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sciences & technologies

Biomechanical engineering

Development of a baropodometric device

Study of the physical and physiological phenomena associated with the science of the sport and human motricity

Current State of Art Technology

Gait plantar pressure is an important source of information about both current walking issues and future injuries. It might permit doctors to detect and to prevent from musculoskeletal dysfunction.
Currently, the most used dynamic analysis devices are piezoelectric insoles which allow individuals to walk naturally. But those insoles are to be set inside a shoe which constrain the foot in space and dynamic contact on the ground.
To observe the real behavior of the foot during the gait, barefoot pressures must be obtained. For that doctors may use a pressure plate. But, with this system, the patients have to walk carefully in order to put the foot in the centre of the plate and thus change their kinematics.
Doctors need a real ecological gait analysis device to get informed of current and future health of their patients' locomotor system.

Laboratory & Clinical Advantages

The Applied Mechanical Laboratory allows simulation, optimization and material testing for the mechanical of our device.
The Laboratory of Anatomy allows clinical testing with healthy and unhealthy patients.

Purpose

A medically helpful mechatronical device for natural gait analysis is proposed. This consists of an instrumented shoe equipped with eight force sensors. The instantaneous plantar pressures are recorded by a light acquisition system hold by the patient’s hips or back. Thus, the gait is not disturb by the device and can be used at home, it is to say, in an ecological context.

Partners

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