09-L0000-07

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Subject: Myoelectric Prosthetic and Orthotic Components for the Upper Limb

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DESCRIPTION:

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

Myoelectric prostheses use muscle activity from the remaining limb for control of joint movement. Electromyographic signals from the limb stump are detected by surface electrodes, amplified, and then processed by a controller to drive battery-powered motors that move the hand, wrist, or elbow. Although upper arm movement may be slow and limited to 1 joint at a time, myoelectric control of movement may be considered the most physiologically natural.

Myoelectric hand attachments are similar in form to those offered with the body-powered prosthesis but are battery-powered. A hybrid system, a combination of body-powered and myoelectric components, may be used for high-level amputations (at or above the elbow). Hybrid systems allow control of 2 joints at once (ie, 1 body-powered, 1 myoelectric) and are generally lighter than a prosthesis composed entirely of myoelectric components.

Technology in this area is rapidly changing. Areas of development include the use of skin-like silicone elastomer gloves, “artificial muscles,” and sensory feedback. Smaller motors, microcontrollers, implantable myoelectric sensors, and reinnervation of remaining muscle fibers are being developed to allow fine movement control. Lighter batteries and newer materials are being incorporated into myoelectric prostheses to improve comfort.

POSITION STATEMENT:

Myoelectric upper limb prosthetic components **meet the definition of medical necessity** when **ALL** of the following criteria are met:

- The member has demonstrated sufficient neurologic and cognitive function to operate the prosthesis effectively; **AND**
- The member has an amputation or missing limb at the wrist or above (e.g. forearm, elbow); **AND**
- The member is free of comorbidities that could interfere with function of the prosthesis (neuromuscular disease, etc.); **AND**
- The remaining musculature of the arm(s) contains the minimum microvolt to allow operation of a myoelectric prosthetic device; **AND**
- Standard body-powered prosthetic devices cannot be used or are insufficient to meet the functional needs of the member in performing activities of daily living (ADLs); **AND**
- Functional evaluation indicates that with training, use of a myoelectric prosthesis is likely to meet the functional needs of the member (eg, gripping, releasing, holding, coordinating movement of the prosthesis) when performing activities of daily living. This evaluation should consider the member's needs for control, durability (maintenance), function (speed, work capability), and usability.

Myoelectric upper limb prosthetic components **do not meet the definition of medical necessity** if all criteria listed above are not met.

A prosthesis with individually powered digits, including but not limited to a partial hand prosthesis, is considered **experimental or investigational**. The evidence is insufficient to determine the effects of the technology on health outcomes.

Upper-limb prosthetic components with both sensor and myoelectric control are considered **experimental or investigational**. The evidence is insufficient to determine the effects of the technology on health outcomes.

Myoelectric controlled upper-limb orthoses are considered **experimental or investigational**. The evidence is insufficient to determine the effects of the technology on health outcomes.

BILLING/CODING INFORMATION:

HCPCS Coding

Prostheses	
L6026	Transcarpal/metacarpal or partial hand disarticulation prosthesis, external power, self-suspended, inner socket with removable forearm section, electrodes and cables, two batteries, charger, myoelectric control of terminal device, excludes terminal device(s)
L6925	Wrist disarticulation, external power, self-suspended inner socket, removable forearm shell, Otto Bock or equal electrodes, cables, two batteries and one charger, myoelectronic control of terminal device
L6935	Below elbow, external power, self-suspended inner socket, removable forearm shell, Otto Bock or equal electrodes, cables, two batteries and one charger, myoelectronic control of

	terminal device
L6945	Elbow disarticulation external power, molded inner socket, removable humeral shell, outside locking hinges, forearm, Otto Bock or equal electrodes, cables, two batteries and one charger, myoelectronic control of terminal device
L6955	Above elbow external power, molded inner socket, removable humeral shell, internal locking elbow, forearm, Otto Bock or equal electrodes, cables, two batteries and one charger, myoelectronic control of terminal device
L6965	Shoulder disarticulation external power, molded inner socket, removable shoulder shell, shoulder bulkhead, humeral section, mechanical elbow, forearm, Otto Bock or equal electrodes, cables, two batteries and one charger, myoelectronic control of terminal device
L6975	Interscapular-thoracic external power, molded inner socket, removable shoulder shell, shoulder bulkhead, humeral section, mechanical elbow, forearm, Otto Bock or equal electrodes, cables, two batteries and one charger, myoelectronic control of terminal device
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 (**Investigational**)
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 (**Investigational**)
Additions	
L6611	Addition to upper extremity prosthesis, external powered, additional switch, any type
L6677	Upper extremity addition, harness, triple control, simultaneous operation of terminal device and elbow
L6715	Terminal device, multiple articulating digit, includes motor(s), initial issue or replacement **(Investigational)**
L6880	Electric hand, switch, or myoelectric controlled, independently articulating digits, any grasp pattern or combination of grasp patterns, includes motor(s)
L6881	Automatic grasp feature, addition to upper limb prosthetic terminal device
L6882	Microprocessor control feature, addition to upper limb prosthetic terminal device
L7007	Electric hand, switch or myoelectric controlled, adult
L7008	Electric hand, switch or myoelectric controlled, pediatric

L7009	Electric hook, switch or myoelectric controlled, adult
L7045	Electric hook, switch or myoelectric controlled, pediatric
L7180	Electronic elbow, microprocessor sequential control of elbow and terminal device
L7181	Electronic elbow, microprocessor simultaneous control of elbow and terminal device
L7190	Electronic elbow, adolescent, Variety Village or equal, myoelectronically controlled
L7191	Electronic elbow, child, Variety Village or equal, myoelectronically controlled

REIMBURSEMENT INFORMATION:

Refer to section entitled **POSITION STATEMENT**.

PROGRAM EXCEPTIONS:

Federal Employee Program (FEP): Follow FEP guidelines.

State Account Organization (SAO): Follow SAO guidelines.

Medicare Advantage products:

No National Coverage Determination (NCD) and/or Local Coverage Determination (LCD) were found at the time of the last guideline reviewed date.

DEFINITIONS:

No guideline specific definitions apply.

RELATED GUIDELINES:

Lower Limb Microprocessor-Controlled Prosthetics, 09-L0000-06

OTHER:

None applicable.

REFERENCES:

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2. Blue Cross Blue Shield Association Medical Policy Reference Manual 1.04.04 Myelectric Prosthetic and Orthotic Components for the Upper Limb, 04/18.
3. Carey, SL, Lura, DJ, Highsmith, MJ. Differences in myoelectric and body-powered upper-limb prostheses: Systematic literature review. United States, 2015. p. 247-62.
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9. ClinicalTrials.gov, Wearable MCI (Myoelectric-Computer Interface) to Reduce Muscle Co-activation in Acute and Chronic Stroke; sponsored by Northwestern University.
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16. U. S. Food and Drug Administration (FDA); accessed at fda.gov.

COMMITTEE APPROVAL:

This Medical Coverage Guideline (MCG) was approved by the Florida Blue Medical Policy & Coverage Committee on 07/26/18.

GUIDELINE UPDATE INFORMATION:

04/15/07	New Medical Coverage Guideline.
06/15/07	Reformatted guideline.
05/15/09	Scheduled review; no change to position statement; references updated.
05/15/11	Scheduled review; position statement unchanged; references updated.
01/01/12	Annual HCPCS coding update: added L6715 and L6880.
05/11/14	Revision: Program Exceptions section updated.
01/01/15	Annual coding update: Removed L6025; added L6026
03/15/17	Revision; Position statement updates include revision to functional evaluation criterion and an investigational statement regarding prosthesis with individually powered digits

	was added; description section and references updated.
08/15/18	Review; Current position statements maintained; investigational statements for components with both sensor and myoelectric controls & myoelectric controlled upper-limb orthoses added; title, and references updated.
01/01/19	Annual CPT/HCPCS coding update. Added codes L8701 & L8702.