



*robot
assisted
walking
therapy*

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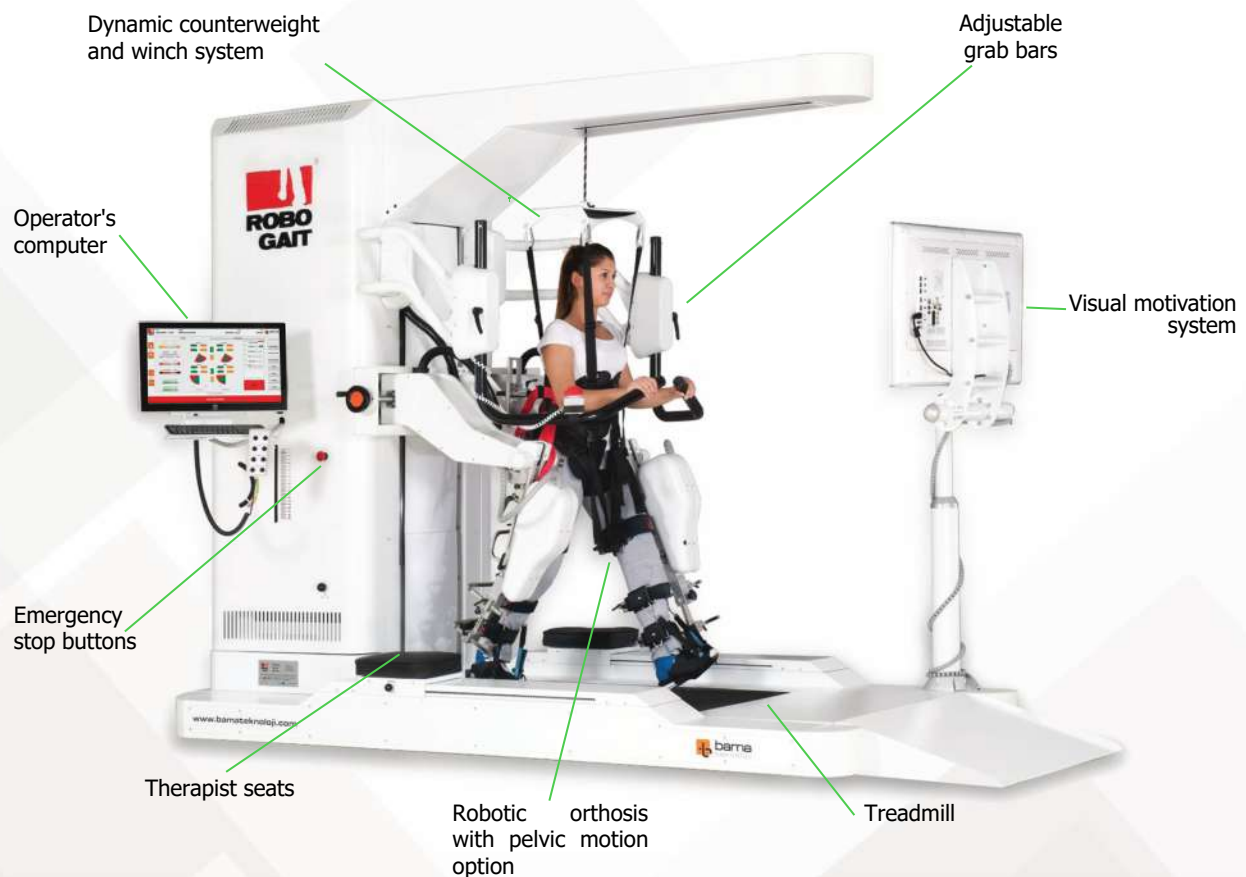




Robot-assisted gait therapy with RoboGait®

Robot-assisted gait therapy is a form of treatment that utilizes electromechanical systems to regain walking ability lost due to neurological or orthopaedic problems that develop as a result of spinal or brain injury.

RoboGait® is a robot-assisted gait system that aims to provide effective and rapid motor learning with the load transfer and natural gait pattern it provides to the lower extremity in a controlled manner.



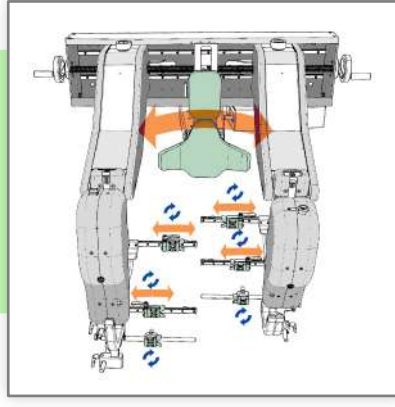
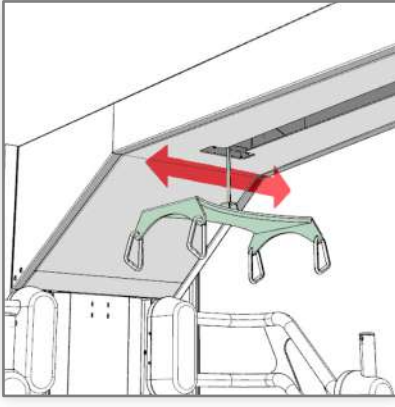
What are the benefits of a robot-assisted walking system with RoboGait®?

As a result of inactivity following diseases, problems such as loss of function in the musculoskeletal system and circulatory disorders may arise. Weight transfer to the bones helps to strengthen the bones during treatment and reduces the risk of osteoporosis, while activation of the muscles positively affects the circulatory system.

Locomotor therapy

Gait rehabilitation plays an important role in neurological rehabilitation. Locomotor therapy which is performed with partial body weight support on a treadmill has emerged as a promising treatment concept in recent years. In this treatment method, patients' gait cycles are modelled and repeated in a standardized manner, resulting in an effective treatment. It is considered to be an effective method especially in diseases such as paralysis, spinal injuries, Parkinson's and Cerebral Palsy.

Version	1.2
Description	RoboGait is an automated locomotor therapy system consisting of a robotic lower extremity orthosis, adjustable dynamic weight support, synchronized treadmill and feedback tools. It offers the user the possibility to personalize the therapy according to patient needs and makes the therapy efficient through a bio-feedback environment that increases motivation during the session.
Main features	-RoboGait system includes a robotic walking orthosis with electric motors placed in the knee and hip joints and force sensors that take measurements from each joint. -Without Pelvic Option It can be applied to patients with femur length of 200-500 mm and hip width of 150-600 mm. -With Pelvic Option It can be applied to patients with femur length of 200-500 mm and hip width of 250-540 mm. -Developed feedback system used to motivate the patient in various virtual environments -Assessment and reporting tools to record and report patient performance -Equipment that can release the pelvic movement during walking in a limited way according to the user's needs and keep it completely stable (for all age groups) -The only orthosis available for both pediatric and adult use -System feature that can connect to wireless and wired network types when required
Treadmill	<i>Speed range:</i> 0.1-10 km/h for manual therapy (0.1- 3.2 km/h for Robotic Orthosis) <i>Armrest:</i> Height and width can be adjusted independently as desired <i>Area:</i> 70 cm wide and 140 cm long safe active area <i>Therapist seats:</i> Two options: -Sliding seats that can move along the treadmill -Fixed large seating area covering the entire area <i>System ramp:</i> Two options both compatible with common wheelchairs: -Front ramp -Right side ramp (for small rooms)
Counterweight system	<i>Patient suspension system:</i> Electrically operated static and dynamic weight-supported patient suspension system <i>Max. patient weight:</i> 140kg (308.6 lbs) <i>Counterweight support range:</i> Weight support range from 0 to approximately 100 kg (220.5 lbs), continuously adjustable without interruption of therapy. <i>Inertia:</i> Virtually fully fixed adjustable weight support (patented) <i>Control:</i> Control by both computer and remote controls <i>Monitoring:</i> Electronic monitoring of patient and weight support
Main connections	The system operates at a mains voltage of 220- 240 V~, 50- 60 Hz.
Weight	Approx. 1000 kg (2205lbs)
Dimensions	<i>Area (L * W):</i> 345 cm x 136 cm (135.8*53.6in) (front ramp) or 400 cm x 180 cm (157.5*70.9in) (side ramp) <i>Height:</i> Height without extension 239 cm (94.1 in)
Space requirement	<i>With front ramp:</i> 5 m x 3.5 m x 2.4 m (196.9 in x 137.8 in x 94.5 in) (L x W x H) <i>With side ramp:</i> 4.1 m x 3 m x 2.4 m (161.4 in x 118.1 in x 94.5 in) (L x W x H)
Operating conditions	<i>Temperature:</i> 10 °C - 30 °C <i>Humidity:</i> 30 % - 75 % relative humidity range <i>Pressure:</i> 700 hPa – 1060 hPa
Displays	<i>Operator:</i> 21.5-inch, full HD touch screen with 1920x1080 pixel resolution for setting input and device control by the therapist <i>Visual motivation system:</i> 43-inch Full HD display with a resolution of 1920 x 1080 pixels, providing audio and visual feedback to the patient
Patient limits	Max. weight 140 kg (308.6 lbs) & max. height 200 cm (78.74 in)



Which movements can be performed with the RoboGait orthosis?

With the counterweight mechanism, the orthosis follows the walking movement on the vertical axis by oscillating up and down without loading any weight on the patient. The movement of the patient's hip is provided by the pelvic mechanism. In this movement, both rotation and left-right oscillation are applied at the center of the hip. The range of motion is adjusted on the operator computer and the movement is performed according to the walking stages.



How is RoboGait® used?

The patient is fitted with a harness in the appropriate size. The orthoses are adjusted according to the patient and leg holders suitable for the patient's size are attached to the orthosis. The patient is then positioned in the orthosis using the suspension system. The connection between the harness and the orthosis and the lower extremity connection is performed. After the patient is ready for treatment, the physiotherapist can start the treatment by activating the system.

The weight support system is adjusted to the appropriate level and full contact with the treadmill is ensured. The system software synchronizes between the treadmill and the patient's feet. After the patient has been synchronized with the orthosis, the visual motivation system is activated. During the therapy, the patient participates in walking with active leg movements. The session is completed by stopping walking at the end of the time determined by the physiotherapist.

Who can benefit from robot-assisted gait therapy?

Individuals with head trauma, spinal injury, stroke and those who have lost their walking function due to other neurological reasons can benefit from the treatment. In addition, individuals with Multiple Sclerosis, Cerebral Palsy, Parkinson's disease, hip and knee joint prosthesis operations can benefit. The device is suitable for both adult and pediatric use.

Who is not suitable for robot-assisted gait therapy?

The patient's suitability for treatment is assessed by a specialist physician. In this evaluation, conditions that may cause complications such as severe spasticity, joint contracture, cardiac and circulatory system disorders, medical conditions affecting active rehabilitation, skin lesions, bedsores, especially in areas in contact with the device, advanced osteoporosis are taken into consideration.

The customizable design of RoboGait® allows for multi-patient use in a controlled clinical setting (e.g. gait lab rehabilitation center) under the supervision of healthcare professionals. The device must only be used under the supervision of trained persons and in accordance with the accompanying user manual. The device is not suitable for personal use.

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