

## **Bibliographic record**

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## **Abstract**

Scoliosis is a deformity of the spine that affects the shape of the chest and thus affects not only the musculoskeletal system but also organ systems, especially the cardiopulmonary system. The bachelor thesis is dedicated to respiratory problems in patients with scoliosis. The aim of the thesis was to summarize the findings of available studies on the mechanism of the effect of scoliosis on the respiratory system and the influence on respiratory functions in patients with idiopathic and congenital scoliosis. The impact of scoliosis on aerobic capacity is also discussed. The paper also presents the influence of bracing and surgery on respiratory function and, last but not least, a review of methods that can be used in physiotherapy to influence respiratory function in patients with scoliosis.

In the practical part, a case report of a patient with idiopathic scoliosis is presented. The patient was subjected to a basic kinesiological analysis, the strength of the respiratory muscles was examined using the MicroRPM device and respiratory amplitudes were measured. After 6 weeks, when the patient performed inspiratory muscle training using the PowerBreathe inspiratory trainer and practiced derotational breathing, there was a marked increase in respiratory muscle strength and an increase in respiratory amplitudes. Maximum inspiratory pressure (MIP) was increased from 82 to 111 cmH<sub>2</sub>O and maximum expiratory pressure (MEP) was increased from 74 to 105 cmH<sub>2</sub>O.

The findings suggest that respiratory function can be positively influenced in scoliosis patients by various methods. Respiratory physiotherapy has an important role in influencing or preventing respiratory and functional limitation in scoliosis patients. However, it may also contribute to the control of deformity progression.

## **Keywords**

Pulmonary function, maximum inspiratory pressure (MIP), maximum expiratory pressure (MEP), idiopathic scoliosis, congenital scoliosis