

BACHELOR THESIS ABSTRACT

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Thesis opponent:

Title of the Bachelor Thesis:

The Application of Robot-Assisted Therapy in Patients after Brain Injury in the Acute Phase: With Application of PABLO Instrument

Abstract:

Brain vascular diseases are the second most common cause of hospitalization in the Czech Republic. As a result of their effect, the upper limb may suffer from typical motor and sensory disorders which reduce independence and self-reliance of the patient. To enhance motor disorders, robot-assisted therapy has been used within the framework of rehabilitation in the last few years. One of the robotic devices working on the basis of virtual reality is, for example, Pablo[®] System, which enables intensive training of repetitive movements of the upper limb and hand grip strenght or the pinch force.

The objective of this work is to discover the effects of three-week intensive rehabilitation of paretic upper limb using the robotic device Pablo[®] System with three selected probands in an acute phase of stroke. Evaluation of the effects of the device was made using Dynamometer Jamar[®] (hand grip strenght), goniometer (active ranges of upper limb motion), modified Frenchay arm test (functional motor activity of upper limbs) and Functional Independence Measure (self-reliance). To compare all these fields, they were examined before the first therapy and after the end of the twelfth therapy in the course of which a survey of device subjective assessment was used.

The results of the research show that the three-week intensive rehabilitation using Pablo[®] System had a positive influence on all examined fields of the probands. An exception is only the field of self-reliance for which the discovered effect was not fully unequivocal. The positive effect of this device is also supported by the results of the survey of the device subjective assessment.

Key words:

brain damage, stroke, neurorehabilitation, robot-assisted therapy, Pablo[®] System, upper limb