Luna EMG

EGZOTech

Luna EMG: robotic device for upper and lower limb neurological and early stage orthopedic rehabilitation.

Improve a patient's **muscle strength, range of motion and coordination**, after strokes, SCIs, MS, TBI, orthopaedic injuries surgeries (knee/hip replacements, ankle alignment).

Multi-Functional Isokinetic System for Training and Diagnostics

The most unique feature - **EMG-assisted movement.*** - active training, even for very weak patients (MMT 1)

*EMG = electromyography, electrical activity of the muscle. Robot detects the patient's muscle activity via sensors and converts it into intended movement.

This is a medical device. For your safety, use it in accordance with the manual or label. If in doubt, consult a specialist as this medical device may not be suitable for you.

6 attachments for whole body rehabilitation

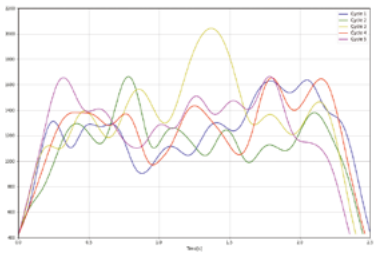
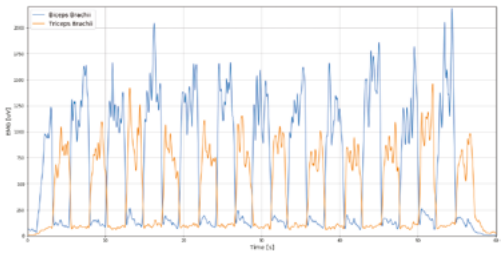
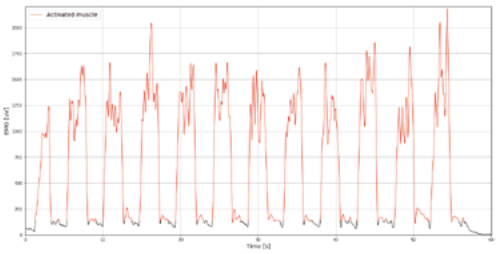
You can work with all the major joints - wrist, elbow, shoulder, hip, knee and ankle, as well as trunk.




Occupational therapy set and pelvic floor training adds-on




Interactive orthopaedic and EMG games make the rehabilitation process more interesting and fun for the patients. Automatic report availability.

Motivation, enjoyment, and engagement are higher with the use of gamification (1)

Luna EMG provides support for successfully facilitating older adults' physical activity through gamified technology.

(1) Kappen D.L., Mirza-Babaei P., Nacke L.E. (2020) Older Adults' Motivation for Physical Activity Using Gamified Technology: An Eight-Week Experimental Study. In: Gao Q., Zhou J. (eds) Human Aspects of IT for the Aged Population. Healthy and Active Aging. HCII 2020. Lecture Notes in Computer Science, vol 12208. Springer, Cham. https://doi.org/10.1007/978-3-030-50249-2_22

Training in all stages of rehabilitation

MMT Levels

0 → 1 → 2 → 3 → 4 → 5

PASSIVE

ACTIVE-ASSISTIVE VIA REACTIVE EMG

ACTIVE & RESISTIVE

MMT LEVELS	EXPLANATION
0	No contraction
1	Flickering contraction
2	Full Range of Motion with eliminated gravity
3	Full Range of Motion with Against gravity
4	Full Range of Motion with Against gravity with minimal resistance
5	Full Range of Motion with Against gravity with maximal resistance

Getting to function - go step by step

From passive to active-resistive training

LUNA EMG IS DESIGNED FOR A PATIENT'S COMPLETE RECOVERY JOURNEY

Clinical-proven efficacy

„Active participation of the patient contributes to significantly higher activation of the sensorimotor network during active motor control rather than during movement performed passively [2]"

„Robotics as an ideal means of training for severely affected patients where external assistance such as actuator assistance to movement and/or exoskeleton support may overcome problems of muscle weakness. [3]"

Research results

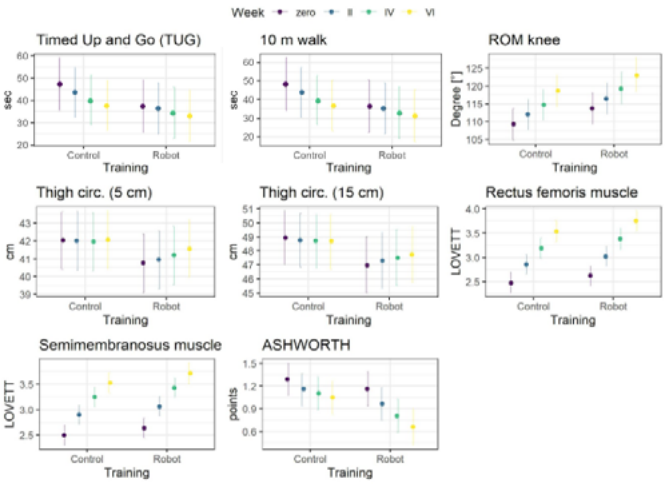
medicina MDPI

Article

The Influence of EMG-Triggered Robotic Movement on Walking, Muscle Force and Spasticity after an Ischemic Stroke

Patrycja Lewandowska-Sroka [1], Rafał Stabrawa [1], Dominika Kozak [2,*], Anna Poświata [2], Barbara Łysoń-Uklańska [3], Katarzyna Bienias [3], Anna Roksela [4], Marcin Kliś [4] and Michał Mikulski [2]

- **Group:** 30 patients
- **Training period:** 6 weeks, 1,5 h per day, 5 days a week
- **Intervention:** Rehabilitation was based on individual standard physiotherapy and lower limb training with robot Luna EMG
- **Results:** gait function improvement after the therapy



"Due to a stroke I had a "frozen shoulder" which was very painful. While exercising actively on Luna EMG with shoulder extension the pain decreased and my range of motion in the shoulder increased. Now I can drive my car again and be more independent!" Jacek, stroke patient

(2) Ziejka, K.; Skrzypek-Czerko, M.; Karłowicz, A. The Importance of Stroke Rehabilitation to Improve the Functional Status of Patients with Ischemic Stroke. J. Neurol. Neurosurg. Nurs. 2015, 4, 178–183, doi:10.15225/PNN.2015.4.4.6.
(3) Hesse, S. (2007). What does the clinician expect from machines and robots in Neurorehabilitation. In European Symposium Technical Aids for Rehabilitation–TAR 2007: 2007. Berlin (Germany).

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