



 **GLOREHA**
HAND REHABILITATION GLOVE



GLOREHA SINFONIA

The device for upper limb rehabilitation that supports patients during all the phases of neuromotor recovery



TOUCHSCREEN PC WITH
INTERACTIVE SOFTWARE

“ARTIFICIAL TENDONS” FOR PASSIVE
AND ASSIST-AS-NEEDED
MOBILIZATION

SENSORS FOR
DETECTING ACTIVE
MOVEMENTS

INTERACTION
WITH REAL
OBJECTS

DYNAMIC ARM
SUPPORT

A COMFORTABLE AND LIGHTWEIGHT GLOVE

The key feature of Gloreha Sinfonia is a rehabilitation glove which supports fingers joint motion, while detecting voluntary active motion.

Patients are totally involved during motor exercises, thanks to multisensory stimulation and 3D animation on the screen.

According to necessity, motion can be triggered by the robotic glove (passive mobilization), or by the patients themselves (active games). The device will support patients’ effort, intervening only when necessary (active-assisted mobilization).

TASK-ORIENTED FUNCTIONAL EXERCISES

The aim of every rehabilitation program is the recovery of the Activities of Daily Living (ADL). Gloreha Sinfonia helps patients perform grasping, reaching, picking exercises, and interacting with real objects.

Gloreha Sinfonia is an ideal workstation designed to recover functional movements. It also provides a wide variety of motivational and challenging exercises with different difficulty levels.

WEIGHT COMPENSATION

Gloreha Sinfonia includes two dynamic supports. Their function is to relieve upper limb weight, fostering the completion of functional exercises: patients’ arms can completely move and float freely.

ACTION-OBSERVATION THERAPY

Action-Observation Therapy (AOT) is based on scientific evidence. Observation of an active action stimulates the same cortical brain areas committed to motor functions. Consequently, neural plasticity benefits from AOT. Gloreha Sinfonia supports AOT. Each exercise can be set on the following two steps (observation and execution).

1. FOCUS ON A REAL VIDEO PREVIEW

A patient can watch a real hand doing a specific motor task on the screen. Therapist can choose from a wide range of different videos.

2. REPEAT THE MOTOR TASK SUPPORTED BY THE GLOVE

After watching the video preview, the patient is supported by the rehabilitation glove during the ongoing motor exercise. The supporting level is regulated according to residual motor skills.



BILATERAL TRAINING

Thanks to Gloreha Sinfonia, healthy hand movement can be replied on affected hand. Even a hemiplegic patient with total motor deficit can become an active player during treatment.

PATIENT VOLUNTARILY MOVES HEALTHY HAND

The Gloreha Sensor Glove detects healthy hand flexion and extension.

GLOREHA ROBOTIC GLOVE REPLIES THE SAME MOVEMENT ON THE AFFECTED HAND

The device can be set according to healthy hand movements to flex and extend fingers joints with motor deficit.

GLOREHA REDOUBLED REHABILITATION OPPORTUNITIES

Patient involvement and stimulation of brain cortical areas are amplified in three ways: a mirror motor mechanism; the observation of two moving 3D hands; the bilateral interaction with real objects to complete functional tasks.



MOTIVATING AND CHALLENGING GAMES

Gloreha Sinfonia has a user-friendly software providing a wide range of motivating, varied, and customizable therapies enabling therapists to set the most appropriate and challenging exercises for their patients.



GLOREHA MEANS AMUSEMENT

Gloreha is a device useful to sharpen fingers movements while playing interactive games. In the advanced rehabilitation phase, the glove stops its supporting function to focus on the detection of active movements by patients. In active mode, the rehabilitation glove is like a joystick for playing and rehabilitating all at once!

MONITORING PERFORMANCE, STEP BY STEP

During therapies, Gloreha Sinfonia records all data related to each patient. Clinical professionals can monitor performances by analyzing and printing intuitive diagrams showing the trend of achieved results. Patients can get direct feedback on their improvements too.

A FLEXIBLE SOFTWARE DESIGNED TO TURN ON THERAPISTS' CREATIVITY

Gloreha software offers a wide variety of exercises. Moreover, new, exciting exercises can be created to meet patient's needs.

For instance, patients can interact with different objects to achieve new goals. Preset vocal guidance can also help patients during therapy.

CUSTOM-TAILORED, EVEN CHILD-SIZE

The device must be set up according to the most suitable glove size for each patient. Thanks to the new XXS size, Gloreha can be used in the field of pediatric rehabilitation. Available on demand.



► Clinical Indications

Gloreha has many applications for patients with hand paresis or plegia after injuries of the central nervous system, peripheral nervous system or spinal cord. Gloreha passive mobilization can be started since the post-acute phase. Patient can be guided during the whole rehabilitation. Active-assisted mobilization and functional exercises are suggested for patients who have recovered some distal and/or proximal motions. Interactive games are specifically recommended to sharpen movements (e.g. dexterity,

coordination, speed) during an advanced phase of therapy. Gloreha is not only focused on supporting fingers joints mobilization, but also on encouraging neuroplasticity, using many audio-visual effects, Action-Observation Therapy and Bilateral Training. Gloreha is a reliable device for post-operative care and during post-acute treatment of many other diseases.

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[Gloreha] may improve not only visuospatial exploration and attention but also speed to execute gross movement of the arm, hand and fingers, as well as fingertip dexterity in stroke patients with hemispatial neglect.

V. Varalta - J Neuroeng Rehabil. 2014 Dec 5

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[Gloreha] induced changes in local muscle blood flow, diminished spasticity, and decreased subject-reported symptoms of heaviness and stiffness in subjects with hemiparesis”.

L. Bissolotti - J. Phys. Ther. Sci. 28: 769-773 2016

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“The introduction of [Gloreha] has as its objective to support the work of the physiotherapist, to increase the intensity of the therapies administered and contain treatment costs”.



F. Vanoglio - Clin Rehabil. 2016 Apr 7

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Clinical benefits

- Maintaining and improving the joint range of motion
- Preventing adhesions, contractures, and natural damage by immobilization
- Reducing pain, oedema and hypertonia
- Proprioceptive stimulation
- Improving joint metabolism, blood and lymphatic circulation
- Maintaining functional afference and body awareness
- Improving coordination, dexterity and functional independence
- Increasing grip and pinch strength
- Improving visual-spatial exploration and attention abilities

	GLOREHA WORKSTATION	GLOREHA WORKSTATION +	GLOREHA SINFONIA	GLOREHA SINFONIA +
 PASSIVE MOBILIZATION	■	■	■	■
 ACTION-OBSERVATION THERAPY	■	■	■	■
 FUNCTIONAL EXERCISES	■	■	■	■
 ARM WEIGHT COMPENSATION	■	■	■	■
 ACTIVE-ASSISTED MOBILIZATION			■	■
 BILATERAL TRAINING			■	■
 HAND INTERACTIVE GAMES		■	■	■
 WRIST INTERACTIVE GAMES		■		■
 ARM INTERACTIVE GAMES		■		■

