

Abstract

Title: Evaluation of wheelchair adjustments and their impact on proper propulsion pattern upper extremities and sitting posture in patients with spinal cord lesions.

Objectives: The objective of this work was to evaluate the adjustments of wheelchair and to determine their impact on the work of the upper limbs and posture while sitting. This work was done on a group of patients with spinal lesions with their own wheelchairs. Another objective was to assess how education of proper propulsion pattern and form and type of a grip of handrim affects the correct propulsion pattern.

Methods: In the group of 26 patients with spinal cord injuries in different levels of the spinal cord, I tested the adjustments of wheelchair, in particular the centre of gravity and maximum seat height from the ground. I also investigated what education on correct propulsion pattern the patients received, and observed any home-made adjustments to handrim, as well as patients' techniques of handrim grip. Finally, I examined how the subjects drove his/her wheelchair. During all the tests, I recorded video and photo documentation. The results were statistically evaluated using the Fisher test.

Results: Despite the fact that only a small group was investigated, I showed the effect of wheelchair seatings on the correct posture. I also proved that education affects the correct propulsive pattern. However, the effect of wheelchair settings on the correct wheelchair propulsion pattern and functional sitting position was not statistically significant, and neither was the impact of adjustments and type of handrim grip.

Keywords: *mechanical wheelchair, settings, propulsion, sitting posture, spinal cord lesions*