

Therapy Information

Lokomat® Training for Traumatic Brain Injury

Patients who have suffered traumatic brain injury are often faced with serious motor damage. As a result, they have to completely re-learn basic everyday movements. Re-gaining walking ability after a traumatic brain injury is one of the main tasks of neurorehabilitation. The importance of rehabilitation is obvious considering the fact that it is often the deciding factor in whether or not a patient must remain at home or can return to work without having to rely on assistance from another person.

How can Lokomat training help patients with traumatic brain injuries?

Thanks to the neuroplasticity of the brain (the ability of the nervous system to change its structures and functions), human beings have the ability to learn new functions and to re-learn functions that have been lost. To (re-)learn complex movement sequences such as walking, two things are necessary. One is that the movement itself must be practiced repeatedly. The other is that the movement being practiced must be as task-specific as possible⁽¹⁾; in other words, “If you want to learn to walk, you have to walk”. Lokomat therapy is based on these two principles. It enables repetitive training in complex walking cycles to take place as early as possible.

What are the expected effects of the Lokomat system on patients with traumatic brain injuries?

Based on results of manually assisted treadmill training^(2, 3, 4), it can be assumed that training with the Lokomat system has the following effects:

- Reduced spasticity
- Improved walking ability
- Increased alertness
- Strengthened leg muscles
- Improved stamina
- Increased motivation

Note: At this point, we would like to expressly state that these improvements are not due exclusively to training with the Lokomat system. They must always be regarded as a result of Lokomat training in combination with other physiotherapeutic interventions.

How often should training take place?

In the early stages of rehabilitation, training should take place every day if possible (depending on the patient’s stamina and the therapy plan). In the later rehabilitation stages, we recommend that the patient train three times a week.

Who should not use the Lokomat system for training?

As with any form of therapy, there are known contraindications for the Lokomat system. For a list of these contraindications, please see “Purpose and contraindications of the Lokomat System” in the Products/Lokomat/Interest Groups section of our website.

Which clinics have experience with the Lokomat system?

If you have any questions about therapy with the Lokomat system, please contact your local clinic directly. For a list of reference clinics, see the Lokomat / References section on our website.

⁽¹⁾ Barbeau H. Locomotor training in neurorehabilitation: emerging rehabilitation concepts. *Neurorehabil Neural Repair* 2003; 17:3–11.

⁽²⁾ Gazzani F, Bernardi M, Macaluso A, Coratella D, Ditunno JF Jr, Castellano V, Torre M, Macellari V, Marchetti M. Ambulation training of neurological patients on the treadmill with a new walking assistance and rehabilitation device (WARD). *Spinal Cord*, 1999; 37: 336-344

⁽³⁾ Platz T, Hesse S, Mauritz KH. Motor rehabilitation after traumatic brain injury and stroke – advances in assessment and therapy. *Restorative Neurology and Neuroscience*, 1999; 14: 161-166

⁽⁴⁾ Seif-Naraghi AH, Herman RM. A novel method for locomotion training. *Journal of Head Trauma Rehabilitation*, 1999; 14: 146-162