

Stella BIO



ELECTROMYOGRAPHY & ELECTRICAL STIMULATION

FOR CLINICAL & HOME USE

WELCOME TO STELLA BIO THERAPY CONCEPT

Easy & Fun Functional Therapy with the Most Sensitive EMG and FES



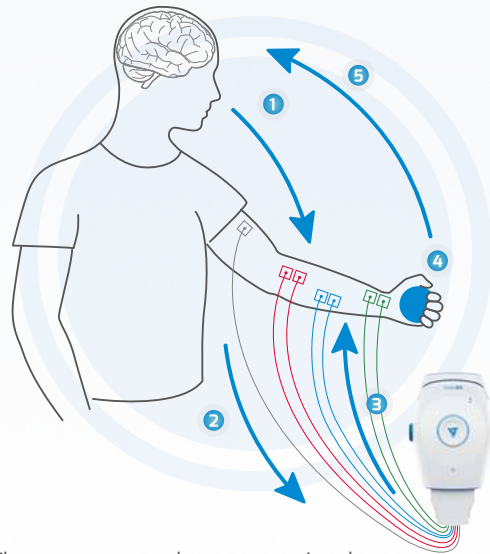
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MAIN CONCEPTS

1 EMG-triggered functional electrical stimulation (EMG-FES)

EMG-triggered functional electrical stimulation (EMG-FES) is an intervention that combines 3 modalities: functional electrical stimulation, biofeedback, and exercise.

Patient initiates the movement. When EMG activity reaches a pre-set threshold level, the functional electrostimulation starts.

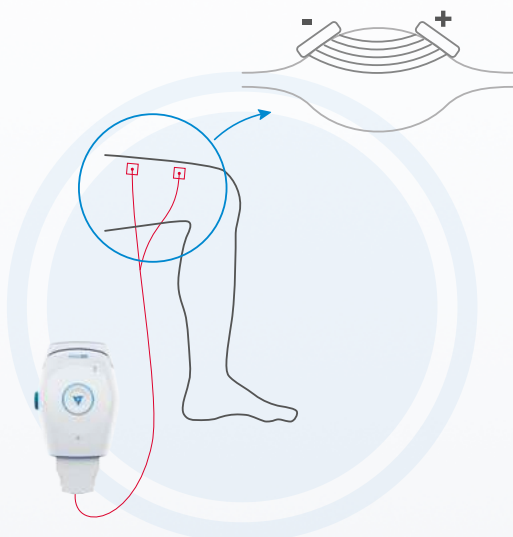


- 1 The attempt to make a move - signal is sent from the brain to the muscle.
 - 2 EMG signal from the muscle is received by Stella BIO.
 - 3 Electrostimulation is applied to the muscles, in a special sequence.
 - 4 Functional movement is performed.
- Voluntary activity is enhanced by electrostimulation and has an impact on neuroplasticity.

2 Electric muscle stimulation (EMS)

Electric muscle stimulation (EMS) is a way to trigger muscle contraction via external electric impulses.

Depending on the patient goal different stimulation parameters can be applied to achieve the best results.



„Electrical stimulation for strengthening is useful clinically in cases involving immobilization or contraindications to dynamic exercise to prevent disuse atrophy, in early rehabilitation by facilitating muscle contraction, and in selective muscle strengthening or muscle re-education.“

(Watson 2008)

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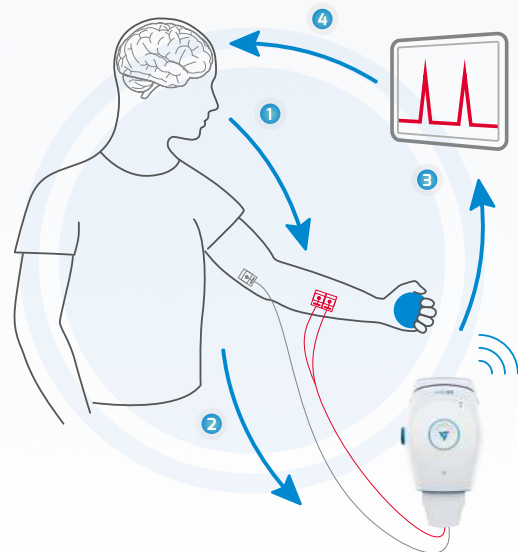
3 EMG biofeedback

EMG biofeedback is a method of retraining muscle by creating new feedback systems as a result of the conversion of electrical activity of the muscle into visual and auditory signals.



*„Results indicate that **EMG-BF** is an effective tool for neuromuscular reeducation in the hemiplegic stroke patient.”*

Moreland et al. 1998



- 1 The attempt to make a move - signal is sent from the brain to the muscle.
- 2 EMG signal from the muscle is received by Stella BIO.
- 3 EMG signal is visible on the screen.
- 4 Voluntary activity is enhanced through biofeedback and has its impact on neuroplasticity and motor learning.

4 Transcutaneous electrical nerve stimulation (TENS)

Transcutaneous electrical nerve stimulation (TENS) is a therapy that uses low voltage electrical current to provide pain relief.

Pulses aimed at the nervous system, through selective activation of large-diameter A β fibres (touch related) and block the transmission of pain signals from reaching the spinal cord and brain. The pulses also stimulate the body to produce more natural pain-relieving chemicals - endorphins.

