

Neuromuscular Electrical Stimulation



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Principles and Theory:

NMES is a tool used for muscle reeducation using electrical stimulation of the nerves and muscles. Electric current flows through the tissue causing a slight muscle contraction. This contraction aids the individual, who may be unable to initiate the contraction on their own, to feel the muscle contract. Once contraction is initiated the individual can assist and hold contraction thus reeducating the muscle and relearn the motor skill.

Intended Outcomes:

Individual is able to initiate muscle contraction, increased muscle endurance and performance, increased range of motion.

Common conditions, impairments and functional limitations treated with E-stim:

History of stroke, post surgical [deconditioning](#), partial denervation, pelvic floor dysfunction, and traumatic or orthopedic injuries.

Expected experience:

Light to moderate vibration or agitation, slight tightening of the muscle, following treatment skin may be pink which should disappear in 30 to 60 minutes.

Safety, precautions and contraindications:

Caution should be taken with individuals having skin conditions, such as psoriasis, eczema, dermatitis and acne which may worsen with e-stim. Other conditions that may prevent good response to e-stim are peripheral neuropathy, decreased skin sensations, obesity (may require uncomfortable levels of stimulation). E-stim should not be applied near electrical implants or metal fixators. Cognitive impairments may require supervised treatment. Individuals should not use e-stim if pregnant, they have or have had cancer, active TB, blood clots, pace maker or active hemorrhage.

Additional information:

Fallon Community Health plan, <http://www.fchp.org/NR/rdonlyres/50B823A6-3A65-44C3-A7AE-6C31A7B11A3E/0/NeuromuscularStimulation?.pdf>

Medco Sports Medicine, <http://www.medco-athletics.com/lectureseries/neuro.html>

Cameron, Michelle H.. Physical Rehabilitation: Evidence-Based Examination, Evaluation, and Intervention. W.B. Saunders Company