DynSTABLE

Dynamic STability And Balance Learning Environment

Assessment & Training of Balance Control

improving human performance

Assess and Improve Every Aspect of Balance Control

Balance control is essential for most activities of daily living. Many diseases such as Parkinson's Disease, Stroke, Osteoarthritis, as well as ageing affect balance control. Environmental stimuli turn into barriers, restricting a healthy active lifestyle. The DynSTABLE offers an integrated solution for assessment and training of balance control related disorders using various therapeutically constructed Virtual Reality (VR) applications with real-time feedback.

Balance control is an integral component of many daily activities, but its complex and flexible nature makes it difficult to assess and train adequately. Balance is affected by both the task being undertaken and the surroundings in which it is required. The DynSTABLE can assess and train impaired balance control in relation to function and environmental aspects.

The DynSTABLE offers real-time integration of a translational balance platform, a force plate, motion capture system and VR environments. Assess how well a patient is able to cope with physical perturbations, process visual and auditory information and perform cognitive dual tasks. Dedicated assessment applications assess the different aspects of impaired balance control.

In everyday life balance control is required under all sorts of conditions. Therefore the DynSTABLE houses a set of training applications combining challenging physical, visual and cognitive environments with real-time feedback. These training applications are specifically developed to improve balance control in fun and motivating therapy sessions.

DynSTABLE key features

- Balance platform with horizontal translations
- Real-time feedback on physical, visual and cognitive performance
- Intuitive workflow from patient selection and goals to treatment monitoring

- User-friendly touch-screen interface
- Objective outcome measures, to define baseline level and monitor progression
- Fun and motivating VR exercises based on scientifically proven protocols

DynSTABLE

Three screens with projectors and audio system
Fully immersive VR set-up covering frontal and sideways viewing angles.
The audio system enriches the VR experience

2 Degrees of Freedom (2DOF) translational platform
Fast accelerations up to 1G
Horizontal translations in every direction ±10cm (3.9'')

Force-plate
1m^2 mounted on the 2DOF platform to record the Center-of-Pressure

Motion-capture system
4 cameras collecting 3D motion data

Touch-screen user console
For application selection and patient database control

Applications
Various assessment & training applications available

Optional
Without 2DOF balance platform (STABLE)

Company profile

Motek Medical provides innovative products for rehabilitation, orthopaedics, neurology, performance enhancements and research. Integrated VR environments that combine motion platforms, instrumented treadmills, motion-capture systems and surround sound, are used to train movement functions and improve stability. Game elements and rich immersive interactions enable better user presence. The technology uses multi-sensory real-time feedback and offline analysis tools.

Other Motek Medical products

CAREN

CAREN (Computer Assisted Rehabilitation ENvironment) is our leading product. CAREN is a hardware and software system that creates a virtual environment in which a patient carries out exercises. CAREN systems always consist of a motion base, motion-capture system, force-plates, a (semi-cylindrical) projection screen and the D-Flow software. There are three default configurations available, which can all be tailored to your specific needs.

GRAIL

Your complete gait-lab in 25m² for gait analysis and gait training using real-time feedback on any gait parameter. GRAIL (Gait Real-time Analysis Interactive Lab) uses an instrumented dual-belt treadmill, a motion-capture system, synchronized Virtual Reality environments, 3 video cameras, optional EMG and a user-friendly gait off-line analysis tool. GRAIL supports mechanical and visual challenging conditions to improve (pathological) gait patterns, without being restricted to one artificially targeted single step in an over-ground gait lab of considerable space.

Human Body Model (HBM)

The HBM software for biomechanical analysis of human movement calculates and visualizes joint rotations, joint moments and muscle forces for real-time and off-line analysis. Data visualization of biomechanical variables is done using an avatar with coloring schemes alongside various graphs. An intuitive user interface can be used to select parameters and use various visualization tools