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**Abstract:** Due to permanent neurological impairment, patients with spinal cord injury (SCI) are put at risk of complications caused by immobility such as ischemic heart diseases, obesity and metabolic syndrome, which again increases their morbidity and mortality. Based on recent studies, passive cycling (PC) could have protective influence on SCI patients' cardiovascular system. The objective of this thesis is to verify whether PC will effect a change in heart rate and blood pressure in SCI patients and whether or not this reaction depends on the position of spinal cord injury, and hence on intact sympathetic innervation (the line was drawn at Th6 – below and above) 17 patients of Special Unit at Motol University Hospital participated in the study, 10 with the spinal cord injury above Th6 and 7 with the injury below Th6. Heart rate and blood pressure was monitored before, during and after 15-minute passive cycling at MOTOmed. When assessing the results, the heart rate and blood pressure values measured at rest and during passive cycling as well as the values in the group with SCI injury below (group A) and above (group B) of Th6 were compared.

**Results:** The statistical analysis has shown a difference in the value of systolic pressure in group A and B measured both at rest and during passive cycling. The difference in diastolic blood pressure have shown no statistical significance. None of the groups (A, B) reported statistically significant changes in heart rate and blood pressure during the entire measurement.

**Keywords:** spinal cord injury, pasive cycling, blood pressure, heart rate