

Enduring, Performance-oriented Partnerships

Longest, a leading manufacturer in physiotherapy and rehabilitation, provides healthcare professionals and consumers with non-invasive solutions to various health problems to prevent unnecessary invasive procedures and achieve better recovery.

Our broad portfolio of performance-center solutions supports health systems to manage the growing rehabilitation needs better, speed up workflows, reduce costs, and improve patient outcomes.

Together, we improve the lives of patients and their families.

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Longest



Neurological Rehabilitation

Rebuilding Patients' Ability, Life, and Confidence

Health Life · Longest Care

Neurological Disorders

Neurological disorders are a significant and increasing public health problem. Every year, up to 1 billion people get affected by neurological disorders, from Alzheimer's and Parkinson's disease, strokes, multiple sclerosis, and epilepsy to brain injuries and neuroinfections. Around 6.8 million people die on account of neurological disorders.

The rising prevalence of neurological diseases resulting from the extension of life expectancy and the aging of populations globally increase the demands for prolonged medical rehabilitation, putting huge pressure on health systems worldwide.

Longest's Neurological Rehabilitation Approach

SYMPTOMS		TREATMENTS	
AMBULATION & SENSORY PROBLEMS			
● Foot Drop	FES Therapy		
● Spasticity ● Muscle Atrophy ● Muscle Weakness ● Decreased ROM ● Numbness & Tingling	 Active Passive Exercise Therapy	 NMES Therapy	
SWALLOWING PROBLEM			
● Dysphagia	NMES Therapy		
CARDIOVASCULAR & CIRCULATORY PROBLEMS			
● Swelling ● VTE (PE & DVT)	Compression Therapy		

Benefits of Our Approach

The growing ageing population is resulting in enormous unmet rehabilitation needs. Health systems globally are in urgent need to scale up rehabilitation. Longest solution is to support health facilities in all levels, especially the primary healthcare facilities and community-level rehabilitation clinics, to increase capacity and deliver highly effective, low-cost treatments to patients suffering from neurological disorders.

Help Patients

- Reduce symptoms
- Promote functional independence
- Prevent complications
- Regain independence, confidence, and dignity
- Enhance overall quality of life
- Reduce rehabilitation cost
- Improve rehabilitation experience

Help Healthcare Facilities

- Reduce costs
- Improve patient care
- Optimize operational efficiency
- Differentiate your clinical practice
- Increase healthcare capacity
- Support healthcare professionals

AMBULATORY & SENSATION PROBLEMS

Difficulty in walking is a major feature of neurological disease. For patients suffering from mobility problems, the desire to continue walking or to walk better is usually a primary goal. Longest rehabilitation solution is to meet the mobility challenges with exercise and the appropriate use of walking aids.

Neurological diseases also result in sensory changes such as numbness in limbs which could cause difficulty walking and driving and increase the risk of falls and injuries.

Foot Drop

Foot drop is where you find it difficult to lift or move your foot and toes. It is due to the weakness or paralysis of the muscles that lift the front part of the foot.

Foot drop makes walking difficult and uncomfortable, affecting a person's mobility, independence, and quality of life.

Muscle Weakness & Atrophy

Muscle weakness is a common consequence of neurological diseases. Muscle weakness has a severe impact on patients' life. If your muscles in the upper or lower limbs are weak, you could have difficulties with walking and holding things and find the most ordinary daily activities impossible to accomplish.

And muscle weakness can cause patients to be unable to move certain muscles for extended periods of time, which deteriorates muscle tissue and result in muscle atrophy.

Spasticity

Spasticity affects over 12 million people worldwide. It is an abnormal increase in muscle tone or stiffness of muscle which can result in pain, movement problems, and difficult speech. It is usually caused by damage to nerve pathways within the brain or spinal cord that control muscle movement.

Muscle stretching or range of motion exercises can help prevent shrinkage or shortening of muscles and reduce the severity of symptoms.

Common Ambulatory and Sensory Problems

Numbness & Tingling

Numbness is common and might be an early symptom of neurological disorders such as MS and stroke. Numbness is often accompanied by tingling.

Numbness can occur in:

- arms and hands
- legs and feet
- face
- body

Severe numbness can make it difficult to use the numb body part, which interfere with daily life significantly.





Foot Drop Treatment

Functional Electrical Stimulation (FES)

It has been used for correcting foot drop for more than half a century. It works by delivering electrical impulses to stimulate the tibialis anterior to induce dorsiflexion (DF) during the swing phase of gait to ensure foot clearance

- ✓ **SMARTER**
- ✓ **EASIER**
- ✓ **EFFECTIVE**
- ✓ **MORE FLEXIBLE**

- Correct abnormal gaits
- Improve foot range of motion
- Improve walking speed and quality
- Enhance muscle strength
- Reduce efforts needed to walk
- Reduce spasticity

Benefits of FES-assistive Walking

MStim Drop LGT-233



How to use it?

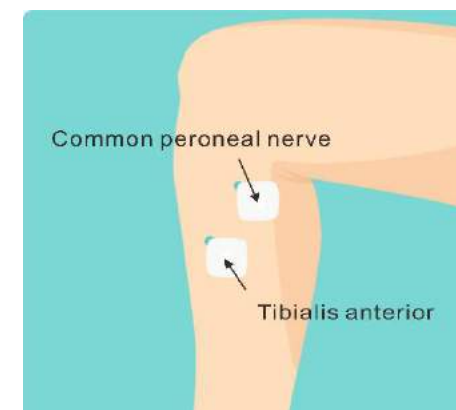
- For patients in the early stage of neurological disorders, MStim Drop LGT-233 can help restore normal walking patterns.
- For patients suffering from foot drop for a while, the device can be used to assist in walking.
- For patients with foot drop caused by nerve injury and suffering from triceps spasms at the same time, use LGT-233 and AFO together. After the triceps spasms are relieved, use LGT-233 only to assist in walking.

Treatment time

Train mode: 5 days a week, and 40min a day to reduce muscle weakness and improve muscle strength.

Walk mode: According to the specific walking needs.

Pads Placement



How it treat foot drop?

In train mode, NMES is used to stimulate muscles around peroneal and tibialis anterior to reduce muscle weakness.

In walk mode, FES is used to stimulate the tibialis anterior to induce dorsiflexion (DF) during the swing phase of gait. The built-in sensor can detect the gait event to provide precise stimulation to ensure foot clearance.

1

Wearable

— more flexible & convenient



2

Train Mode & Walk Mode

— greater therapeutic benefits



3

Mobile User App

— easier operation, track treatment progress in real time



For ios



For Android

Download user app: search "MStim Drop" in the app store or scan the QR code to down:



Active & Passive Exercise Therapy

Active Exercise

Active exercise requires the patients to exert efforts to carry out. It is designed to help prevent muscle atrophy, strengthen muscles and increase range of motion.

Active exercise is good for people suffering from weak muscles, tendons, and other musculoskeletal components due to injuries, neurological disorders, etc.

Passive Exercise

Passive exercise is that patients don't need to exert efforts to move their legs or arms; Someone or some device can help them move their muscles and joints through their full range of motion..

Passive exercise is excellent for patients with paralysis on one side of the body or spasticity, helping improve blood flow in the affected areas, prevent spasticity from worsening and increase range of motion.

Therapeutic Benefits

- ✓ Build strength in legs and arms without spending too much effort
- ✓ Boost cardio fitness
- ✓ Increase range of motion
- ✓ Improve coordination
- ✓ Enhance circulation
- ✓ Prevent muscle atrophy
- ✓ Improve motor recovery
- ✓ Reduce spasticity

RehaMoto LGT-5100D

Longest RehaMoto LGT-5100D is active-passive trainer designed to help people suffering from muscle weakness, loss of coordination, and other mobility problems caused by neurological disorders to reduce symptoms, prevent complications and improve wellness.

The trainer can provide the right amount of resistance or assistance according to the user's motor function to help improve muscle strength, endurance and cardiopulmonary capacity.

➤ 4 Training Modes

- **Passive Training:** for patients without muscle strength to increase range of motion and prevent complications
- **Assisted Training:** for patients with low muscle strength to build up strength and improve coordination
- **Active Training:** for patients with muscle strength 3-5 to improve muscle strength, endurance, balance and coordination. The resistance can be adjusted according to specific exercise goals.
- **Constant Speed Training:** for improving coordination of limbs

➤ Intelligent Spasm Recognition

RehaMoto LGT-5100D is designed with an intelligent spasm setting and protection system. When spasms occur, the machine can detect and help relieve them automatically.

➤ Great User Experience

RehaMoto LGT-5100 is built with an 8-inch full-color touch screen for easier operation. And the machine also provides an enhanced interactive experience that allows patients to enjoy the treatment process while getting better outcomes.



Live data to tracking the performance of your training



Interactive gaming experience, more engaging



Immediate feedback to see the result of every session

Neuromuscular Electrical Stimulation

Neuromuscular Electrical Stimulation (NMES) uses a small device that emits strong and wide electrical pulses via pads placed on the treated areas to stimulate intense and repeated muscle contractions to help strengthen the muscles and increase blood circulation. When two sets of NMES alternatively stimulate the antagonistic muscles, it can lower the muscle tone and relieve spastic muscle through reciprocal inhibition. NMES can also stimulate the sensory nerve of the affected area to reduce numbness.

Therapeutic Benefits

This therapy is widely used in neurological rehabilitation to help patients suffering from long-term bed rest, muscle weakness or paralysis to:

- ✓ Retrain muscle to function
- ✓ Increase muscle strength
- ✓ Increase range of motion
- ✓ Prevent blood clots
- ✓ Enhance circulation
- ✓ Reduce numbness
- ✓ Reduce Spasticity

MStim Reha LGT-231

MStim Reha LGT-231 is a dual channel muscle stimulation unit that provides effective NMES therapy to help patients suffering neurological disorders reduce symptoms and improve wellness.

✓ Three Treatment Modes

The combination of TENS, NMES, and MCR technologies provides users with many medical benefits.

TENS - relieve pain

NMES - strengthen muscles

MCR - promote healing process

✓ User-friendly Design

Many built-in treatment programs with intuitive body navigation. Easy to use, even for first-time users.



✓ Portable & Convenient

Allowing patients to carry it along and get immediate treatment whenever needed.

✓ Smart User APP

Users can control the device using their phones easily and more conveniently.

Download user app: search "MStim Reha" in the app store or scan the QR code to down:



For ios



For Android

Application Guidance:

Recommend to use 30min/time, 5 times/week with frequency of 1-50Hz (for anti-spasms treatment, recommend 30Hz-50Hz); The intensity is set according to patients' condition

SWALLOWING PROBLEM

Dysphagia or swallowing difficulty is usually caused by a neurological or physical impairment of the oral, pharyngeal, or oesophageal mechanisms. It has been recognized as a significant problem following stroke - it not only reduces the quality of life but also has a life-threatening consequence as pneumonia is common sequelae of dysphagia. In addition, the care for pneumonia costs much higher than that for dysphagia.

30% of post-stroke deaths are due to pneumonia. Clinical studies show that dysphagia presents in over 70% of stroke patients. In 75% of patients with early swallowing problems, the condition will continue to be moderate to severe, and in 15%, it will remain profound. The early and effective treatment of dysphagia could reduce the risks of pneumonia and significantly impact survival, patient experience, functional recovery, and costs.



NMES for Dysphagia Treatment

Neuromuscular electrical stimulation (NMES) therapy uses electrical impulses to stimulate muscles to enhance the strength of the muscles associated with swallowing and facilitates reflex swallowing via sensory stimulation. It is widely used in the therapy of stroke patients with pharyngeal dysphagia.

- ✓ **Non-invasive**
- ✓ **Fast & convenient**
- ✓ **More affordable**
- ✓ **Easy to use**



MStim Reha LGT-231

— A powerful NMES unit to treat dysphagia

- ✓ Portable, easy to carry and store
- ✓ Easy to use with clear pads placement guidance and preset protocols
- ✓ Built around a user app, easier to control the device with phone

Application Guidance:

Recommend to use 20min/day, 5 days/week with frequency of 60Hz; And the intensity is set according to patients' condition



CARDIOVASCULAR & CIRCULATORY PROBLEMS

Venous thromboembolism or VTE is very common in hospitalization neurologic patients. Patients with neurological diseases are at higher risk of VTE because of relatively long-term immobility.

VTE is often underdiagnosed and potentially life threatening. Therefore, preventing VET during neurological rehabilitation is also of great importance to achieve better outcomes.

Intermittent Pneumatic Compression (IPC) Therapy



Intermittent pneumatic compression (IPC) therapy uses air pump and inflatable sleeves with multiple air chambers to create intermittent pressure on arms, legs and other body parts, supporting the heart and circulatory system and promoting the healthy movement of blood in your body.

Therapeutic Objectives

- Improve blood circulation
- Reduce swelling & pain
- Relieve stiff, fatigued, and painful muscles
- Prevent DVT
- Support lymphatic system
- Remove metabolic waste
- Speed up wounding healing



LGT-2200DVT

- 5" Full-color touch screen
- Rechargeable battery (9000mAh)
- Hook design, space saving
- 4 modes for different treatment areas: calf and foot, calf only, foot only, calf and thigh.
- Wide pressure range setting (40-150mmHg)



LGT-2201DVT

- 2.2" OLED Full-color touch screen
- Rechargeable battery (3500mAh)
- More compact design
- 4 modes for different treatment areas
- Extended range of pressure (30-150mmHg)



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We are committed to developing optimal medical devices that support the works of healthcare providers globally and enables providers to achieve better outcomes at lower costs.

Reference:

1. World Stroke Organization: <https://www.world-stroke.org/world-stroke-day-campaign/why-stroke-matters/learn-about-stroke>
2. Stroke Association UK: <https://www.stroke.org.uk/effects-of-stroke/physical-effects-of-stroke>
3. National MS Society: https://www.nationalmssociety.org/NationalMSSociety/media/MSNationalFiles/Brochures/A-Focus-On-Rehabilitation_Final-Links.pdf
4. Website: <https://scielo.isciii.es/pdf/neuro/v18n1/investigacion1.pdf>
5. Website: <https://www.uptodate.com/contents/traumatic-brain-injury-epidemiology-classification-and-pathophysiology/print>
6. NIH: <https://www.ninds.nih.gov/health-information/disorders/spasticity>
7. Johns Hopkins Medicine: <https://www.hopkinsmedicine.org/health/conditions-and-diseases/spasticity>
8. MedicalNewsToday: <https://www.medicalnewstoday.com/articles/326062>
9. https://journals.lww.com/md-journal/Fulltext/2019/11010/Effect_of_neuromuscular_electrical_stimulation.58.aspx



Empowering Healthcare Professionals to Advance the Health and Vitality of People with Neurological Diseases

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