

## **Abstract**

This master's thesis deal with the ability to maintain trunk stability in paraplegic patients in the relation to the functional skills of upper extremity. Its aim is to determine the extent to which posture influences grip strength in these persons. It consists of two parts. The first part includes introduction of the spinal cord injury and findings of the mechanisms and functional significance of the torso in relation to posture and everyday activities. Further, it presents the possibilities of utilization and different ways of measurement of grip strength in clinical practice. In the second part, the results of the measurement of grip strength in paraplegic persons in three different positions - lying on the back and in two different sitting positions – are analyzed. The measurements were undertaken using a dynamometer. It was measured twice, always after one week period. All patients attend the standard therapy provided by the Spinal Unit in the University Hospital in Motol, where they have been also hospitalized in that time.

The results refer to certain dependency of gripstrength of upper extremity to posture in paraplegic persons. This was proved within the comparison of values from sitting position with back support and without back support. In the first named position were reached higher values than in the other one. In other cases, there were no statistical significant changes of gripstrength depending on body posture. In the comparison of the values from the first and second measurement, there were significant results in sitting with back support and in lying on back. In both cases there were registered higher values from the second measurement. So, in the subacute phase of spinal cord injury it is possible to reach a functional improvement in relatively short time period. There were no significant differences between gripstrength in dominant and nondominant upper extremities. In conclusion, the thesis, using descriptive statistics, also points out higher values in men compared with women. This corresponds with the findings on healthy persons, but it can be also influenced by the higher age of women. Finally, the measurement of gripstrength offers a manner how objectively assess the functional abilities of upper extremity and of trunk, which conditions the hand function. How this thesis points, it is possible to evaluate factors, which may or don't may have a fundamental influence on the gripstrength, which is one of conditions of the human independence.