Abstract

This diploma thesis takes interest in the issue of physical activities of children with cystic fibrosis, in possible impacts of such activities on clinical condition, in options of prescription of physical activities based on the actual clinical state of a person with cystic fibrosis, and in options of objectification of changes induced by an exercise programme. The theoretic part of this thesis summarizes the current findings about cystic fibrosis, therapy and physical activities in the context of prognosis of patients with cystic fibrosis. In experimental part, we performed examinations on few participants, who were willing to perform a home-based exercise programme. Also, we made a short exploratory questionnaire focused on the attitude of children with cystic fibrosis towards physical exercises.

Methodology: We observed the evolution of maximal oxygen uptake VO_2max, forced expiratory volume in 1 second (FEV1), forced vital capacity (FVC) and of the scores of 1-minute sit-to-stand test (1-MSTST). All the measurements were performed before and after 12-weeks long exercise intervention. The inclusion criteria were diagnosis of cystic fibrosis, age over 10 years, FEV1 over 60 % predicted and no present signs of an acute exacerbation. Participants were assessed by spirometry examination, cardiopulmonary exercise testing and 1-MSTST, that took place in the Department of Sports Medicine of Motol University Hospital. We also used a non-standardized questionnaire based on the Cystic Fibrosis Questionnaire-Revised.

Results: We performed 13 examinations in total, 6 participants attended both planned examinations. Results of these 6 participants were used for statistical analysis. The average adherence to exercise training was 61,63 %. VO_2max increased on an average by 3,77 %, FEV1 decreased on an average by 6,01 %, FVC decreased on an average by 1,79 %. The score of 1-MSTST increased on an average by 7,64 %. None of these changes were statistically significant.

Conclusion: In this thesis, we presented a possible home-based exercise programme for children with cystic fibrosis. The effects of this intervention were objectified by values of VO_2max, FEV1, FVC and 1-MSTST. None of these values showed statistically significant changes. This exercise intervention did not cause any relevant changes of the aerobic exercise capacity or lung function values.