Analysis of morphometric and spyrometric parameters in wrestlers and rowers

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Introduction
Nowadays the professional dealing with sport demands a proper physiological ability of a person in order to achieve the uppermost results. One of the important preconditions of achieving significant sport results is the qualitative function of respiratory system. Evaluation of respiratory functions is one of the most important issues in functional diagnostics of sportsman. Both static and dynamic parameters can be recorded, but more significant are dynamic ones. Most important dynamic parameters are: forced vital capacity (FVC), forced expiratory volume (in first second) (FEV1), and index of Tiffno (FEV1%). Sports can be divided basically in two categories: anaerobic (wrestling) and aerobic (rowing) depending on what sources of energy are sportsmen related.

Methods
The purpose of our investigation was to perform comparative analysis of both anthropometric and respiratory parameters, in two groups of sportsmen. First group was formed of wrestlers (W), and the second one of rowers (R). Each group consisted of ten healthy male individuals and before starting with spyrometrical tests anthropological measurements (height and weight) were performed. The functions of respiratory system were measured by the apparatus "Medical International Research SPIROLAB", attached to personal computer with an installed softwer.

Results
The results of our investigation showed that there was significant difference in height between wrestlers and rowers (t=4.07, p<0.05), in favoured of rowers. Both groups are homogeneous for measured spyrometric parameters (FVC, FEV1 and FEV1%). No significant difference was found in examined groups, for these parameters (t=0.29; 0.62; 0.94 and p>0.05). Forced vital capacity depends on age, sex, physical constitution and period of training. All examiners from both groups were young, healthy people who actively participate in sport and have a great physical condition and we expected the best results from them during the spyrometric tests.

Discussion/Conclusion
Anaerobic phosphate system and glycogen lactic acid supply only 12 % of energy during the rowing race so the rest should be supplied by an aerobic metabolism. While rowing energy for muscle contraction is got by prevailed aerobic system which is made of oxidational processes of nutritional substrates. Anaerobic component of physical work is mostly spent on muscle contraction realized during the beginning and the end of the race. Glucose, fatty acids and amino acids from food are being metabolized together with oxygen in order to free a great amount of energy. In wrestlers muscle contractions are short and strong and develop explosive strength in a short period of time discovering winners and losers. Values of FEV1% were high in both groups of sportsmen.

References