ERIGO®
Early Rehabilitation with Robotic Mobilization and Functional Electrical Stimulation

We move you
In early rehabilitation of neurological patients, a safe mobilization and intensive sensorimotor stimulation are key factors for the therapeutic success. An early activation and stimulation of the patient ensure the optimum utilization of the neuroplasticity and recovery potential. Furthermore, it improves the patient’s communication and cooperation skills and counteracts secondary damage due to immobilization.
Patient Story

Maria Scaffidi –
Early Rehabilitation After Surgery

After a severe fall, Ms. Scaffidi suffered a traumatic cervical spinal stenosis at C-4 and C-5 leading to a tetraparesis. Just a few days after spinal surgery, she began her rehabilitation with the Erigo at the Centre Hospitalier Universitaire Vaudois (CHUV) in Lausanne, Switzerland.

«Our experience has shown that patients who train with the Erigo recover much faster than those who receive conventional therapy only», explains Charlotte Gilart de Keranflec’h, Ms. Scaffidi’s therapist. At the CHUV, Ms. Scaffidi was able to profit from the unique neurosensory therapy and is successfully continuing her rehabilitation with the goal of regaining her gait function.
Patient Story

Timothee Rajaonarivo – Motivated Towards Full Recovery

Timothee was a healthy 17 year old when all of a sudden he was diagnosed with Guillain-Barré, an inflammatory illness leading to malfunctions of the nerves throughout the body. After his admission to the CHUV in June 2013, he spent one month in an artificial coma. Already in the intensive care unit he started his therapy with the Erigo three times per week. «The goal was to activate the brain and the body», explains Timothee. «At the beginning I didn’t feel my body at all. That changed through the mobilization with the Erigo».

His good physical condition before the onset in combination with the therapy with the Erigo helped him recover extremely quickly. «First it was the Erigo that moved his legs, and in the end it was Timothee who gave the impulse. That motivated him very strongly», explains Timothee’s mother Valerie.

By end of July 2013 Timothee reached his goals of being able to breathe and eat on his own and to move his legs again. He was able to leave the CHUV and is looking forward to continue his rehabilitation including the therapy with the Lokomat. «Before my illness I was always healthy and never had to go to a hospital. I’m amazed and happy to see how many great devices there are to help people like me recover again.»
Early Rehabilitation with Robotic Mobilization

By providing a safe solution for early mobilization and accelerating the rehabilitation process, the Erigo is the ideal therapy device for training severely impaired neurological patients even in acute care.

Early and Safe Mobilization

The mobilization and verticalization of immobile patients with little or no capacity for interaction can be very demanding and challenging, especially in acute care, and can compromise the wellbeing of patients and therapists. The Erigo combines gradual verticalization with robotic movement therapy to ensure the necessary safety for the stabilization of the patient in the upright position. Due to the unique afferent stimulation provided by the Erigo and the flexible harness, patients can be trained intensively and safely already in a very early stage of rehabilitation.\(^1\) Thereby, even with severely impaired neurological patients (e.g. vegetative state) the training with the Erigo can be induced efficiently within a few days after onset.

Cyclic Leg Loading

Patients verticalized with the Erigo generally do not suffer a drop of blood pressure and thus have a reduced tendency to collapse.\(^2\) They tolerate the upright position better than patients treated on conventional tilt tables without a stepping function and cyclic leg loading (fig. 1 and 2). The Erigo offers robotic leg movement and physiological cyclic leg loading adjustable according to the patient’s capabilities.

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The Erigo FES is fully synchronized with the robotic leg movement.

Up to eight Erigo FES channels are easily operated by the therapist on the touchscreen.

Patient T. Rajaonarivo with his therapist during the therapy with the Erigo. Picture courtesy of the CHUV, Lausanne, Switzerland.

«The Erigo offers the unique possibility to train patients with circulatory instability and limited cooperation in a very early phase of their rehabilitation process. The Erigo FES efficiently supports this early treatment by substantially speeding up the acute recovery phase of the patient. I am convinced that the Erigo has a clear beneficial effect in the early remission stages of the brain injured and comatose patients.»

Prof. Dr. Leopold Saltuari, Medical Director Department of Neurology, State Hospital Hochzirl, Austria
Electrical Stimulation
By adhering electrodes to the skin, nerve endings are stimulated with electricity causing a contraction and activation of muscles that cannot be controlled actively due to a neurological dysfunction. Besides the positive effects on the cardiovascular system and the metabolism, electrical stimulation reduces long term consequences due to lack of muscle activity. Furthermore, it helps to decrease spasticity and improve the muscle tone. Synchronous stimulation of several muscles can further increase the physiological effects connected to muscle activity and induce functional movements. This is referred to as functional electrical stimulation (FES).4,5

Erigo FES
The Erigo FES supports the stimulation of the patient and thereby also their cardiovascular stability during the early verticalization. It efficiently supports the increase of blood flow in the patient’s lower extremities, which helps to maintain the stroke volume and blood pressure, therefore further improving the orthostatic tolerance (fig. 1 and 2). It has also been shown that the therapy with the Erigo FES improves the cerebral blood flow and the muscle strength in lower extremities (fig. 3 and 4). This can specifically support recovery of leg muscle function.

The Erigo FES is fully synchronized with the robotic leg movements. Up to eight FES channels can be operated easily by the therapist on the touchscreen of the Erigo and adjusted according to the patient’s motor abilities.

Erigo® Functional Electrical Stimulation (FES)
The electrical stimulation is an established method for targeted muscle activation. Integrated into a robotic device for early rehabilitation for the first time, the Erigo FES offers further benefits and therapy options in clinical routine.

Patient Story
Daniel Petithuguenin – Returning to Daily Life

After an ischemic stroke damaged a part of his right hemisphere, Mr. Petithuguenin had a light paresis and a left-sided ataxia. During the 20 days he spent at the CHUV he trained with the Erigo and received physical as well as occupational therapy that helped him improve his coordination and movement control. Regaining some of his independence, Mr. Petithuguenin was able to return home with his wife and to actively participate in daily life again.

“We note a direct link between the sensorimotor stimulation by the Erigo during therapy and the recovery process of our neurological patients”, explains Dr. Karin Diserens, Head of Unit of Acute Neurorehabilitation and specialist in neurology and neurorehabilitation at the CHUV.
Increased Patient's Awareness
Clinical experience has shown that the unique afferent input provided by the Erigo can have a positive effect on the patient’s consciousness, body awareness and intestinal activity. Having an increased awareness, the patient can actively participate in the therapy with the Erigo as well as in those that can be combined with it, such as speech therapy or mobilization of upper extremities. This leads to a faster recovery of communication and cooperation skills, which are important for further rehabilitation.

Reduced Time in Acute Care
An early mobilization supports not only the recovery of patients, but also has a positive effect on the cost-efficiency by reducing the time spent in acute and hospital care. It has been shown that early physical therapy reduces time spent in intensive care, the length of hospitalization and hence in average the overall therapy costs.\(^7,8\) These effects can be further increased with the Erigo, as it helps in reducing medical complications associated with immobility and relieves the strain on the therapist.\(^9\)

Increased Awareness and Faster Recovery
The therapy with the Erigo does not only show positive effects on the patient’s consciousness but also reduces complications associated with immobility in general. Hence it supports a faster recovery and therapy progress.

Excellent Clinical Usability
The Erigo offers a safe training with direct contact and the possibility of constant interaction with the patient. Hospital equipment such as patient monitoring systems can be safely attached to the included standard rails. Further benefits include therapy control via an intuitive user interface on a touchscreen, adjustable height of the Erigo for a safe patient transfer, electronic adjustment of leg length as well as the flexible one-sized patient harness system.

Erigo® Product Line
The Erigo product line includes two different products, the ErigoPro and the ErigoBasic, both covering individual needs of patients, therapists and hospitals.

Due to its compact and flexible design, the Erigo is a mobile device that can be used for training in intensive care, high dependency units as well as in the usual patient or therapy rooms.

Easy Integration into Clinical Routine
Intuitive user interface allows for an easy and fast therapy setup. Flexible and comfortable patient harness system.

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<th>Therapy Enhancement</th>
<th>Erigo®Basic</th>
<th>Erigo®Pro</th>
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<td>Progressive verticalization up to 90°</td>
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<td>Robotic leg movement</td>
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<td>Cyclic leg loading</td>
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<td>Erigo FES (by Hasomed®)</td>
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<td>Hip extension function</td>
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<td>Selection of different movement patterns</td>
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<tr>
<td>Flexible patient harness</td>
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<td>Head elevation function</td>
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<td>Armrests</td>
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<tr>
<td>Full therapy control via intuitive user interface</td>
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<td>Intelligent leg loading indicator</td>
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Patient Story

Peter Häberli – First Steps Towards Independence

After a hemorrhagic stroke in September 2012, Peter Häberli was hemiplegic and spent several weeks in an artificial coma. In November 2012 he was transferred to the Rehaklinik Zihlschlacht in Switzerland, where he trained with the Erigo several times per week. At the beginning he was only able to move from lying into sitting position with the help of two therapists. A transfer into a wheelchair was not possible. He had no head control and was only able to communicate through light nodding.

While being monitored, Mr. Häberli was safely mobilized with the Erigo, which made it possible for him to get a feel for standing upright and walking as well as to activate physiological gait patterns. His progress could be seen soon after: He was able to sit for a longer time, communicate more easily and, due to the improved trunk and head control, participate actively. Just after a month of therapy with the Erigo, he was able to begin the therapy with the Lokomat, thereby regaining his gait function and taking his first steps towards independence.
Hocoma is the global market leader providing most advanced devices for functional movement therapy. Our mission is to enable recovery with products that stand for efficacy and efficiency.

Hocoma has a global Sales Partner network. All contact details are listed at www.hocoma.com. You may also contact us directly to get further information.

With the compliments of:

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**Product Disclaimer**

All Hocoma products are medical devices and must be used in strict adherence to the User Manual; failure to do so may result in serious personal injury. It is strongly recommended that you regularly consult Hocoma’s website (www.hocoma.com/legalnotes) for the latest available information. Please contact Hocoma should you have any questions.

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* The ErigoPro is not yet available in the USA.*