“Upper Extremity Neuroprostheses for Spinal Cord Injury”

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Abstract:
The loss of hand and arm function due to cervical level spinal cord injury can severely restrict an individual’s ability to perform even simple activities such as eating and personal hygiene. Implanted neuroprostheses, which utilize functional electrical stimulation to activate paralyzed muscles, can provide these individuals with hand opening and closing, thus improving function and independence. The first implanted neuroprostheses for upper extremity function were introduced at the Cleveland FES Center in 1986. Over 250 individuals have received various generations of these systems over the past 20 years. The functional outcomes of these systems have been uniformly positive. We are now gathering long term usage data on a significant number of neuroprosthesis users. This talk will discuss the functional results of these systems, including long term follow-up results. Recent advances in upper extremity neuroprostheses, including myoelectric control and multi-function systems, will also be discussed.

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