Introduction

In order to walk safely in daily life, gait should be adapted on a step-to-step basis, for example to avoid obstacles. This important aspect of walking, called gait adaptability, is often impaired in pathological gait and is related to fall risk and confidence of walking. Therefore, gait adaptability is an important aspect for regaining safe and independent walking in simple and complex environments.

Since gait adaptability is difficult to evaluate and train in rehabilitation practice, we recently developed the C-Mill: an instrumented treadmill with visual context (figure 1). However, implementing innovations in clinical practice often appear difficult.

Methods

Aim: To implement C-Mill therapy at Heliomare and Reade as viable part of gait rehabilitation

Implementation plan

- Multidisciplinary team of clinical professionals, scientists and industrial partners
- Two rehabilitation centers: Heliomare and Reade
- 55 participants
- People with lower limb amputation and stroke. Later extended to other patient groups with gait impairments
- Defining in- and exclusion criteria for C-Mill therapy
- Defining rehabilitation goals for C-Mill therapy
- Developing protocols for C-Mill therapy
- Developing functional and therapy-friendly software.

Results

The project resulted in practically applicable protocols for C-Mill therapy for well-defined target groups, incorporated in functional and therapy-friendly C-Mill software. The number of C-Mill therapy sessions increased to over 50 per month.

Results showed that patients with different levels of walking ability were able to complete tasks requiring adaptations of foot positioning, obstacle negotiation and walking speed during C-Mill therapy. Both physiotherapists and patients are enthusiastic in using the C-Mill to practice situations of everyday walking early in gait rehabilitation (figure 2).

Recommendations for implementation

- Situate the C-Mill, clearly visible, on the physiotherapy ward
- Explain the surplus value of C-Mill therapy
- Start implementation on a small scale
- Instruct physiotherapists in working with the C-Mill
- Provide support, from an experienced C-Mill user, during the first C-Mill therapy sessions

Conclusion: C-Mill therapy is feasible and well-accepted by both physiotherapists and patients