GLOREHA

Grab your life

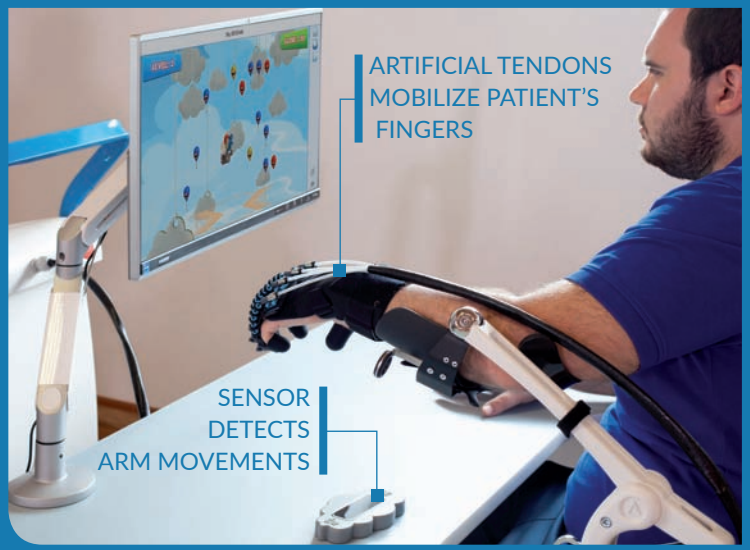
CRESCENDO is an extremely **versatile device**, applicable to a wide range of patients, with neurological and orthopedic deficits, that offers:

▪ **Passive mobilization hand therapies**: they are ideal both for starting treatment, even in absence of active movements, and for patients who are at a more advanced stage and need to rehabilitate functional gestures. The rehabilitation glove generates fingers flexion-extension even in case of hypotonia or hypertonia (max MAS=3). The 3D simulation on the screen involves the patient, facilitates his body awareness, helps him to maintain and rebuild the hand cortical representation.

▪ **Interactive games**: they can involve the entire upper limb, are useful for training the patient's active movements and refining his motor control and coordination skills. The software also proposes exercises developed in collaboration with a team of neuropsychologists, to focus the treatment on recovering selective attention, divided attention, problem-solving, memory, shifting, and visual-spatial exploration skills.

▪ **AOT (Action-Observation Therapy)**: Crescendo allows the execution of exercises based on the logic of AOT for the activation of mirror neurons. In this case, the session consists of two steps: first, the patient observes a motor task on the screen; once the visual preview is over, the rehabilitation glove supports the specific motor exercise performance.

▪ **Functional Exergames**: Crescendo is the only device that, inspired by the Soft Robotics principles, can offer an original method of functional therapy: the patient can actively move his arm with no gravity; when he reaches the target area, the rehabilitation glove intervenes to support fingers flexion or extension of fingers. It is thus possible to simulate complex reaching actions involving the proximal district and distal extremities.



▪ **Assessment module:** the software stores all treatment sessions. Intuitive reports on performance levels can be viewed and downloaded for each patient. Wrist ROM (pronation-supination, flexion-extension and ulnar-radial deviation) can be easily evaluated, day by day.

CRESCENDO

Crescendo is an integrated solution offering finger mobilization therapies and interactive games for neurocognitive treatment, motor training of hand, wrist, and fingers, and recovery of complex functional gestures.

CLINICAL EFFICACY PROVEN BY SCIENTIFIC PUBLICATIONS

ON THE MARKET SINCE 2011

INTERNATIONAL PARTNERS

MORE THAN 10,000 PATIENTS TREATED EVERY YEAR

MADE IN ITALY

GLOREHA SOFTWARE

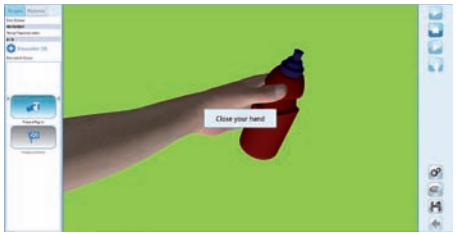
Involves the patient with audio and visual effects, 3D movement simulations, engaging, challenging, and fun serious games

Provides feedback on the patient's performance and stores all therapies

Enables the therapist to upload new videos to be shown as preview and tutorial before the motor exercise

Allows customizing the exercises, adapting to the peculiarities of each patient from time to time

Guides the patient through customizable vocal messages



CLINICAL REFERENCES

Dr. Luciano Bissolotti
Domus Salutis Rehabilitation Center
Italy

"I had the opportunity to realize how much the robotics, in particular Gloreha, was able to quickly act to the mutual satisfaction of the clinician and the patient In particular, within a few sessions, it was immediately possible to record a reduction in focal spasticity with a significant reduction in the Ashworth scale values"

Dr. Franco Molteni
Villa Beretta Rehabilitation Center
Italy

"The movement is experienced, imagined and perceived by the patient, thanks to the execution of activities the glove makes possible"

Ullrich Thiel
Hellmuth & Thiel Praxis
Germany

"Gloreha glove offers the patient the possibility to feel the object, grasp it autonomously and to benefit of a high quality proprioception stimulation"

Tatiana Jeglic
Center Fizioterapije Ljubljana
Slovenia

"I chose Gloreha because it allows the patients to really feel and manipulate the objects, and also bimanual or bilateral activities. We can really improve their ability to perform their daily life activities in better quality of movement"

MULTIDISCIPLINARY REHABILITATION PROJECT

GLOREHA DEVICES FOR ALL PHASES OF REHABILITATION

GLOREHA IS AGELESS: CHILDREN AND ADULTS

COMBINED FUNCTIONAL, COGNITIVE AND MOTOR REHABILITATION

Stay up-to-date on our news

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Clinical indications

Gloreha devices are extensively used on neurologic patients with motor and/or cognitive deficits. They can be effectively applied in sub-acute as well as in chronic phase to support distal, proximal, functional and cognitive recovery.

The most frequent indications are: Stroke, Traumatic Brain Injury, Spinal Cord Injury, Cerebral Palsy, Parkinson's Disease, Peripheral Neuropathies, Neurodevelopmental Disorders.

Gloreha devices can also be useful supports in the treatment of patients with **musculoskeletal disorders** and in the post-operative stage.

"According to recent literature, the hand rehabilitation program with Gloreha provides an intensive, repetitive, functional, task oriented, specific, and customizable treatment. [...]
The exercises with devices work on plasticity in the central nervous system due to the neuromotor, audiovisual feedback: the multisensory action-observation system enables patients to re-learn impaired motor function through the activation of internal action-related representations. [...]
Our results showed a great improvement on the ADL and positively marked functional recovery of motor function. An important aspect of our study was the association of robotic therapy with the traditional rehabilitation-based approach of physiotherapy and OT to provide more full and intensive sessions to improve the outcome."

Milia P, Peccini MC, De Salvo F, Sfaldaroli A, Grelli C, Lucchesi G, et al. Rehabilitation with robotic glove (Gloreha) in poststroke patients. Digit Med 2019;5:62-7

"Robot-assisted training using the Gloreha device demonstrated beneficial effects on body structure and function, including upper extremity motor function, brachioradialis muscle recruitment, and coordination, in children with Cerebral Palsy. The beneficial effects were maintained 1 month after training termination."

Kuo FL, Lee HC, Hsiao HY, Lin JC. Robotic-assisted hand therapy for improvement of hand function in children with cerebral palsy: a case series study. Eur J Phys Rehabil Med. 2020 Apr;56(2):237-242. doi: 10.23736/S1973-9087.20.05926-2. Epub 2020
Jan 14. PMID: 31939267.

"Gloreha glove is feasible and effective in recovering fine manual dexterity and strength and reducing arm disability in sub-acute hemiplegic patients. [...] Patients in the treatment group significantly improved the motor function of the paretic upper limb (Motricity Index), their coordination and mono-manual dexterity (Nine Hole Peg Test) and strength (Grip and Pinch) in contrast to controls, and the cost savings was considerable."

Vanoglio F, Bernocchi P, Mulè C, Garofali F, Mora C, Taveggia G, Scalvini S, Luisa A. Feasibility and efficacy of a robotic device for hand rehabilitation in hemiplegic stroke patients: a randomized pilot controlled study.
Clin Rehabil. 2017 Mar;31(3):351-360. doi: 10.1177/0269215516642606. Epub 2016 Jul 10. PMID: 27056250.

Clinical benefits

- Maintenance and improvement of the joint range
- Proprioceptive stimulation
- Improvement of visual-spatial and attentive skills
- Increase in functional independence
- Reduction of pain, oedema and hypertonia
- Prevention of adhesions, contractures, and immobilization damages
- Improvement of joint metabolism, lymphatic and blood circulation
- Maintenance of functional skills and body perception
- Increase in coordination and dexterity
- Increase in grip and pinch strength

Rev. A

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