

Surgical and non-surgical prosthetic hands control: a review

ABSTRACT

This paper concerns on the review between the surgical and non-surgical method of active control of a prosthetic hand. For active prosthetic hand, there are two standard methods for signal extraction namely surgical and non-surgical. Active prosthetic hands which are based on Surface Electromyography (sEMG) and Targeted Muscle Reinnervation (TMR) are selected for a comparison between non-surgical and surgical type respectively. We made a review on the characteristics and procedures of the surgical and non-surgical prosthetic hand technique. The compatibility of the surgical and non-surgical method to the type of upper extremity amputations also discussed to propose a guide and baseline for the future design consideration for our future prosthetic hand design.

Keyword: EMG; Non-surgical prosthetic; Prosthetic hand; Review; SEMG; Surgical prosthetic; TMR