MEDICAL MUTUAL®

Medical Policy

Policy:	**200604**	**Effective Date:**	**09/01/2024**
SUBJECT:	**Functional Electrical Stimulation (FES) and Neuromuscular Electrical Stimulation (NMES)**	**Annual Review Date:**	**07/24/2024**
		Last Revised Date:	**07/24/2024**

Prior approval is required for some or all procedure codes listed in this Corporate Medical Policy.

Definition: Functional electrical stimulation (FES) is the direct application of electric current to intact nerve fibers in a coordinated fashion to cause involuntary but purposeful muscle contraction. The electrodes may be completely external (surface FES) or they may be surgically implanted (implantable FES systems). The treatment is intended to improve functional recovery in neurologically impaired individuals. Neuromuscular electrical stimulation (NMES) similarly uses electrical stimulation to cause muscles to contract, but is focused primarily on increasing strength, range of motion, and/or to limit atrophy due to disuse.

FES devices produce muscle contractions that mimic normal voluntary gait movement (lifting the foot and achieving correct placement on the ground) by applying electrical pulses to the common peroneal nerve through the skin surface. In skin-surface FES, electrodes placed over the nerve are connected by leads to a stimulator unit and sometimes controlled with a foot switch or by remote programming. Surface applications of FES have been developed aiming primarily to generate grasping or walking abilities. FES for post-spinal cord injury (SCI) (e.g., Parastep I System, Sigmedics, Inc.) is used to restore gait function and to enable functional use of partially or completely paralyzed limbs, through exercise, in order to improve general health and fitness.

Medical Necessity:

I. **FES for post-SCI rehabilitative walking:** The Company considers FES **(HCPCS Code E0764) medically necessary** and eligible for reimbursement providing that ***all*** of the following medical criteria are met:

- Device will be utilized for rehabilitative walking following lower extremity paralysis due to SCI; and
- Most recent SCI restorative surgery performed ≥ 6 months ago; and
- Prerequisite functioning: Ability to stand ≥ 3 minutes and transfer independently; and
- Adequate hand and finger function to manipulate controls; and
- Intact lower extremity motor units (L1 and below) with brisk muscle contraction following FES; and
- Sufficient upper extremity muscle strength and adequate upper and lower joint stability and function to permit weight-bearing and independent maintenance of an upright posture; and
- Sensory perception of electrical stimulation is sufficient for muscle contraction; and
- No history of long bone fracture secondary to osteoporosis; and
- Adequate cognitive ability to effectively and safely use the device for walking; and
- Highly motivated and expresses commitment to long-term use of the device; and

- No contraindications to FES for post-SCI rehabilitative walking (e.g., cardiac pacemakers, severe scoliosis or severe osteoporosis, skin disease/cancer at site of stimulation, irreversible contracture, autonomic dysreflexia);
- Successful completion of device training program.

The Company considers FES for ***all*** other clinical conditions, including (but not limited to) post-stroke upper extremity rehabilitation **(HCPCS Code E0770) investigational** and **not** eligible for reimbursement.

NOTE: Stationary FES exercise devices, including (but not limited to) those that incorporate the use of stationary bicycles or ellipticals may be considered exercise equipment; please see benefit plan description for coverage exclusions.

II. NMES: The Company considers NMES **(HCPCS Code E0745**) and supplies (**HCPCS Code A4595**) are considered **medically necessary** for the treatment of disuse atrophy for the following conditions

- Contractures due to burn scarring; or
- Major knee surgery with failure to respond to physical therapy; or
- Recent hip surgery when there is a medical delay in starting physical therapy; or
- Muscle atrophy develops despite physical therapy.

In all cases, nerve supply to the muscle must be intact.

Note: NMES longer than two hours per day is considered **not medically necessary**. NMES are contraindicated in persons with cardiac pacemakers.

The Company considers the following **investigational** and **not** eligible for reimbursement:

- Disposable replacement neuromuscular electrical stimulator (**HCPCS Code A4560**).
- NMES for ***all*** other clinical conditions, including but not limited to neuromuscular tongue stimulation for management of gait impairment (**HCPCS Codes A4593, A4594**) and NMES for treatment of scoliosis (**HCPCS Code E0744**).

III. Form-fitting conductive garments: The Company considers a form-fitting conductive garments (**HCPCS Code E0731**) medically necessary for FDA approved garments that have been prescribed by a physician providing that ***at least one*** of the following medical criteria is met:

- The conductive area is large or requires numerous sites to be stimulated, and use conventional electrodes, adhesive tapes, and lead wires is not feasible; or
- The member has a medical condition that makes the application of conventional electrodes, adhesive tapes, and lead wires impractical; or
- The member requires electrical stimulation beneath a cast.

The Company considers form-fitting conductive garments **investigational** and **not** eligible for reimbursement for ***all*** other clinical conditions because its effectiveness for indications other than the ones listed above has not been established.

Documentation Requirements:

The Company reserves the right to request additional documentation as part of its coverage determination process. The Company may deny reimbursement when it has determined that the services performed were not medically necessary, investigational or experimental, not within the scope of benefits afforded to the member, and/or a pattern of billing or other practice has been found to be either inappropriate or excessive. Additional documentation supporting medical necessity for the services provided must be made available upon request to the Company. Documentation requested may include patient records, test results, and/or credentials of the provider ordering or performing a service. The Company also reserves the right to modify, revise, change, apply, and interpret this policy at its sole discretion, and the exercise of this discretion shall be final and binding.

NOTE: After reviewing the relevant documentation, the Company reserves the right to apply this policy to the service, or procedure, supply, product, or accommodation performed or furnished regardless of how the service, or procedure, supply, product, or accommodation was coded by the Provider.

Approval or clearance by the U.S. Food and Drug Administration alone is not a basis for coverage.

Coverage may differ for Medicare Advantage plan members; please see any applicable national and/or local coverage determinations for details. This information may be available at the Centers for Medicare & Medicaid Services (CMS) website.

Sources of Information:

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- Hayes, Inc.
    - Comparative Effectiveness Review of Functional Electrical Stimulation (FES) For Upper Extremity Rehabilitation Post Stroke. May 9, 2019. Annual review April 28, 2022.
    - Functional Electrical Stimulation For Rehabilitation Following Spinal Cord Injury. November 16, 2017. Annual Review January 12, 2022. Archived December 16, 2022.
    - Functional Electrical Stimulation for Foot Drop in Acute or Subacute Phases of Stroke Recovery. June 1, 2022. Annual review June 14, 2024.
    - Functional Electrical Stimulation for Foot Drop in Chronic Phase of Stroke Recovery. June 2, 2022. Annual review June 14, 2024.
- Houston DJ, Unger J, Lee JW, Masani K, Musselman KE. (2021). Perspectives of individuals with chronic spinal cord injury following novel balance training involving functional electrical stimulation with visual feedback: a qualitative exploratory study. *J Neuroeng Rehabil*, *18*(1):57.
- National Institute of Neurological Disorders and Stroke (NINDS). (2013). Spinal Cord Injury: Hope Through Research. Retrieved from https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Hope-Through-Research/Spinal-Cord-Injury-Hope-Through-Research. Accessed July 23 ,2024.
- Silva PE, de Cassia Marqueti R, Livino-de-Carvalho K…Durigan JLQ. (2019). Neuromuscular electrical stimulation in critically ill traumatic brain injury patients attenuates muscle atrophy, neurophysiological disorders, and weakness: a randomized controlled trial. *J Intensive Care, 7*:59.

Applicable Code(s):	
CPT:	**N/A**
HCPCS:	**E0731, E0744, E0745, E0764, E0770, A4560, A4593, A4594, A4595**
ICD10 Procedure Codes:	**N/A**