"A Microprocessor-Based Multifunction Myoelectric Control System"

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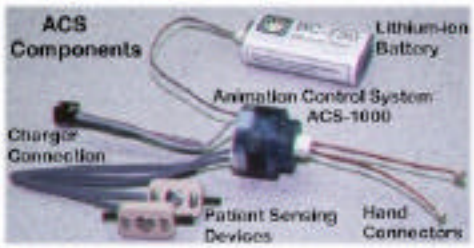
A myoelectric device is a type of powered artificial hand or limb that detects electrical changes in the muscles of the stump and converts these into movements. Up until now the limitations lied in a control system's ability to control more than one device, such as an elbow and a wrist. (meaning that myoelectric prostheses were more accepted by below elbow amputees than by those with more severe amputations.) Researchers at the University of New Brunswick have implemented a control system that can handle the multifunction prosthetic limb functions. Their device uses the myoelectric signals produced in the first two hundred milliseconds following a contraction in the muscles. This information is used to train a pattern classifier to recognize the specific pattern unique to the amputee, and to determine the intent of the amputee. The pattern classifier matches the pattern to select the device that is controlled, such as the hand, elbow, or wrist. The control will continue until the signal level goes below a preset threshold. This devices are made of of mainly two parts the ASC and the PCUThe controller operates in two modes- a Training Mode and a Normal Mode.

The training mode is when the ASC is programmed to operate with the individual recipient, while the normal mode is day to day operation of the prosthesis. This ACS control system monitors and controls all functions related to the operation of the hand and wrist. The PCU devices are basically a "window into the prosthesis". They communicate with the ACS via a wireless communications link to gather data from the arm and display it. The prosthetist can also use the PCU to diagnose the prosthesis and to "fine-tune" the operating parameters to match the patient. The average price now for a Microprocessor-Based Multifunction Myoelectric Control System (above the elbow prosthesis) is $3,500.00.



The average price for maintenance throughout the year, including check-ups is roughly $500.00-$750.00.New models are developed yearly, each year more advancements are made.

To see videos of patients currently using a myoelectric device for day to day living use these links:

http://www.animatedprosthetics.com/images/mar1.mpg

http://www.animatedprosthetics.com/images/ashley.mpg