

Myoelectric Prosthesis

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Myoelectrical prostheses are designed for patients with traumatic or congenital absence of limbs or sections of limbs. They are more often used on the upper extremities rather than lower extremities, because devices do not offer the patients significant functionality over conventional prostheses.

The myoelectric hand prosthesis is an alternative to conventional hook prostheses for patients with absent sections of the arm. These prostheses have a stronger pinch force, better grip, and are more flexible and easier to use than conventional hooks.

Myoelectric control is used to operate electric motor-driven hands, wrist, and elbows. Surface electrodes embedded in the prosthesis socket make contact with the skin and detect and amplify muscle action potentials from voluntarily contracting muscle in the residual limb. The amplified electrical signal turns on an electric motor to provide a function. Recent advances have allowed us to differentiate between signals, thus allowing systems to perform multiple functions, and allow for sequential operation of elbow motion, wrist rotation and hand motions.

Myoelectric prostheses provide improved function and range of functional position as compared to "hook" prostheses. Myoelectrical prostheses can be used for patients with congenital limb deficiencies and for patients with amputations sustained as a result of trauma or surgery. Patients must possess a minimum microvolt

threshold and pass a control test to be considered for this treatment. Prostheses are often recommended for children one year of age or older.

The quick-wrist-disconnector makes it easy to change the electrohand for this attachment. The attachment has even more gripping power and gripping surfaces than the hand and can be adjusted in all dimensions. The attachment is especially suitable for people engaged in skilled trades as it is an extremely helpful whenever powerful or precise gripping is required.



Various skins and coverings of these devices are available to enhance the appearance and to add utility.

The cost of an initial unit can range from \$6,000 to \$13,000. Maintenance is routinely performed and can cost around \$1,000 yearly. It only takes a few days to learn to control the operation of the unit.