

REFERENCES

Y-5002

1. Centers for Medicare & Medicaid Services. Decision Memo for Neuromuscular Electrical Stimulation (NMES) for Spinal Cord Injury (CAG-00153R). 2002; <https://www.cms.gov/medicare-coverage-database/details/nca-decision-memo.aspx?NCAId=55>. Accessed February 6, 2023.
2. Mulcahey MJ, Betz RR, Kozin SH, et al. Implantation of the Freehand System during initial rehabilitation using minimally invasive techniques. *Spinal Cord*. Mar 2004; 42(3): 146-55. PMID 15001979
3. Mulcahey MJ, Betz RR, Smith BT, et al. Implanted functional electrical stimulation hand system in adolescents with spinal injuries: an evaluation. *Arch Phys Med Rehabil*. Jun 1997; 78(6): 597-607. PMID 9196467
4. Taylor P, Esnouf J, Hobby J. The functional impact of the Freehand System on tetraplegic hand function. *Clinical Results. Spinal Cord*. Nov 2002; 40(11): 560-6. PMID 12411963
5. Venugopalan L, Taylor PN, Cobb JE, et al. Upper limb functional electrical stimulation devices and their man-machine interfaces. *J Med Eng Technol*. 2015; 39(8): 471-9. PMID 26508077
6. Alon G, McBride K. Persons with C5 or C6 tetraplegia achieve selected functional gains using a neuroprosthesis. *Arch Phys Med Rehabil*. Jan 2003; 84(1): 119-24. PMID 12589632
7. Alon G, McBride K, Ring H. Improving selected hand functions using a noninvasive neuroprosthesis in persons with chronic stroke. *J Stroke Cerebrovasc Dis*. 2002; 11(2): 99-106. PMID 17903863
8. Snoek GJ, IJzerman MJ, in 't Groen FA, et al. Use of the NESS handmaster to restore handfunction in tetraplegia: clinical experiences in ten patients. *Spinal Cord*. Apr 2000; 38(4): 244-9. PMID 10822395
9. Anderson KD, Korupolu R, Musselman KE, et al. Multi-center, single-blind randomized controlled trial comparing functional electrical stimulation therapy to conventional therapy in incomplete tetraplegia. *Front Rehabil Sci*. 2022; 3: 995244. PMID 36188946
10. Jaqueline da Cunha M, Rech KD, Salazar AP, et al. Functional electrical stimulation of the peroneal nerve improves post-stroke gait speed when combined with physiotherapy. A systematic review and meta-analysis. *Ann Phys Rehabil Med*. Jan 2021; 64(1): 101388. PMID 32376404
11. Nascimento LR, da Silva LA, Araújo Barcellos JVM, et al. Ankle-foot orthoses and continuous functional electrical stimulation improve walking speed after stroke: a systematic review and meta-analyses of randomized controlled trials. *Physiotherapy*. Dec 2020; 109: 43-53. PMID 33120054

12. Hachisuka K, Ochi M, Kikuchi T, et al. Clinical effectiveness of peroneal nerve functional electrical stimulation in chronic stroke patients with hemiplegia (PLEASURE): A multicentre, prospective, randomised controlled trial. *Clin Rehabil.* Mar 2021; 35(3): 367-377. PMID 33103916
13. Bethoux F, Rogers HL, Nolan KJ, et al. The effects of peroneal nerve functional electrical stimulation versus ankle-foot orthosis in patients with chronic stroke: a randomized controlled trial. *Neurorehabil Neural Repair.* Sep 2014; 28(7): 688-97. PMID 24526708
14. Kluding PM, Dunning K, O'Dell MW, et al. Foot drop stimulation versus ankle foot orthosis after stroke: 30-week outcomes. *Stroke.* Jun 2013; 44(6): 1660-9. PMID 23640829
15. O'Dell MW, Dunning K, Kluding P, et al. Response and prediction of improvement in gait speed from functional electrical stimulation in persons with poststroke drop foot. *PM R.* Jul 2014; 6(7): 587-601; quiz 601. PMID 24412265
16. Berenpas F, Geurts AC, den Boer J, et al. Surplus value of implanted peroneal functional electrical stimulation over ankle-foot orthosis for gait adaptability in people with foot drop after stroke. *Gait Posture.* Jun 2019; 71: 157-162. PMID 31071538
17. Prokopiuseva T, Pavlikova M, Markova M, et al. Randomized comparison of functional electric stimulation in posturally corrected position and motor program activating therapy: treating foot drop in people with multiple sclerosis. *Eur J Phys Rehabil Med.* Aug 2020; 56(4): 394-402. PMID 32383574
18. Renfrew LM, Paul L, McFadyen A, et al. The clinical- and cost-effectiveness of functional electrical stimulation and ankle-foot orthoses for foot drop in Multiple Sclerosis: a multicentre randomized trial. *Clin Rehabil.* Jul 2019; 33(7): 1150-1162. PMID 30974955
19. Barrett CL, Mann GE, Taylor PN, et al. A randomized trial to investigate the effects of functional electrical stimulation and therapeutic exercise on walking performance for people with multiple sclerosis. *Mult Scler.* Apr 2009; 15(4): 493-504. PMID 19282417
20. Esnouf JE, Taylor PN, Mann GE, et al. Impact on activities of daily living using a functional electrical stimulation device to improve dropped foot in people with multiple sclerosis, measured by the Canadian Occupational Performance Measure. *Mult Scler.* Sep 2010; 16(9): 1141-7. PMID 20601398
21. Cauraugh JH, Naik SK, Hsu WH, et al. Children with cerebral palsy: a systematic review and meta-analysis on gait and electrical stimulation. *Clin Rehabil.* Nov 2010; 24(11): 963-78. PMID 20685722
22. Zhu Q, Gao G, Wang K, et al. Effect of Functional Electrical Stimulation on Gait Parameters in Children with Cerebral Palsy: A Meta-Analysis. *Comput Math Methods Med.* 2022; 2022: 3972958. PMID 36238472

23. Chen YH, Wang HY, Liao CD, et al. Effectiveness of neuromuscular electrical stimulation in improving mobility in children with cerebral palsy: A systematic review and meta-analysis of randomized controlled trials. *Clin Rehabil.* Jan 2023; 37(1): 3-16. PMID 35730135
24. Chaplin E. Functional neuromuscular stimulation for mobility in people with spinal cord injuries. The Parastep I System. *J Spinal Cord Med.* Apr 1996; 19(2): 99-105. PMID 8732878
25. Klose KJ, Jacobs PL, Broton JG, et al. Evaluation of a training program for persons with SCI paraplegia using the Parastep 1 ambulation system: part 1. Ambulation performance and anthropometric measures. *Arch Phys Med Rehabil.* Aug 1997; 78(8): 789-93. PMID 9344294
26. Jacobs PL, Nash MS, Klose KJ, et al. Evaluation of a training program for persons with SCI paraplegia using the Parastep 1 ambulation system: part 2. Effects on physiological responses to peak arm ergometry. *Arch Phys Med Rehabil.* Aug 1997; 78(8): 794-8. PMID 9344295
27. Needham-Shropshire BM, Broton JG, Klose KJ, et al. Evaluation of a training program for persons with SCI paraplegia using the Parastep 1 ambulation system: part 3. Lack of effect on bone mineral density. *Arch Phys Med Rehabil.* Aug 1997; 78(8): 799-803. PMID 9344296
28. Guest RS, Klose KJ, Needham-Shropshire BM, et al. Evaluation of a training program for persons with SCI paraplegia using the Parastep 1 ambulation system: part 4. Effect on physical self-concept and depression. *Arch Phys Med Rehabil.* Aug 1997; 78(8): 804-7. PMID 9344297
29. Nash MS, Jacobs PL, Montalvo BM, et al. Evaluation of a training program for persons with SCI paraplegia using the Parastep 1 ambulation system: part 5. Lower extremity blood flow and hyperemic responses to occlusion are augmented by ambulation training. *Arch Phys Med Rehabil.* Aug 1997; 78(8): 808-14. PMID 9344298
30. Graupe D, Kohn KH. Functional neuromuscular stimulator for short-distance ambulation by certain thoracic-level spinal-cord-injured paraplegics. *Surg Neurol.* Sep 1998; 50(3): 202-7. PMID 9736079
31. Brissot R, Gallien P, Le Bot MP, et al. Clinical experience with functional electrical stimulation-assisted gait with Parastep in spinal cord-injured patients. *Spine (Phila Pa 1976).* Feb 15 2000; 25(4): 501-8. PMID 10707398
32. Sykes L, Ross ER, Powell ES, et al. Objective measurement of use of the reciprocating gait orthosis (RGO) and the electrically augmented RGO in adult patients with spinal cord lesions. *Prosthet Orthot Int.* Dec 1996; 20(3): 182-90. PMID 8985998
33. Davis JA, Triolo RJ, Uhler J, et al. Preliminary performance of a surgically implanted neuroprosthesis for standing and transfers--where do we stand?. *J Rehabil Res Dev.* 2001; 38(6): 609-17. PMID 11767968

34. Rohde LM, Bonder BR, Triolo RJ. Exploratory study of perceived quality of life with implanted standing neuroprostheses. *J Rehabil Res Dev.* 2012; 49(2): 265-78. PMID 22773528
35. Triolo RJ, Bailey SN, Miller ME, et al. Longitudinal performance of a surgically implanted neuroprosthesis for lower-extremity exercise, standing, and transfers after spinal cord injury. *Arch Phys Med Rehabil.* May 2012; 93(5): 896-904. PMID 22541312
36. U.S. Department of Health and Human Services Office of Disease Prevention and Health Promotion. Physical activity guidelines, second edition. <https://health.gov/paguidelines/second-edition/>. Accessed February 6, 2023.
37. Hunt KJ, Fang J, Saengsuwan J, et al. On the efficiency of FES cycling: a framework and systematic review. *Technol Health Care.* 2012; 20(5): 395-422. PMID 23079945
38. Ralston KE, Harvey L, Batty J, et al. Functional electrical stimulation cycling has no clear effect on urine output, lower limb swelling, and spasticity in people with spinal cord injury: a randomised cross-over trial. *J Physiother.* Dec 2013; 59(4): 237-43. PMID 24287217
39. Dolbow DR, Gorgey AS, Ketchum JM, et al. Home-based functional electrical stimulation cycling enhances quality of life in individuals with spinal cord injury. *Top Spinal Cord Inj Rehabil.* 2013; 19(4): 324-9. PMID 24244097
40. Dolbow DR, Gorgey AS, Ketchum JM, et al. Exercise adherence during home-based functional electrical stimulation cycling by individuals with spinal cord injury. *Am J Phys Med Rehabil.* Nov 2012; 91(11): 922-30. PMID 23085704
41. Johnston TE, Smith BT, Mulcahey MJ, et al. A randomized controlled trial on the effects of cycling with and without electrical stimulation on cardiorespiratory and vascular health in children with spinal cord injury. *Arch Phys Med Rehabil.* Aug 2009; 90(8): 1379-88. PMID 19651272
42. Dolbow DR, Credeur DP, Lemacks JL, et al. Electrically induced cycling and nutritional counseling for counteracting obesity after spinal cord injury: A pilot study. *J Spinal Cord Med.* Jul 2021; 44(4): 533-540. PMID 31971487
43. Sadowsky CL, Hammond ER, Strohl AB, et al. Lower extremity functional electrical stimulation cycling promotes physical and functional recovery in chronic spinal cord injury. *J Spinal Cord Med.* Nov 2013; 36(6): 623-31. PMID 24094120
44. Griffin L, Decker MJ, Hwang JY, et al. Functional electrical stimulation cycling improves body composition, metabolic and neural factors in persons with spinal cord injury. *J Electromyogr Kinesiol.* Aug 2009; 19(4): 614-22. PMID 18440241
45. Farkas GJ, Gorgey AS, Dolbow DR, et al. Energy Expenditure, Cardiorespiratory Fitness, and Body Composition Following Arm Cycling or Functional Electrical Stimulation Exercises in Spinal Cord Injury: A 16-Week

- Randomized Controlled Trial. *Top Spinal Cord Inj Rehabil.* 2021; 27(1): 121-134. PMID 33814890
46. Kressler J, Ghersin H, Nash MS. Use of functional electrical stimulation cycle ergometers by individuals with spinal cord injury. *Top Spinal Cord Inj Rehabil.* 2014; 20(2): 123-6. PMID 25477734
 47. National Institute for Health and Care Excellence (NICE). Functional electrical stimulation for drop foot of central neurological origin [IPG278]. 2009; <http://www.nice.org.uk/nicemedia/pdf/IPG278Guidance.pdf>. Accessed February 6, 2023.
 48. Centers for Medicare & Medicaid Services. National Coverage Determination (NCD) for Neuromuscular Electrical Stimulaton (NMES) (160.12). 2006; <https://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=175&ncdver=2&DocID=160.12&SearchType=Advanced&bc=IAAAABAAAA&>. Accessed February 5, 2023.