MYOLYN

• *Powering Your Potential* •

FES POWERED MOVEMENT THERAPY

MyoCycle

Product Catalog

The MyoCycle

FUNCTIONAL ELECTRICAL STIMULATION + ISOKINETIC CYCLING

Functional electrical stimulation (FES) uses small amounts of electrical current to empower people with weakened or paralyzed muscles to perform functional movements. The current stimulates the muscle via electrodes on the skin, causing it to contract, even if the person is completely paralyzed. Paralysis prevents brain signals from reaching the muscles, but FES replaces these signals, directly commanding the muscles to use the body's own potential energy to generate a functional movement, hence our slogan: Powering Your Potential.

The MyoCycle is a stationary cycling system that grants all the benefits of **FES** and **isokinetic cycling** to people with muscle weakness or paralysis.

Isokinetic means constant speed, so an isokinetic cycling system keeps the pedals moving at a constant speed, no matter how the rider pedals. This is made possible by a built-in electric motor. If the rider pedals too slowly, the motor helps the rider pedal faster. If the rider pedals faster than the target speed, the motor resists, and the harder the rider pedals, the more the motor resists. You get out exactly what you put in. This unique feature ensures that the cycling is always smooth and controlled, reducing the likelihood of injury and making it easy to optimize performance and track progress.

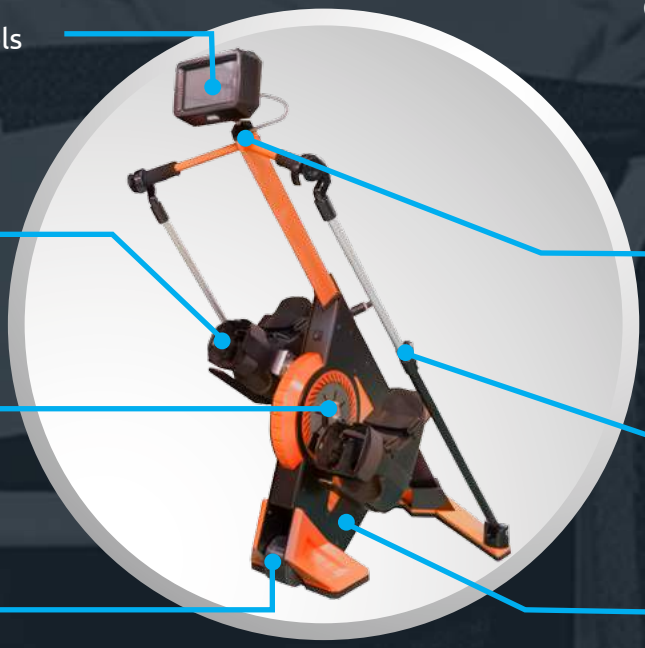
Everybody needs to stay active to stay healthy, as a lack of physical activity can lead to obesity, diabetes, cardio-vascular disease, and even anxiety and depression. This is an even greater problem for millions of people around the world with disorders like spinal cord injury, stroke, multiple sclerosis, cerebral palsy, traumatic brain injury, and others with muscle weakness or paralysis, who find it nearly impossible to stay active and healthy because of their limited mobility.

The MyoCycle empowers people to stay active and healthy despite muscle weakness or paralysis, by keeping their legs moving and activating their own paralyzed muscles. Research has shown that FES-cycling gives people with paralysis all the same benefits of traditional, able-bodied cycling, including improved cardiovascular health, more muscle mass and strength, better bone density, and even improved self-image and social abilities [1]. FES-cycling also has some unique benefits for people with paralysis, like fewer muscle spasms, increased range of motion, and lower probability of pressure sores [2].

What are the benefits of using the **MyoCycle**?

The MyoCycle is intended for general rehabilitation for:

Relaxing muscle spasms
Preventing / slowing disuse atrophy
Increasing local blood circulation
Maintaining / increasing range of motion



Intuitive touchscreen interface with simple controls

Compact and artistic design fits well in any home, clinic, or gym

Orthotic pedals provide comfortable stability

Handlebars and console adjust to suit a wide range of riders

Powerful, silent electric motor built-in

Adjustable chair attachments fit most chairs / wheelchairs

Roller wheel for easy transport

Steel frame for durability in high-use environments

The MyoCycle is the only FES cycling system made in the USA

Overall stimulation level adjustable with easy-to-use up/down arrows

Session data automatically saved to the cloud via Wi-Fi connectivity

Stimulation for each muscle group easily adjustable to low, medium, or high intensity

Displays session time, stimulation level, calories burned, active power output, and distance cycled

Stimulation automatically customized based on patient geometry

Simply enter in measurements of the patient's leg lengths and chair seat height, and proprietary software algorithms automatically customize the stimulation settings, maximizing efficiency and power output through optimized muscle coordination.

Only cycling system in the world that displays active power output

The passive work required just to move the patient's legs is automatically subtracted from the total power measurement, providing an accurate measurement of active power output, so you always know exactly how much work the patient is doing.

MORE GREAT FEATURES

Automatic muscle spasm detection with adjustable sensitivity to prevent injury
Automatically identifies active and disconnected stimulation channels
Passive warmup at the start of each session loosens joints and increases blood flow
Session summaries make it easy to track progress
Designed for patients 4 ft. 9 in. (144 cm) to 6 ft. 4 in. (193 cm) tall, up to 265 lbs (120 kg)
Two year limited warranty covering any parts with defects in material or workmanship
Complies with the following international standards

- IEC 60601-1: General requirements for safety and performance of medical devices
- IEC 60601-1-2: Electromagnetic compatibility requirements for medical devices
- IEC 60601-1-6: Usability requirements for medical devices
- IEC 60601-1-11: Requirements for medical devices used in the home
- IEC 60601-2-10: Requirements for safety and performance of muscle stimulators

The MyoCycle Home

The MyoCycle Home represents a revolution in FES cycling. It is designed to be powerful, easy-to-use, and affordable, empowering people with paralysis to take control of their mobility, health, and independence.

The MyoCycle Pro

The MyoCycle Pro is a revolutionary FES bike designed to be powerful, easy-to-use, and accurate. It provides therapists the tools they need to help their patients achieve their full recovery potential. The MyoCycle Pro has all the same great features as the MyoCycle Home, plus

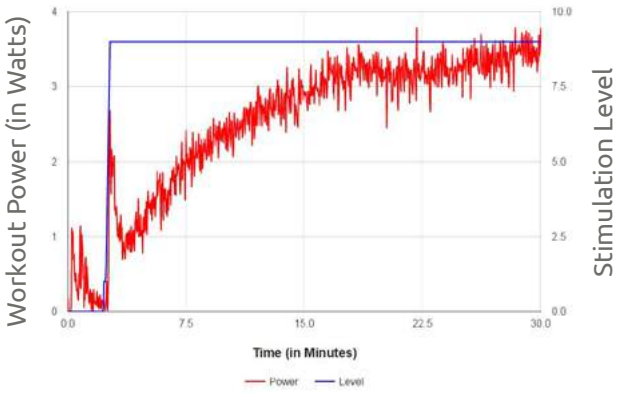
+ Accurate measurement of pedaling **symmetry**
+ White glove **delivery, setup**, and **training**
+ Access to the **MyoPortal**

The MyoPortal

The MyoPortal is an online portal for visualizing session analytics and patient progress, only available to MyoCycle Pro owners. Monitor equipment utilization, track patient progress, and support insurance reimbursement with high integrity data from the MyoPortal.

Owners of the MyoCycle Home can connect their device to the MyoPortal via Wi-Fi and receive weekly progress reports and software updates.

Workout Power and Stimulation Level vs. Time



Workout Parameter	Value
Thigh Length	18.0
Lower Leg Length	19.0
Seat Height	24.0
Spasm Level	MEDIUM
Left Quads Gain	LOW
Left Hams Gain	LOW
Left Glutes Gain	LOW
Right Quads Gain	LOW
Right Hams Gain	LOW
Right Glutes Gain	LOW

Actual MyoPortal data

MyoCycle TECHNICAL INFORMATION

Applies to both Home and Pro models

Medical device class	United States: Class II
Device size and weight	Length: 89 cm (35 in) Width: 70 cm (27.5 in) Height: 112-133 cm (44-52.5 in) Weight: 50 kg (110 lbs)
Shipping size and weight	Length: 86 cm (34 in) Width: 30 cm (12 in) Height: 79 cm (31 in) Weight: 54 kg (120 lbs)
User size and weight limits	Height: 145-193 cm (57-76 in) Weight: 120 kg (265 lbs)
Primary materials	Aluminum, powder-coated steel, ABS / PLA plastic
Crank arm length	117 mm (4.6 in)
Cadence	35 +- 5 rpm
Motor torque limit	Assisting: 16.6 Nm Resisting: 20 Nm
Supply mains input	Voltage: 100-240 V~ Current: 3.3-1.4 A Frequency: 50-60 Hz
Power input	300 W
Electrical protection	Class II with Type BF applied parts
Noise emission	< 50 dB
Ingress protection	IP 21
Mode of operation	Continuous operation
Continuous operating conditions	Temperature: 5 C to 40 C (41 F to 104 F) Relative humidity: up to 90% non-condensing Atmospheric pressure: 700 hPa to 1,060 hPa Altitude: <= 5 km (16,400 ft)
Conditions for transport / storage	Temperature: -25 C to 70 C (-13 F to 158 F) Relative humidity: up to 90%, non-condensing Atmospheric pressure: not relevant
Display / user interface	18 cm (7 in) capacitive touchscreen LCD
Wi-Fi connection	Type: IEEE 802.11 b/g/n (2.4 GHz) Security: WPA / WPA2 Networks: open, password-protected, hidden
Stimulation	Number of channels: 6 Waveform: Biphasic, rectangular, symmetric pulse train Amplitude: 50 / 90 / 120 mA Pulse width: 0, 20-500 microseconds Frequency: 60 Hz Maximum power density: 0.01 W/cm^2

ABOUT MYOLYN

MYOLYN was founded in June 2013 with the mission of improving health and human performance by empowering people to move. Co-founders Alan Hamlet, PhD, and Matthew Bellman, PhD, spun out the company from a robotics research lab at the University of Florida, where Dr. Bellman was completing his dissertation on control of the human body using functional electrical stimulation (FES). Drs. Hamlet and Bellman, together with a passionate team of talented engineers, apply their unique expertise in robotics and automation to develop FES devices that are innovative, affordable, and easy-to-use.

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