MotionMaker™ Performance & Benefits

MotionMaker™ is designed to evaluate and train muscle strength and endurance. In this way it prepares patients for gait and walk activities. [*7]

**Therapeutic / Clinical**

- Increase of functional control
- Increase of electrically induced force
- Improvement of blood circulation
- Muscle reinforcement
- Increase of voluntary force
- Increase of limb perception
- Long lasting decrease of hypertonia and spasticity
- Total physical and psychological relaxation after the training
- 6 articulations of both legs are trained at the same time and intensity during the whole training session
- Imperative type of training to build muscular mass and strength for walk preparation

**Scientific research**

- Easy to use for diagnostics and research
- Easy-to-use, precise and multi-level data for scientific research or therapist
- Exercises can be easily adapted to the research purpose
- Can be used for a vast range of patient profiles: spinal cord injury, stroke, cerebral palsy, traumatic brain injury, multiple sclerosis, locomotor's infirm

**Economical**

- Faster results than during conventional training
- Easy and convenient patient transfer
- Two therapies (mobilisation & electro stimulation) in one
- More efficiency (more muscles and articulations trained)
- One therapist for two patients
- Operating and patient comfort facility
- Does not require a special room, can be placed anywhere in the facilities, is easy to transport

**Results in clinical use**

- All tested patients increased their voluntary and electro-induced strength by an average 240-400% [*9; *6]
- Mobilisation exercises, realised with robotic rehabilitation device including electrical stimulation can stimulate the sensory-motor system. This can be the result of peripheral mechanisms and of central action of the nervous system – improved function of the spinal motor system, related to neural plasticity. [*6]
- Patient subjective impressions: patients found an increased awareness of their muscles and felt more confident in their functional activities, such as bed mobility, transfers and gait. [*6]
"The results provide elements for an objective and quantitative evaluation of the performances of the MotionMaker™, which ensure a reliable contribution to the diagnosis, assessment and recovery of functions during the rehabilitation process.” [*5]

Articles:

2. P. Metrailler, R. Frischknecht and others, "Improvement of rehabilitation possibilities with the MotionMaker™”, Preceedings of Biorob 2006, Pisa, Italy, 2006

"The CLEMS™ technology is able to control complex FES induced leg movements in paraplegic patients and opens new perspectives for motor rehabilitation.” [*3]

Scientific / clinical study:

7. F. Reynard and others, “Robotic rehabilitation and recovery of motor performance in a spinal cord injured population”, CRR Suva Care; ESMAC London, 17-19 September 2009
8. F. Reynard and others, “Movement analysis with a new robotic device – the MotionMaker™: a case report”, CRR Suva Care; ESMAC London, 17-19 September 2009

"The MotionMaker™ is able to identify and manage the occurrence of spasms. Fatigue can also be detected and over-fatigue during exercise prevented.” [*2]

User references:

10. Swiss Paraplegic Center, Nottwil
11. Clinique Romande de Réadaptation (CRR), Sion
12. La Castalie, Monthey

** Copyright belongs to the authors of the articles