

Electrical stimulator for gait correction

Country of origin | Chile

Primary function | Rehabilitation

Health problem addressed

Drop foot is a common gait disturbance in patients with stroke, multiple sclerosis and spinal cord injury. This disorder is characterised by a non-voluntary control of dorsiflexor muscles, which means that is difficult to point toes toward the body (dorsiflexion) or rotate the foot inward or outward. Patients with drop foot have serious difficulties to walk and are at high risk of falling. According to the WHO, 15 millions people suffer from stroke worldwide each year.



Technical descriptions

This device is a functional electrical stimulator to correct gait in people with drop foot. It consists of a pressure sensor, a stimulator and two electrodes. The electrical stimulator allows for the obtention of surface symmetrical current levels between 0 and 100 mA, for loads of up to 1 kOhm and frequencies between 10 – 60 Hz. The user interface was designed in an Android application. The parameters of the device can be controlled from the smartphone or tablet and are transmitted to the device by Bluetooth.

Developer's claims of products benefits

Treatment for foot drop will depend on the cause. Early treatment may improve chances of recovery.

Treatments may include lightweight braces, shoe inserts (orthotics), physical therapy or surgery.

Operating steps

A pressure sensor located in the heel of the shoe of the patient will detect the state of the gait cycle. This information is processed by an electronic control unit, which through a control algorithm will determine whether to stimulate or not. Stimulation is made by a sequence of electronic pulses controlled by the control unit. The stimulus is applied to the skin (over the peroneal nerve) by two electrodes. The stimulator has only one button to activate the system.

Regulatory status and standards compliance

An homologated standard in Chile was applied to verify the IEC 60601.

Use and maintenance

Training: Training is necessary for user to correctly place the electrodes on the skin and the pressure sensor in the shoes. The training takes less than an hour.

Maintenance/Calibration required: No

Environment of use

Setting: Rural settings, urban settings, outdoors, indoors, at home, public places (market, library, etc.).

Energy requirements: Rechargeable battery.

Product specifications

Weight (kg): 0.12

Dimensions: 82mm x 56mm x 24mm

Accessories: Pressure sensor

Consumables: Stimulation electrodes

In UN catalog: No

Commercial information

Reference price (USD): \$1'200.00

Year of commercialization: 2016

Currently sold in: Chile

Number of units distributed: 0-100

Software requirements: Proprietary, license free Android application

Model: SmartFES

Other features: Portable, single use

Contact Pablo Aqueveque | Telephone +56 41 266 1261 | Web <https://bit.ly/2NIYLIA>