

## **Abstract**

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**Title:** Influence of the posture's change on respiratory function in spinal cord injury patients.

**Objectives:** The purpose of this thesis is to analyze change in respiratory function on change of posture in patients with spinal cord injury (SCI). Another objective is to compare the respiratory functions in a health subjects and in a SCI patients. Last but not least is an effort to find out whether SCI patients have a pattern of restrictive pulmonary dysfunction. The findings can help understanding development of respiratory complications after spinal cord injury. It may help in choosing optimal position during respiratory examination and respiratory rehabilitation.

**Methods:** In theoretical part, there were explored the available knowledges about respiratory complications and their effects on posture. In practical part, there were 26 subjects – 16 patients with SCI and 10 healthy subjects. Subjects with SCI were divided into two groups – one with paraplegia and other one with quadriplegia. Measurements were performed with spirometer on each subject during supine, sitting and standing postures. There were collected vital capacity (VC), forced vital capacity (FVC) and forced expiratory volume in first second (FEV1) data from all subjects. All data were processed in Microsoft Excel. Statistical significance was determined in program “R” using two-tailed t-test and ANOVA test.

**Results:** The experiment has shown that patients with SCI displayed much smaller values of all of the respiratory parameters compared with data of healthy subjects. Effect of posture on respiratory function was clinically determined in paraplegics and health subjects. Statistically, there was no difference because sample of subjects was small. Results showed suspicion on pattern of restrictive pulmonary dysfunction in patients with SCI.

**Keywords:** paraplegia, quadriplegia, spirometry, respiratory complication, lung volumes, pulmonary disorder