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Effects of rehabilitation based on endurance training in adolescent girls with surgically treated scoliosis

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The aim of the study was to investigate whether appropriate rehabilitation program in the postoperative period can further improve pulmonary function and increase physical performance in patients with idiopathic scoliosis. The study group consisted of 16 adolescent girls in average 2.3 years after surgical treatment of scoliosis. Patients participated in a 4-week, intensive rehabilitation program. Before the rehabilitation program (Term I) and directly after completing it (Term II) patients performed a spirometry with intensity increasing up to the ventilatory threshold and a resting spirometry to assess their physical performance. Additionally, patients' maximal oxygen uptake (VO₂max) was determined indirectly. The results of the exercise test performed at the beginning of the study were used to select individual loads for the endurance training. The workload at which the ventilatory threshold was reached and the value of VO₂max were significantly higher during the ergometry at Term II, which indicates that patients' physical performance improved during the rehabilitation program. Ventilatory and circulatory parameters did not differ between exercise tests at Term I and II. Similar response of the cardiopulmonary system to submaximal exercise at greater work load proves increased physical performance. Vital capacity was similar at Term I and II. Maximal voluntary ventilation increased significantly following the rehabilitation program, but was still lower than the predicted value. Rehabilitation training in girls after surgical treatment of scoliosis caused an important increase in the physical performance capacity, which most probably was the result of the endurance training of individually selected intensity.

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