

# REHA TECHNOLOGY



G-EOL

Discover the simplicity of gait therapy intended for daily use

## Reha Technology – a passion for robotic-assisted gait therapy

For over 10 years, Reha Technology has been successfully developing innovative, robotic gait therapy systems in the field of neurological rehabilitation. The **G-EO** range of systems, which is based on the end-effector principle, simplifies the work of therapists, reduces the load on the body, and supports a broad and diverse spectrum of patients with limited movement and capability.

Reha Technology products provide for an individual course of therapy with intelligent robotic technology and allow for the intensity of the therapy to be adapted according to the patient.

### “Who wants to relearn walking, has to walk.”

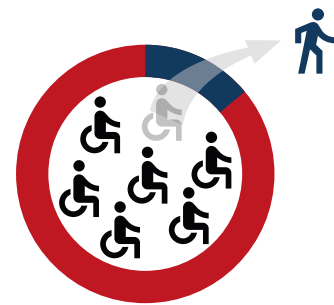
Prof. Dr. Stefan Hesse (1960-2016)

- Former Head of the Neurology Department at the Rehabilitation Clinic, Medical Park, Berlin
- Founding member of Reha Technology AG

Robotic-assisted gait therapy is an effective method in the rehabilitation of neurological and orthopedic patients. Technology has evolved significantly over the last few years in collaboration with leading clinics and universities. Today, robotic-assisted therapy is indispensable in neurological rehabilitation. Countless studies have verified the clinical evidence of the effectiveness of end-effector-based gait therapy in comparison with conventional therapy.

The use of gait trainers in clinics and practices has significantly increased the economy and efficiency of gait rehabilitation, eased

## One in 7 after stroke



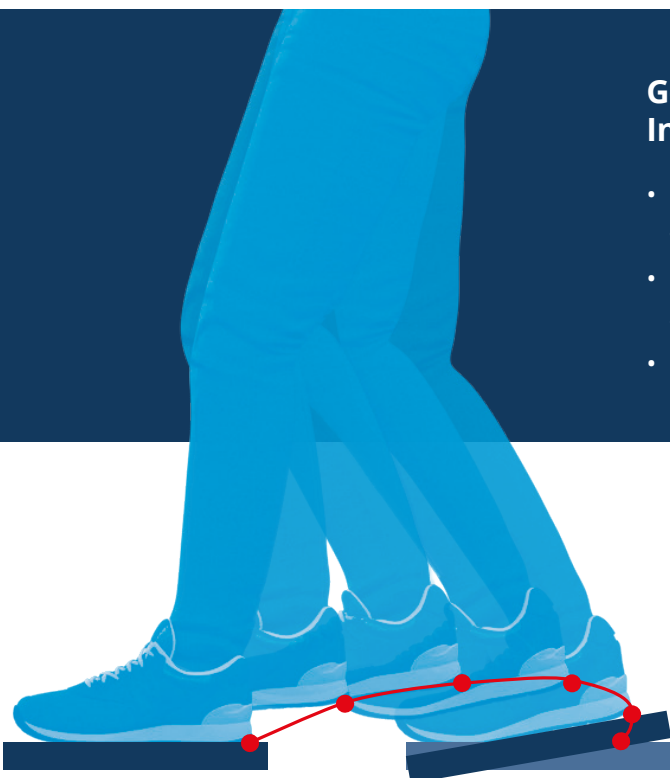
**Study:** Mehrholz, J. et al «Electromechanical-assisted training for walking after stroke.» Cochrane Database Syst Rev. 2013 Jul 25;7 The Cochrane Library 2013, Issue 7 (2)

the physical workload of therapists and helped patients to begin walking independently in a more effective and targeted way.

The Reha Technology **G-EO** gait trainer enables a wide variety of neurological pathologies to be treated very early on in a performance-related manner.

### G-EO<sub>L</sub> - reduce to the max Individual and Automated

- Gait settings such as step length, step height and ankle alignment **without interrupting** the ongoing therapy session.
- Motorized and automatic weight support for up to 200 kg / 440 lb - dynamic and static.
- Hip control mechanically active, with back pad.





The **positioning of the footplates at the same level as the patient's feet** allows optimal access.

### End-effector principle – short patient setup time

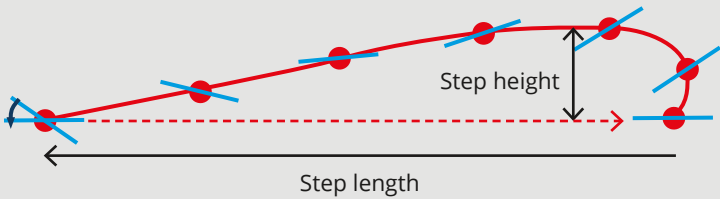
The **G-EOI** gait trainer with its end-effector principle represents a significant reduction in workload for therapists. Guidance of the affected limb requires only distal securing – in this case, the feet. There are no complicated setup and adjustment steps with the average setup time for a patient being around five minutes. In device-based gait rehabilitation, this represents an essential factor in an efficient course of therapy.

The patient can begin his/her therapy quickly, avoiding lengthy setup procedures. The therapist's physical workload is reduced, leaving more time for effective therapy and allowing more patients to be treated in a day.

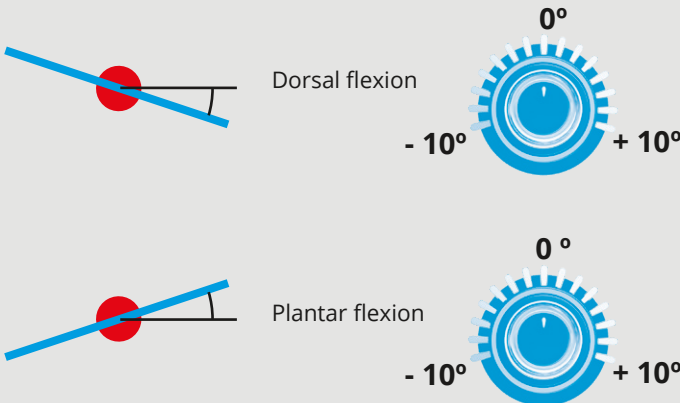
### Natural gait pattern - continuously adjusted during therapy

**G-EOI** supports patients by providing a simulation of physiological gait pattern and muscle activation. Various gait settings can be changed **without interrupting** the therapy and allow the gait

pattern to be customized in accordance with the clinical image of the patient.



#### Ankle angle correction



#### Gait parameter

**0 cm/in**  
**Step length**

**55cm/22 in**  
**8.5cm/3.3 in**  
**Step height**

**20cm/7.8 in**

**0 Steps/min**  
**Cadence**

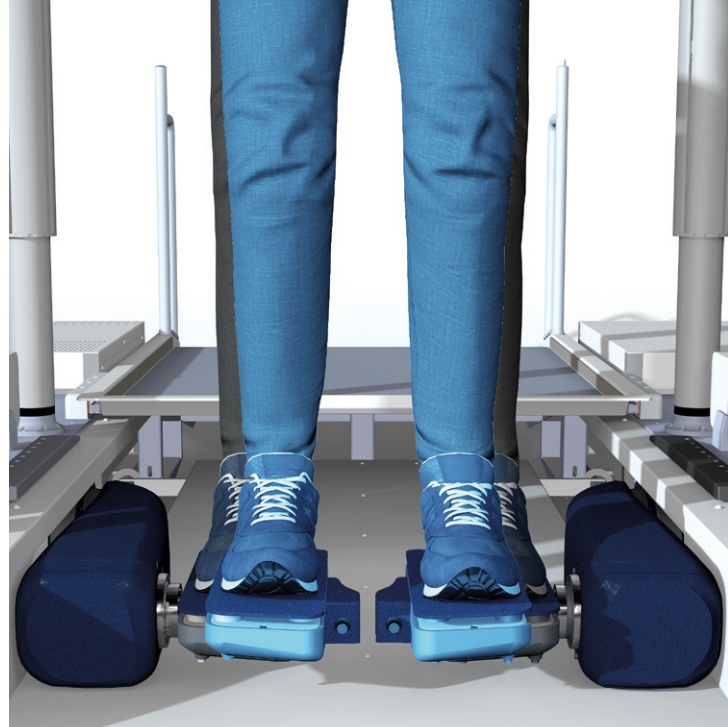
**70 steps/min**  
 2.3 km/h / 1.43 mph  
 at max. step length

## Modularity - expanding the range of applications

The modular nature of Reha Technology's **G-EOL** gait trainer supports therapists and the therapy process as a whole by customizing the therapy goals and expanding the patient population.

The range of applications is broad and diverse:

- Stroke
- Parkinson's disease
- Multiple sclerosis
- Spinal cord injuries
- Traumatic brain injury
- Cerebral Palsy
- Orthopedic and trauma cases



Step width settings, in 4 levels of 0.8 cm / 0.3 inches per footplate

## Mechanical knee brace - for improved knee stability

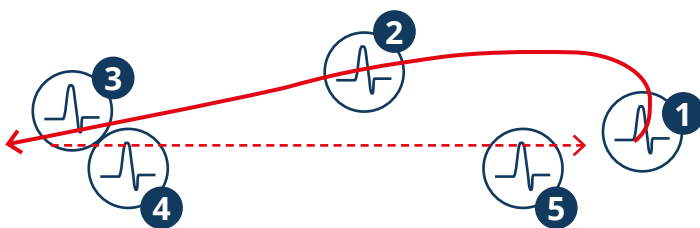
The knee brace provides for stable guidance of the knee and ankle joints. For patients with severely limited to no knee control (FAC 0 to 1), the mechanical knee brace is the perfect aid for targeted gait therapy.

The knee brace guides the patient in a physiologically correct gait pattern. The therapist can thus focus on other important therapy-related priorities, such as their patient's hip and torso control.



## Functional electrical stimulation - for additional neuromuscular activity

Functional electrical stimulation (FES) can be perfectly combined and synchronized with robotic-assisted gait therapy. It targets affected muscle groups and supports their activation at the appropriate time in the gait cycle. The patient benefits from a better therapeutic experience.



## Evaluating the therapy – high intensity, short times & reproducible

Neurological rehabilitation must be customized and tailored to individual patients with the correct intensity. To ensure a long-lasting, successful course of therapy, it is important to perform movements with a high level of repetition, for a specific task, and in a physiologically correct way. Reha Technology's **G-EOL** performs a key function precisely for this targeted, early and intensive therapy.

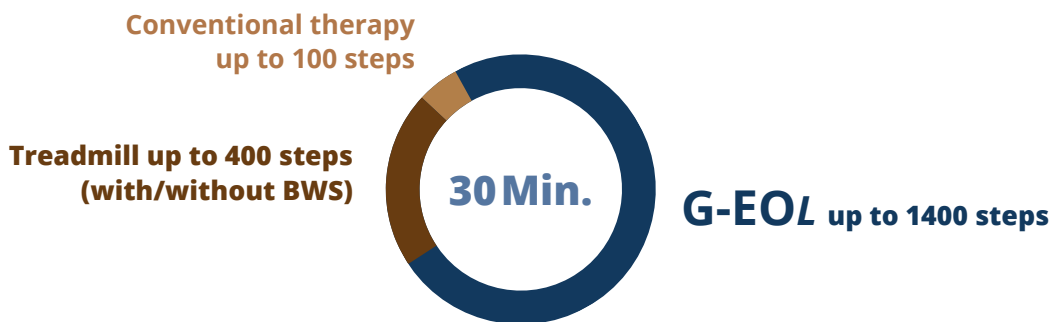
The robotic-assisted gait trainer simplifies and enhances both the course of therapy for therapists, as well as the therapy process as a whole. The patient, the therapist, and the field of therapy as a whole all enjoy huge benefits.

The physical workload of therapists is minimized through the use of robotic-assisted gait therapy. The therapist can focus on the patient and the therapy in a more precise and targeted way. This improvement to the therapy leaves more time for monitoring and informing the patient, which in turn leads to an important positive increase in both the intrinsic and extrinsic motivation of patients and therapists.



## Efficiency comparison of robotic-assisted therapy versus conventional therapy

**Study:** Hesse, S. et al «Robot-Assisted Practice of Gait and Stair Climbing in Non-Ambulatory Stroke Patients.» JRRD Volume 49, Number 4, 2012, p. 613–622.



## Therapy comparison with regard to number of steps

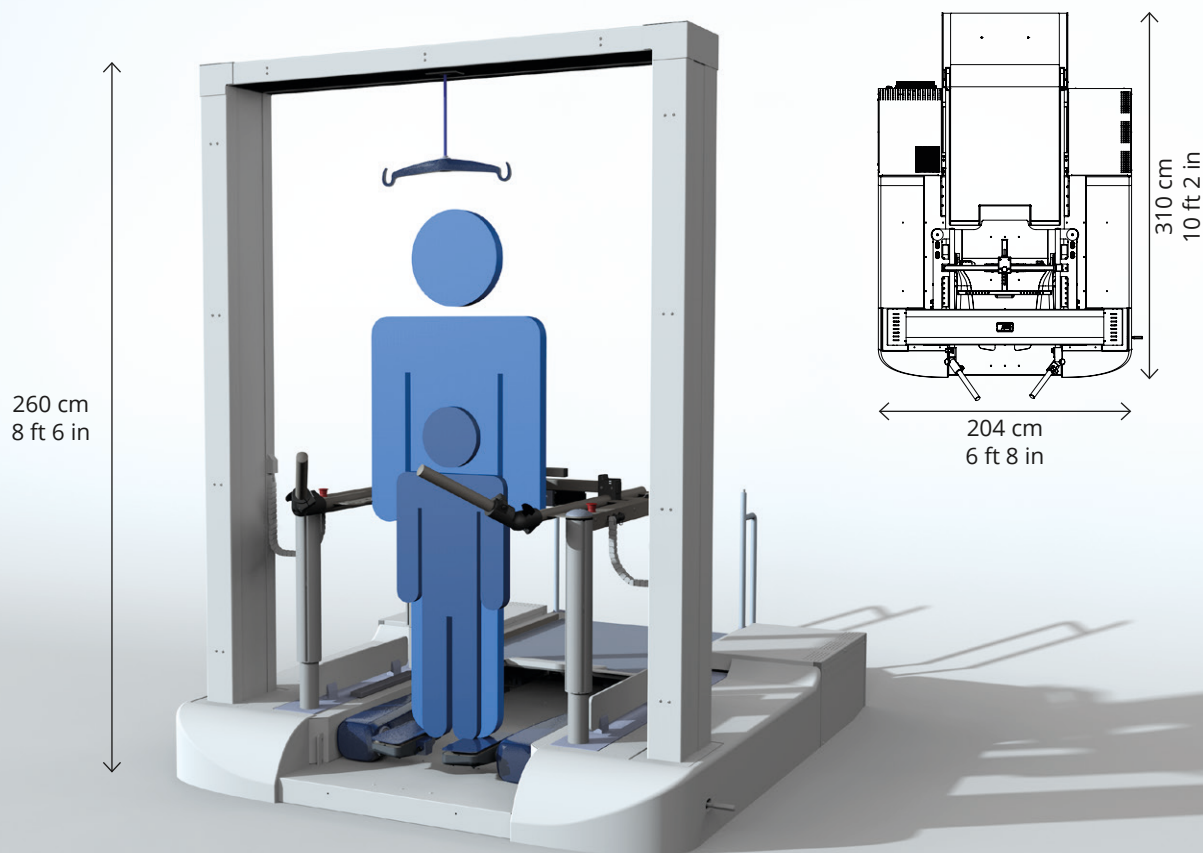
**Study:** Moseley, et al. 2005; Hesse, et al. 2012

## Hip and body position - the basis for good gait quality

Controlling the body position is another important factor for successful, long-lasting neurological gait rehabilitation. The **G-EOL** gait trainer has a mechanical torso and hip control which operates on three planes - frontal, transverse and sagittal. The therapist can thus control the patient's body position, and also the natural knee and hip extension. The movement of the hips and torso can also be adjusted optimally to the patient at any time without interrupting the therapy via the graphical user interface.

- Motorized weight support plus/minus 0-5 cm/0-2 in; dynamic/static
- Progression through the precise representation of the weight support
- Customized hip and torso guidance, right/left +/- 15 cm/6 in; dynamic/static
- Continuous, static setting of the body position, anterior/posterior

## Technical details/specification



## Specifications

Weight	800 kg / 1760 lb	Step height	8.5-20 cm / 3.3-7.8 in
Power supply	230V	Ankle angle correction	-10° / +10°
Max. speed	2.3 km/h / 1.43 mph	Torso guidance (right/left)	+/- 15 cm / 6 in
Max. cadence	70 steps/min.	Weight support	up to 200 kg / 440 lb
Max. step length	55 cm / 22 in	Patient height (min./max.)	90-200 cm / 2.9-6.5 ft

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