

Abstract

The impact on health, mental state and quality of life in people after spinal cord injury is enormous. Significant impairment occurs not only of sensorimotor functions. The autonomic nervous system is also disturbed to some extent, which is very closely related to the management of cardiovascular functions (and heart rate). The aim of this study is to evaluate the effect of different physical activities on heart rate in people after spinal cord injury. The study included 30 people in the chronic stage after spinal cord injury, which were divided into 3 groups according to the neurological level of the spinal cord lesion in tetraplegics (lesion C1–C8), paraplegics with high thoracic lesion (T1–T6), and paraplegics with lesion from T6 below. Each proband completed 4 exercise tests on sports simulators (rowing, kayaking and cross-country trainer and Rotren) and peak heart rate values (SF_{peak}) were measured after reaching the subjective maximum load (according to the Borg RPE scale). The values of SF_{peak} were then statistically processed, evaluated and compared – within groups between sports simulators and between groups. The results of the statistical processing show that the sports simulators are not different in terms of reaching the top SF_{peak} . Although differences between peak heart rate values during exercise, depending on the type of sports simulator, were not statistically confirmed, significant differences were observed in a number of trends specific to each group and each sport simulator. Statistically significant differences occurred in the comparison of stress values of the heart rate of the groups among themselves (i.e. depending on the neurological level of the spinal lesion).

Keywords

spinal cord lesion, autonomic nervous system, tetraplegia, paraplegia, heart rate, physical activity, sports simulators