Your recoveriX gym

RECOVERIX FRANCHISE MODEL

recoveriX can be installed in clinical institutions like hospitals, neurorehab or other therapy centers that are specialized in stroke rehabilitation. Physiotherapists or other related professionals can use the recoveriX franchise model and open a recoveriX gym.

We are actively searching for qualified professionals to open multiple recoveriX gyms in their locations. Are you a candidate? Please contact us via office@gtec.at to create your individual franchise solution!

PRACTICE ENVIRONMENT

The recoveriX flagship gyms in Schiedlberg (AT), Barcelona (ES), New York (USA) and Iasi (RO) offer more information about recoveriX therapy for stroke patients. These gyms are also the perfect training environment for professionals. Learn the science behind recoveriX, the different therapy modes, and the handling of the system from first-hand experience.

Are you interested in learning more about recoveriX? We are eager to create a bespoke seminar or workshop for you. Please register at office@gtec.at!

recoveriX Flagship Gyms Around the Globe

Curious about how recoveriX training is performed in reality? Visit us in one of our recoveriX flagship gyms! Contact us to find the next recoveriX franchise gym in your area.

❶ g.tec medical engineering GmbH
Sierningstrasse 14
4521 Schiedlberg
AUSTRIA

Phone: +43-7251-22240-18
Fax: +43-7251-22240-39
E-Mail: office@gtec.at

❷ g.tec neurotechnology USA, Inc.
5 University Place, Rensselaer
NY 12144
USA

Phone: +1-518-495-3826
E-Mail: office@gtecus.com

❸ g.tec medical engineering Spain S.L
C/ Plom 5
08038 Barcelona
SPAIN

Phone: +34-93-6764-579
E-Mail: office@gtecspain.com

www.gtec.at | www.recoveriX.at

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g·tec medical engineering

recoveriX is a product from g.tec medical engineering GmbH in Austria. g.tec develops amplifiers and other tools for disabled people that use Brain-Computer Interfaces.

g.tec's products and research activities have been widely described in peer-reviewed research publications, demonstrating the quality of our tools and methods.

Expert Quotes

"The BCI stroke rehabilitation even allows us to treat patients in a chronic state and improve their motor functions. These conclusions are based on experimental data resulting from testing the recoveriX system on chronic stroke patients at the Rehabilitation Hospital of Iasi, Romania."
Prof. Dr. Marian Poboroniuc, Technical University of Iasi, Romania

"recoveriX gives disabled patients the feeling that they can move again. Motivating them in this way, to be more actively involved in the rehabilitation process, brings huge benefits to the rehabilitation process."
Dr. Danut Constantin Irimia, Assistant Professor at Technical University of Iasi, Romania

"recoveriX couples cognitive processes with movements and this makes the rehabilitation so effective."
Dr. Christoph Guger, CEO of g.tec medical engineering GmbH

SCIENTIFIC REFERENCES

R. Ortner, D.-C. Irimia, C. Guger, and G. Edlinger, "Human Computer Confluence in BCI for Stroke Rehabilitation", in Foundations of Augmented Cognition, Springer, pp. 304–312, 2015.

D. C. Irimia, M. S. Poboroniuc, R. Ortner, "Improved Method to Perform FES & BCI Based Rehabilitation", in The 4th IEEE International Conference on E-Health and Bioengineering, 2013.

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recoveriX®
MOTOR-RECOVERY NEUROTECHNOLOGY

The Revolutionary Stroke Therapy

Cover photo: Florian Voggeneder

www.recoveriX.at

Motor Rehabilitation Based on Neurotechnology

MOTOR RECOVERY AFTER STROKE

recoveriX is an innovative brain-computer interface (BCI) and the first rehabilitation system for stroke patients that pairs mental activities with motor functions. It helps the patient regain the function of the upper and lower extremities, and can be used in addition to standard therapy. It can also be used in acute, sub-acute, or chronic states.

RECOVERIX TRAINING

recoveriX's unique approach is highly motivating for the patient and more effective for rehabilitation. Repeated training facilitates the healing of the brain and leads to faster and better recovery from stroke-caused impairment.

A Unique Combination of 3 Rehabilitation Approaches

Activation of Motor Cortex

Activation of Motor and Somatosensory Cortices

If a stroke patient imagines a hand movement while receiving visual feedback through a virtual avatar and tactile feedback through electrical muscle stimulation at the same time, then these patients can more easily regain the ability to grasp again.

The activation of both sensory and motor functions is caused by mirror neurons. This stimulates brain plasticity, a process in which the brain learns to use new neural pathways to move the affected limbs again.

recoveriX Therapy Components & Procedure

1 recoveriX is a complete, integrated system that can be set up quickly, and is very easy to operate, making it a practical tool for daily use with patients.

2 A recoveriX therapy session just requires a table where you can place the system, which needs a little more space than a laptop with an extra monitor. The patient only needs to sit in front of the system.

3 Once the patient is seated, the therapist or other system operator can load each patient's data, including results from prior recoveriX sessions.

4 Next, an EEG cap is mounted on the head, and the electrodes are filled with a small amount of gel to produce a good signal. The computer monitor provides feedback about the signal quality of each electrode.

5 Then, the electrodes for the functional electrical stimulator (FES) are placed on the specific muscle group, and FES parameters such as pulse width and frequency are determined for each patient.

6 This setup process only takes about five to ten minutes. Each therapy run takes about ten minutes. At least two or three runs per therapy session are recommended.

Motor Imagination

Patients imagine a hand or foot movement in their mind. Meanwhile, the recoveriX system measures brain activity through EEG signals. Movement imagination activates specific brain regions that can be detected in the patient's EEG signals, and are used to drive neurofeedback applications.

The Benefits

- The responsible areas of the brain are activated by the motor imagery, which facilitates brain plasticity.
- Unlike conventional physiotherapy, the BCI guarantees that actual movements only occur when people imagine the correct corresponding movement.
- The simultaneous activation of relevant cortical areas and peripheral neurons encourages Hebbian learning.

Visual Feedback

Based on the EEG signals from the patient, the imagined limb movements are presented on a screen. The virtual simulation of left or right hand movements provides real-time neurofeedback (e.g. in the form of moving hands), which makes the training more effective.

The Benefits

- Real-time feedback is very easy to understand.
- If a patient imagines a movement, then the avatar performs the movement.
- The experience is similar to watching yourself in a mirror and activates the mirror neuron system.

Functional Electrical Muscle Stimulation

Imagined movements will cause real limb movement. Functional electrical muscle stimulation elicits wrist, arm, or other movements that the stroke patient can no longer perform without help.

The Benefits

- The patient receives clear, user-friendly feedback through active movement. By simply imagining a movement, the patient can see their limbs move accordingly.
- This allows the patient to perform the movement and also to feel it.
- The patient is motivated because the experience repeatedly reminds him or her of the desired goal state: being able to move again.