Application of Tactile Sensation through the Implantation of Myoelectric Sensors for Prosthetics

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Introduction

- Limb loss is a growing issue
- Projections & Abandonment
- Types of Prosthesis
  - Body-powered (Left)
  - Myoelectric (Right)

Myoelectric Prosthesis

- Sensors
  - Surface v. Implanted
- Communication
- Degrees of Freedom
- How do you make it more lifelike?

Tactile Sensation

- Optic sensor
- Calculates topography
- Depth from defocus

Optic Sensor

Simulating Touch

- Convert imaging to wavelengths
- Stimulate afferent neural pathways
  - Peripheral nervous system

Methods of Stimulation


Discussion

- MYOELECTRIC IMPLANTATION IS USED TO ACCURATELY AND FLUIDLY MANIPULATE A PROSTHESIS
- AN OPTICAL SENSOR IS UTILIZED TO DETERMINE THE TEXTURE OF THE SURFACE BEING TOUCHED
- AFFERENT NEURONS ARE STIMULATED BY VARYING WAVELENGTH THAT ARE INTERPRETED AS TACTILE SENSATION
- STIMULATION IS ATTAINABLE BY MULTIPLE MEANS, HOWEVER IT IS UNCERTAIN WHICH METHOD IS MOST EFFECTIVE WHILE ALSO BEING SAFE
Questions