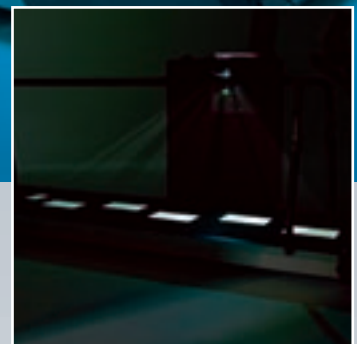




Possibility to learn safe obstacle avoidance strategies



Obstacle presentation contingent upon current gait



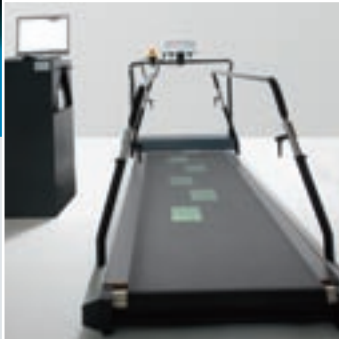
Projection of real virtual objects on the treadmill: stepping stones

# ForceLink C-Mill

Forcelink offers an instrumented treadmill –the C-Mill– with visual and acoustic cues for training and evaluation of impaired gait. The C-Mill allows for learning obstacle avoidance strategies in a safe and controlled environment. The C-Mill automatically presents gait parameters like stride length, width, frequency and symmetry on a step-to-step basis. Thus, transparency in the effect of gait training and instructions is realized. The C-Mill offers flexible treatment and evaluation protocols without the need for attaching markers or wires to the patient, thereby saving precious treatment time.

The C-Mill: a complete, advanced gait-lab and training centre on 4m<sup>2</sup>.

# “Safe and functional walking requires the ability to adjust gait”



C-Mill: your PLUG AND PLAY Gait-lab on 4m<sup>2</sup>



Cue-fors® software for online analyses of gait



A remote control for changing the sequence of stepping stones



A wide-angle projector is used to project your next steps

## Cueing

Several published scientific studies reported beneficial effects of cueing in pathological gait rehabilitation. In collaboration with the Faculty of Human Movement Sciences of VU University Amsterdam, Forcelink developed an instrumented treadmill for visual and acoustic cueing based on the current gait pattern. To this end, the system is equipped with a projector and an embedded force platform.

## Training gait with cues

A typical cueing session starts with an automatic assessment of the current gait pattern for a few steps. Then, a series of stepping stones is projected corresponding to the step length, width and asymmetry of the patient. The therapist can adjust the patient's gait by using a remote control and monitor its immediate effects on a step-to-step basis. At the end of the session, a summary report is automatically generated for offline analyses or administration.

## Training obstacle avoidance

A typical obstacle avoidance session starts with measuring current and thus predicting future footfall positions. Obstacles can be presented by pressing a key on the remote control. The obstacle can be projected in such a manner that the patient would step on it when gait is not adjusted. The difficulty of obstacle presentation can be varied, for example by adjusting the available response time or its size.

## Gait analysis

A selection of gait parameters, such as step length, width, asymmetry and cadence, as well as obstacle avoidance performance, is evaluated automatically by the Cue-fors® software. The therapist can print gait assessment reports for comparison with previous sessions. All data are stored on the computer in an accessible patient database.

## Specifications

- Treadmill belt walking area of 70 x 300 cm.
- Embedded vertical force platform of 70 x 300 cm.
- Speed 0.1 – 12 km/h.
- Projection system for real virtual objects.
- Online calculation of gait parameters.
- Easy adjustment of stepping stones (remote control).
- Real virtual obstacles at your command (remote control).
- Automatic alignment of stepping stones to the patient's current gait pattern.
- Standard user weight max. 135 kg.
- Computer, Software and projector included.

## Options

- Belt Perturbations
- Adjustable side frame / handlebars
- Body weight support system
- Extra safety switches

P.A. Koppe, MD, Medical Director of Rehabilitation Centre Amsterdam

“This is a unique development, where a theoretical innovation has led to a practical, immediately applicable and very well usable innovation for rehabilitation intervention.”

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