Medical Coverage Policy | Myoelectric Assist Orthoses for the Upper Limb

EFFECTIVE DATE: 08|06|2020
POLICY LAST UPDATED: 04|07|2021

OVERVIEW

Myoelectric prostheses are powered by electric motors with an external power source. The joint movement of an upper-limb prosthesis or orthosis (e.g., hand, wrist, and/or elbow) is driven by microchip-processed electrical activity in the muscles of the remaining limb or limb stump.

This policy is applicable to the upper limb orthoses only.

MEDICAL CRITERIA

Not applicable

PRIOR AUTHORIZATION

Not applicable

POLICY STATEMENT

Medicare Advantage Plans

Myoelectric controlled upper-limb orthoses are considered not covered as the evidence is insufficient to determine the effects of the technology on health outcomes.

Commercial

Myoelectric controlled upper-limb orthoses are not medically necessary as the evidence is insufficient to determine the effects of the technology on health outcomes.

COVERAGE

Benefits may vary between groups and contracts. Please refer to the appropriate Benefit Booklet, Evidence of Coverage or Subscriber Agreement for applicable not medically necessary/not covered benefits/coverage.

BACKGROUND

Myoelectric Orthoses

A powered upper extremity range of motion assist device is intended to restore function to arms and hands of patients who have sustained an injury, or who suffer from cerebral palsy, neuromuscular disease, or stroke. It is a custom fabricated upper arm orthosis that has noninvasive sensors on the surface of the skin. The sensors read the nerve signals and activate small motors in the orthosis, allowing the patient to move their arm or hand. It consists of the custom fabricated orthosis; noninvasive sensors, motors, and electronics that amplify and process the nerve signals; and batteries.

MyoPro (Myomo).

This orthotic device weighs about 1.8 kilograms (4 pounds), has manual wrist articulation, and myoelectric initiated bi-directional elbow movement. The MyoPro detects weak muscle activity from the affected muscle groups. A therapist or prosthetist/orthoptist can adjust the gain (amount of assistance), signal boost, thresholds, and range of motion. Potential users include patients with traumatic brain injury, spinal cord injury, brachial plexus injury, amyotrophic lateral sclerosis, and multiple sclerosis. Use of robotic devices for therapy has been reported. The MyoPro is the first myoelectric orthotic available for home use.

For individuals with upper-extremity weakness or paresis who receive a myoelectric powered upper-limb orthosis, the evidence includes a small within-subject study. Relevant outcomes are functional outcomes and quality of life. The largest study (N=18) identified tested participants with and without the orthosis but did not provide any training with the device. Performance on the tests was inconsistent. Studies are needed that show consistent improvements in relevant outcome measures. Results should also be replicated in a larger number of patients. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome the effects of the technology on health outcomes.

CODING

Medicare Advantage Plans and Commercial

The following HCPCS codes are not covered/not medically necessary:

L8701 Powered upper extremity range of motion assist device, elbow, wrist, hand with single or double upright(s), includes microprocessor, sensors, all components and accessories, custom fabricated

L8702 Powered upper extremity range of motion assist device, elbow, wrist, hand, finger, single or double upright(s), includes microprocessor, sensors, all components and accessories, custom fabricated

RELATED POLICIES

Not applicable

PUBLISHED

Provider Update, June 2021

Provider Update, October 2020

REFERENCES:

1. Biddiss EA, Chau TT. Upper limb prosthesis use and abandonment: a survey of the last 25 years. Prosthet Orthot Int. Sep 2007;31(3):236-257. PMID 17979010
2. Kruger LM, Fishman S. Myoelectric and body-powered prostheses. J Pediatr Orthop. Jan-Feb 1993;13(1):68-75. PMID 8416358
3. Silcox DH, 3rd, Rooks MD, Vogel RR, et al. Myoelectric prostheses. A long-term follow-up and a study of the use of alternate prostheses. J Bone Joint Surg Am. Dec 1993;75(12):1781-1789. PMID 8258548
4. McFarland LV, Hubbard Winkler SL, Heinemann AW, et al. Unilateral upper-limb loss: satisfaction and prosthetic-device use in veterans and servicemembers from Vietnam and OIF/OEF conflicts. J Rehabil Res Dev. Aug 2010;47(4):299-316. PMID 20803400
5. Sjoberg L, Lindner H, Hermansson L. Long-term results of early myoelectric prosthesis fittings: A prospective case-control study. Prosthet Orthot Int. Sep 1 2017:309364617729922. PMID 28905686
6. Egermann M, Kasten P, Thomsen M. Myoelectric hand prostheses in very young children. Int Orthop. Aug 2009;33(4):1101-1105. PMID 18636257
7. Resnik LJ, Borgia ML, Acluche F. Perceptions of satisfaction, usability and desirability of the DEKA Arm before and after a trial of home use. PLoS One. Jun 2017;12(6):e0178640. PMID 28575025
8. Resnik L, Cancio J, Klinger S, et al. Predictors of retention and attrition in a study of an advanced upper limb prosthesis: implications for adoption of the DEKA Arm. Disabil Rehabil Assist Technol. Feb 2018;13(2):206-210. PMID 28375687
9. Resnik L, Klinger S. Attrition and retention in upper limb prosthetics research: experience of the VA home study of the DEKA arm. Disabil Rehabil Assist Technol. Nov 2017;12(8):816-821. PMID 28098513
10. Resnik LJ, Borgia ML, Acluche F, et al. How do the outcomes of the DEKA Arm compare to conventional prostheses? PLoS One. Jan 2018;13(1):e0191326. PMID 29342217
11. Resnik L, Acluche F, Lieberman Klinger S, et al. Does the DEKA Arm substitute for or supplement conventional prostheses. Prosthet Orthot Int. Sep 1 2017:309364617729924. PMID 28905665
12. Resnik L, Acluche F, Borgia M. The DEKA hand: A multifunction prosthetic terminal device-patterns of grip usage at home. Prosthet Orthot Int. Sep 1 2017:309364617728117. PMID 28914583

13. Peters HT, Page SJ, Persch A. Giving them a hand: wearing a myoelectric elbow-wrist-hand orthosis reduces upper extremity impairment in chronic stroke. Ann Rehabil Med. Sep 2017;98(9):1821-1827. PMID 28130084