaluation of medical history, an antropometrical screening, standing static postural assessment, gait assessment, soft-tissue palpation exam, assessment of the fundamental movement patterns of an individua, examination of neurological reflexes, flexibility and range of motion screening. Based on the above mentioned tests we have received a complete functional and musculo skeletal system profile of each triathlete’s.
For collection we have used the SPSS 22 data analysis software. For the gender differentiation we have used non-pairred T-Test and for performance variability within the 3 levels we have used ANOVA differential analysis. Pearson’s corelation quocient was used for the calculation of the dependance of certain relationships. Dendrogram was used for clearer data interpretation.

Results:
The testing outcome of this group we can claim that athletes engaged in triathlon did demonstrate imbalances between the left and right part of the body. We have found
balance between upper and lower extremities. The combination of 3 different disciplines affects the postural characteristics of each athlete. We have found that in triathletes the upper body resembles more to swimmers and slightly overused lower extremities due to the demands of cycling and running.

Among the groups with different performance levels we haven’t found any statistically significant differences, but on the other hand inter-gender differences were large.

**Keywords:**
Swimming, cycling, running, physiotherapy, injuries of the musculo skeletal system, postural characteristics, imbalances