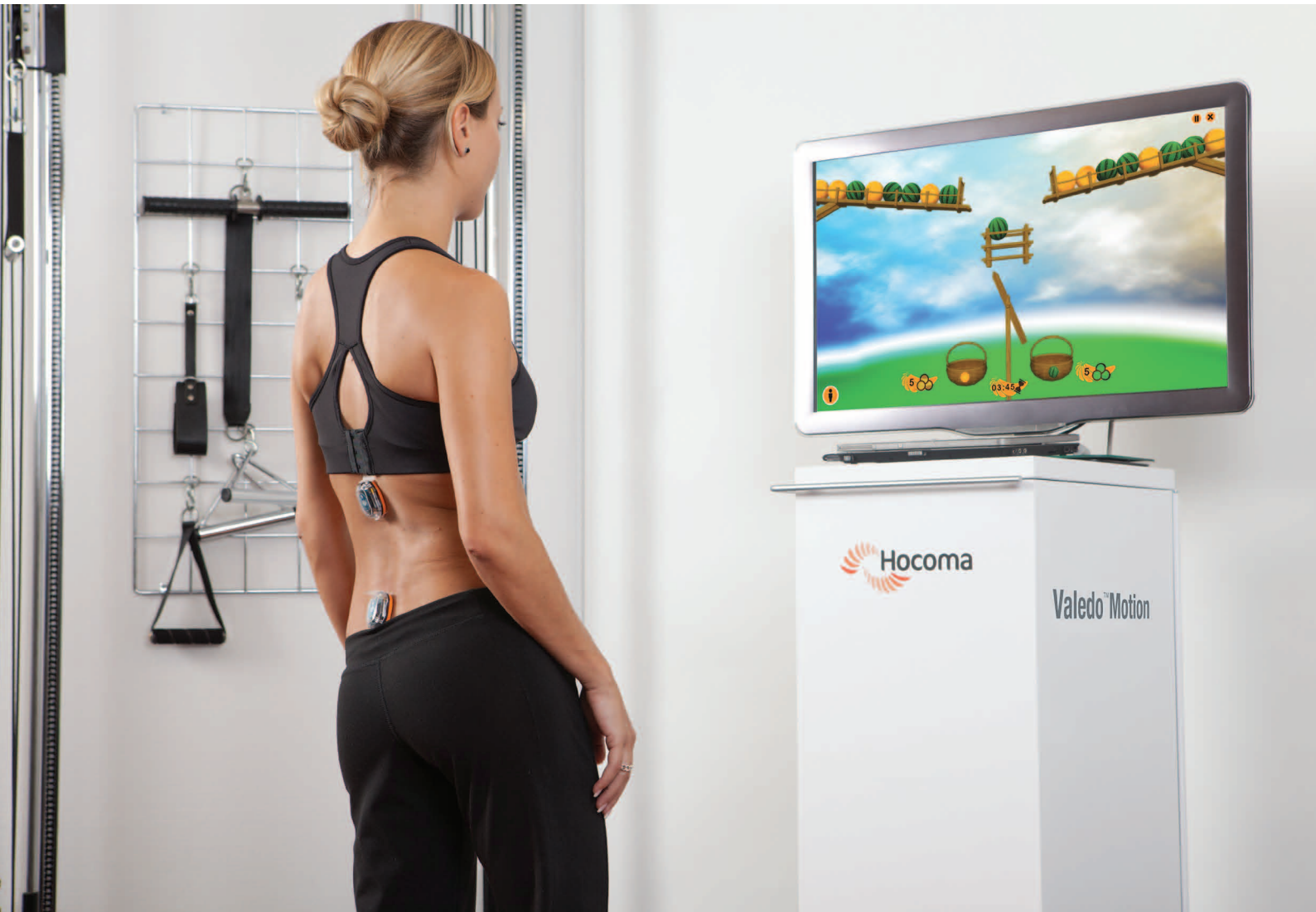


# Valedo™ Motion



**Low Back Pain Treatment with  
Motivating Functional Movement Therapy**

We move you

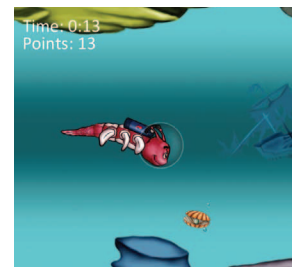
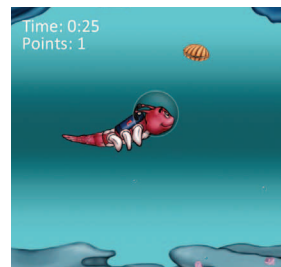
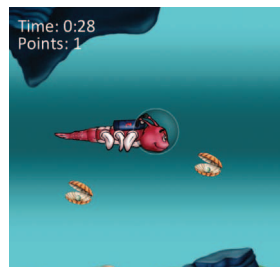
## Low back pain therapy with Valedo™ Motion



**The Valedo™ Motion is a medical back pain therapy system that offers functional, entertaining and motivating exercises for an improved therapy outcome. The ValedoMotion supports stabilization, mobilization and movement awareness training for low back pain treatment. It improves the patient's compliance and motivation through real time Augmented Feedback and supports therapists by providing assessments of trunk movement quality.**

Chronic low back pain is a major and occupational public health problem, which is associated with high medical costs mainly through the loss of productivity due to sick leave.<sup>1</sup> Research suggests that many back injuries and incidences of low back pain can be improved by active functional movement therapy.<sup>2</sup> Nevertheless, the main problems within low back pain therapy are insufficient patient motivation as well as the patient's difficulty to exercise independently.<sup>3</sup>

The ValedoMotion is a medical back training device, which improves the patient's compliance and motivation by specific real time Augmented Feedback based on trunk movements.<sup>3</sup> It transfers trunk movements from two wireless sensors into a motivating game like environment and guides the patient through exercises specifically designed for low back pain therapy. To facilitate challenging and efficient training, the exercises can be adjusted according to the patient's specific needs.



Diver exercise: The patient's trunk movements steer the diver through the sea to collect shells.

## The advantages of low back pain therapy with Valedo™ Motion:

- offers clinically relevant exercises specifically designed for low back pain therapy
- provides fun and engaging exercises motivating for extensive training
- improves body movement awareness through precise real-time feedback
- captures patient's training activity and progress documenting therapy process and compliance

<sup>1</sup> van Tulder M., Koes B. (2002). Low back pain. Best Pract Res Clin Rheumatol, 16(5):761-75.

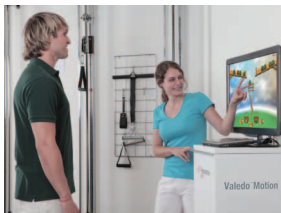
<sup>2</sup> Abehaim L. et al. (2000). The role of activity in the therapeutic management of back pain. Report of the International Paris Task Force on Back Pain. Spine, 25(4 Suppl):1S-33S.

<sup>3</sup> Brodbeck D. et al. (2009). Computer-aided Therapy System with Augmented Feedback for the Lower Back. HEALTHINF 2009:66-73.

## Key features

The ValedoMotion offers functional low back pain therapy using the latest technology.<sup>3</sup> Based on the cooperation with Hocoma and the research and development activities led by Dr. Kool at the University of Applied Sciences in Winterthur, Switzerland, ValedoMotion's extensive patient management offers the following functionalities:

### Treatment Augmented Feedback Documentation



#### 1. Treatment

The ValedoMotion enables training in all standard positions such as standing, four point kneeling, sitting and laying on the back. The therapy focuses on three main exercise categories:

- Stabilization: supports the stabilization of trunk muscles by motivating upper body training
- Mobilization: mobilizes the remaining musculature to ensure safe, flexible movements
- Movement awareness: improves the patient's movement quality, awareness and proprioception

#### 2. Augmented Feedback

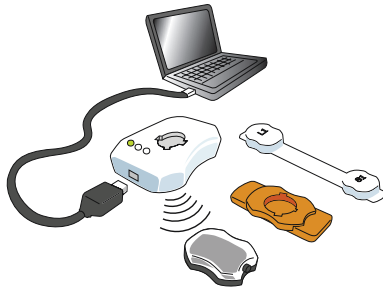
The Augmented Feedback provides real-time functional feedback in a motivating game like environment. By monitoring trunk movements, it guides the patient through exercises specifically designed for low back pain therapy. It encourages and motivates the patient to achieve a higher number of repetitions, which helps improving the compliance and the therapy outcome. The exercises are adjustable according to the patient's needs and progress, and therefore provide a challenging and effective therapy.

#### 3. Documentation

The ValedoMotion software captures the patient's training activity and progress providing documentation about the therapy process and the patient's compliance. Furthermore, the stored documentation offers information such as training duration and frequency. Allowing accurate monitoring of the patient's training progress, the Valedo documentation supports clinical decision making.

## The Valedo™ Motion features:

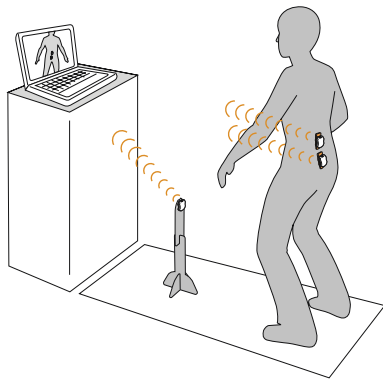
- ValedoMotion provides self-guided therapy.
- The system is ready for clinical use in less than 3 minutes.
- Exercises are adjustable to the patient's specific clinical needs.
- Wireless movement sensors provide the patient with freedom of movement.
- Training is possible in all standard positions such as standing, four point kneeling and sitting.



## Product overview

The ValedoMotion consists of three lightweight orientation and motion sensors and a tablet PC providing the Augmented Feedback software as well as audio and visual feedback.<sup>4</sup> Two of the sensors are applied to the patient's back with adhesive patches enabling training with regular clothing. An applicator included in the set assures an easy application regarding the recommended sensor distance. The third sensor is a reference sensor that can be held in the hand or placed in front of the patient. The movement quality data is transmitted from the wireless sensors to the tablet PC providing the patient with a maximum freedom of movement. Several ValedoMotion systems can be used in the same room simultaneously.

The ValedoMotion will be commercially available beginning of 2011 (depending on national registration procedures).



## The Valedo™Motion outlook

For optimum coverage of the needs of all patients and therapists, Hocoma is constantly working to improve the low back pain treatment with ValedoMotion. Focused on improving functional rehabilitation therapy with innovative solutions, the company utilizes feedback from therapists and works closely with leading clinical and scientific partners for full clinical research.<sup>5</sup> Hocoma's experts work on high-level scientific advisory boards and within clinical networks to ensure optimum future developments and ongoing support for its current and future customers.

*"Lack of compliance is a big problem in low back pain therapy. Our first clinical experiences showed that the therapy with ValedoMotion is fun and motivating. With the exercises, the patient easily forgets the time, which leads to a higher number of repetitions and an improved compliance."*

Hannu Luomajoki, PhD  
Head of Continuing Education, Institute of Physiotherapy, Zurich University of Applied Sciences

## Patient questionnaire<sup>3</sup>



<sup>4</sup> The TV screen shown on the pictures is an optional accessory and not part of the standard ValedoMotion package.  
<sup>5</sup> For more information visit [www.hocoma.com](http://www.hocoma.com).

## Company profile

### The leader in robotic rehabilitation therapy for neurological movement disorders

Hocoma is a medical technology company based near Zurich, Switzerland. The company develops innovative therapy solutions, working closely with leading clinics and research centers. Its product lines Lokomat®, Armeo®, Erigo® and Valedo™ are all applied successfully in many renowned clinics and research institutes worldwide, improving the field of rehabilitation medicine.

### Quality in all we do

Focused on improving functional rehabilitation therapy with innovative solutions, Hocoma develops its products in close collaboration with leading clinical and scientific partners. The company's experts work on high-level scientific advisory boards and within clinical networks to ensure optimum future developments and ongoing support. Hocoma is highly committed to both patients and clinicians in the field of rehabilitation therapy. The company supports the field by offering clinical application workshops and trainings with certified instructors, and its products are supported by worldwide service and maintenance options.

## Hocoma's other products

The concept of "task-specific learning" based on neuroplasticity suggests that activities of daily living may be trained and improved through numerous repetitions and intensive training. At Hocoma, we are committed to support clinicians and patients in neuro-rehabilitation with innovative, high-quality therapy solutions. Our products are designed to optimize the quality and efficiency of the therapy and enhance the motivation of patients and medical staff.



### Lokomat®

#### Functional locomotion therapy with Augmented Feedback

Locomotion therapy supported by an automated gait orthosis on a treadmill has established itself as an effective therapy. The Lokomat is the first robotic gait orthosis that assists the walking movements of gait-impaired patients and is used to improve the mobility of individuals following stroke, spinal cord injury, traumatic brain injury, multiple sclerosis or other neurological diseases and injuries.



### Armeo®

#### Therapy concept for the upper extremities

The Armeo Therapy Concept is a sustainable and powerful therapy concept for individuals who have suffered strokes, traumatic brain injuries or neurological disorders resulting in hand and arm impairment. The Armeo Therapy Concept includes three distinct products, ArmeoPower, ArmeoSpring and ArmeoBoom, each designed for a particular stage in the recovery process.



### Erigo®

#### Patient mobilization and sensory stimulation in the early phase of rehabilitation

The Erigo is an innovative tilt table with integrated robotic stepping functions. It provides the opportunity for the patient to begin intensive movement therapy and physiological loading of the lower limbs at an early stage. It also offers the possibility of simultaneous up-righting of the patient.



## Contact

### International Headquarter

#### Hocoma, Switzerland

Tel. +41 43 444 22 00

E-mail [info@hocoma.com](mailto:info@hocoma.com)

### North American Hub

#### Hocoma, USA

Tel. +1 877 944 22 00

E-mail [info@hocoma.com](mailto:info@hocoma.com)

### Asia Pacific Hub

#### Hocoma Pte Ltd, Singapore

Tel. +65 9338 2328

E-mail [info@hocoma.com](mailto:info@hocoma.com)

[www.hocoma.com](http://www.hocoma.com)

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With the compliments of:

## 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](http://www.hocoma.com/legalnotes)) for the latest available information. Please contact Hocoma should you have any questions.

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