



WALKEX 1035 Single channel Functional Electrical Stimulation system for foot drop

The Walnut Medical Walkex is an advanced neuroprostheses designed to help patients with neurological conditions accelerate their rehabilitation process and walk with improved balance and gait.

Clinical evidence suggests that the Walnut Medical Walkex may significantly improve gait speed, symmetry and stride, and reduce falls. The Walkex accelerates recovery time to knee locking and reduces the overall rehabilitation time period of a hemiparetic patient.

Delivering low-level electronic stimulation to the nerve to enable foot dorsiflexion and accelerate motor recovery, the system is small in size and easy to use.

Unlike a rigid, uncomfortable ankle-foot orthosis (AFO), patients can wear the Walnut Medical Walkex under most clothing and with most shoes.

The Walnut Medical Walkex may help your patients regain natural function for foot drop associated with:

- Traumatic brain injury
- Stroke
- Spinal cord injury
- Multiple sclerosis
- Cerebral Palsy

Features of Walkex:

a. **Reduces atrophy:** modes neuro-muscular electrical stimulation for lower leg muscles and arms.

b. **Prevents Footdrop:** The Walkex proprietary electronic control system provides precise Functional Electrical Stimulation to control the dorsiflexion.



c. **Neuroplasticity:** The Walkex exercise mode, with the capability to be programmed precisely for individual patient needs, the brain can relearn walking patterns and other movements which otherwise takes a very long time.

d. **Reduces the changes of a fall:** 70% of neuro disorder patients with footdrop experience a fall in the first 6 months which leads to greater disability. The Walkex reduces chances of a fall by over 50%.

e. **Accelerated Recovery:** The Walkex accelerates the recovery for acute stroke patients and enables knee locking in a much reduced time frame which enables the patient to live an independent life again.

f. **Reduces Spasticity:** Unlike AFO's which doesn't allow foot ankle movement leading to spasticity, the Walkex enables repetitive ankle muscle movements which reduces spasticity.

g. **Extended Physiotherapy at home:** The Walkex Exercise mode is programmed to function at home for hours together as programmed by the medical professional which significantly accelerates recovery.

h. **Improves balance and gait:** The Walkex enables patients to regain balance and manages gait through intelligent sensors and stimulation.

NEUROPLASTICITY

Neuroplasticity is the brain's ability to reorganize itself by forming new neural connections throughout life. Neuroplasticity allows the neurons (nerve cells) in the brain to compensate for injury and disease and to adjust their activities in response to new situations or to changes in their environment.

The Walnut Medical Walkex Exercise and Walk mode is the application of electronic stimulation over key muscles or groups of muscles while performing a task-specific activity. For chronic stroke it is recommended to perform 2-3 times per day, 5 days per week for a minimum of 12 - 16 weeks to a maximum duration as prescribed by the medical professional.

This can be implemented across all levels of motor deficits and can be used even if the patient is just having sensory deficits. The activities can be carried over easily to home with a personal unit for the patient to take home with a set regimen of activities to perform over the prescribed amount of time. There is significant evidence to support cortical plasticity changes that continue up to several hours after stimulation is removed.

The Walnut Medical Walkex is an advanced neuroprostheses using advanced sensors embedded in the Walkex. The device is a one piece system that includes an orthosis for lower leg to provide mild electronic stimulation of nerves and muscles to help patients affected by foot drop regain a more natural walking pattern.

Walkex Specifications:

Walkex Master Size	110mm x 80mm x 25mm
Walkex Controller Size	90mm x 64mm x 17mm
Weight	60 g + cuff (Size Adult and Kids)
Power Source	Inbuilt 3.7V lithium ion rechargeable battery
Maximum Current	300mA at 500 ohm; 150 mA at 1 K ohm
Maximum Voltage	150 V

Exercise Modes additional: simultaneous, alternate

Lower Limb:

Mode 1: Channel 1 activate

ON heel off

Mode 2: Channel 1 activate

ON heel strike

Number of Modes	
Walkex Models	
Number of channels	Walkex 1035: Single channel
Pulse Type	Asymmetrical Biphasic, adjustable ramp up and down (100ms to 2000ms)
Pulse Width	350-700 microseconds (Adjustable)
Frequency Range	40-90 Pulses Per Second (Adjustable)
Maximum Stimulation Period	10 seconds for Ex and 8 seconds for FES (programmable)
Stimulation Trigger Source	Foot Switch Sensor (wireless rechargeable and spring wired)
Controls and Indicators	- ON/OFF; Walk, Ex, Pause buttons - Walk LED blink for FES - Ex LED blink for Exercise - Hand held controller with function control
Shipping and Storage Conditions:	Device (Long Term) Temperature: -4° – 140°F (-20° – +60° C)

Rechargeable battery and Inner lining:

- The Walnut Medical Walkex has auto cutoff for battery charging, the patients attendant may connect the Walkex for charging every night before sleeping.

- On a single charge Walkex may work for more than two days as per treatment protocol define earlier. The patient is anyway recommended to charge the device every night.