



Priority Statement Title: Augmenting Impaired Musculoskeletal Function Using Assistive Devices

Priority Statement Code: LF4D

Domain: Cell, joint, limb, whole body, function, outcomes

Priority Statement

Background and Relevance

Assistive devices include prosthetics, orthotics, and mobility aids like walkers and wheelchairs. These devices enable individuals to maintain independence and improve function, participation, and quality of life.

- Technological advancements in prosthetic design increase during wartime.
- Research in prosthetics is focused on young, healthy individuals injured by trauma. This research may not be applicable to much larger patient populations like diabetic amputees, and insurance companies do not recognize research on trauma as evidence to justify insurance coverage to provide prosthetics to non-traumatic amputees.
- Passive assistive devices, including orthoses, are not adequately customized to individual needs.
- There is a lack of emphasis on development of upper extremity assistive devices.

Objectives

1. Incorporate emerging and existing technologies to further improve functional capabilities, participation, and quality of life.
2. Develop assistive devices that take advantage of existing control capabilities of the individual

Recommended Actions

1. Develop ability to interface prosthetics with muscles, surgically transferred nerves, and/or EMG/EEG.
2. Increase effectiveness of assistive devices by customizing/tuning to the individual.
3. Conduct comparative effectiveness studies of different assistive devices.