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Introduction: The isokinetic is a means of objective and reproducible assessment of muscle strength, it is widely used in rehabilitation, research, and joint and muscle pathology. There is little applied to the neurological disease. Objective: To report the experience of our rehabilitation field service isokinetic knee of hemiplegic through three observations. Observation 1: 65 years old patient, he suffered an ischemic stroke right for 2 years, who presented a quadriceps spasticity 2, walking with a cane, he received isokinetic rehabilitation for a year, with exercises concentric, eccentric and proprioceptive. There was an improvement of walking and climbing and descending stairs. Observation 2: Patient aged 42, suffered an ischemic stroke left for 2 years and a half, which has a quadriceps spasticity 2, slow walk unaided, after about one year sessions, patients reported an improvement walking, with an increase of the rate of step, as well as ease of the ascent and descent of stairs. Observation 3: Patient aged 30, suffered a stroke from left ischemic year and a half, spasticity of the quadriceps 1, slow walk unaided, after about seven therapy sessions comprising concentric and proprioceptive exercise, the patient reported improved walking and isokinetic evaluation noted improved quadriceps and hamstrings deficit of hemiplegic side. Discussion/conclusion: The hemiplegic lower limb recovery after stroke is often favorable. The objective of rehabilitation of the walk is ambulatory autonomy, walking simple, and performance improvement: in security, speed, autonomy, efficiency, and aesthetics. Various rehabilitation techniques are used depending on the main problems presented by the patient. The isokinetics remains one of the least used means but has shown its efficiency objective.

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Efficacy of arm weight support training in virtual environment in poststroke rehabilitation of basic motor skills and daily activities

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Introduction: The successful movement recovery requires task oriented training provided in close to real environment, active patient’s participation and interactive feedback. Arm weight support training is a widely used method for active motor training facilitation. Nevertheless such training is limited due to the lack of patient motivation and task oriented approach. Virtual imitation of basic motor and daily tasks is an innovative rehabilitation method that can be used to improve arm motor function recovery. Objectives: To determine the degree of effectiveness of virtual reality as a supplement to the method of arm weight support. Materials and methods: Enrolled patients (14 male; 10 females) with median age 54 (38; 79) and stroke age 9.5 months (3; 23), were divided in three groups. Training course in all groups included 10 session that lasted 45 minutes, 5 times per week. Group #1 (n=17) received training on arm exoskeleton device with spring based weight support with combination of virtual environment (Armoo Spring). During the training session patients were practicing 10 game exercises having unconstrained degree of freedom at the shoulder, elbow and wrist joints. Group #2 (n=10) were trained on a virtual biofeedback system based on Kinect sensor (Habeflex) with unlimited training. The program included exercises for isolated movements (shoulder abduction, shoulder flexion, elbow flexion), complex movements (reaching movements), as well as exercises for binomial coordination. Group #3 (n=7) received training in infallibilized environment aimed at the precise arm unloading equal to the actual weight of the upper limb, without virtual biofeedback, with accent at the development of rational movement patterns during specific tasks (reaching, grasping and moving the objects). Evaluation were performed using Fugl-Meyer Assessment scale (FM), Action Research Arm Test (ARAT) and Modified Ashworth scale (MAS). Fiznes test. Results: In group #1 were found statistically significant (p<0.05) improvements in FM: arm and hand movements, passive range of motion, sensitivity (mostly caused by proprioceptive feeling improvement) and total score; ARAT: significant (p<0.05) improvement of cylindrical and pinch grip, and total score. In group #2 were found statistically significant (p<0.05) improvements in FM: arm and hand movements, and total score; ARAT: significant (p<0.05) improvement of pinch grip, gross movements and total score. In group #3 were found statistically significant (p<0.05) improvements only in range of passive movements (FM). Daily activities improvements measured using Frenchay test were significant only in group #1. Conclusion: Therefore using combination of virtual reality and facility environment is more effective than separated application.