EXPLORING THE RELATIONSHIPS BETWEEN LOWER-LIMB PROSTHESIS MECHANICAL PROPERTIES AND USER PERFORMANCE FOR CLINICAL PRESCRIPTION AND PROSTHESIS DESIGN

Featuring Dr. Matthew J. Major
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ABSTRACT
Prosthetists are confronted with the universal challenge to select from a wide variety of commercially-available lower-limb prostheses to best help patients reach their functional and health-related goals. This presentation will introduce a framework for integrating mechanical characterization of passive prostheses, human subject testing, and numerical simulation to accurately classify prosthesis function in an effort to optimize clinical prescription guidelines and prosthesis designs. Methods of prosthesis mechanical characterization to inform research, clinical prescription and cost justification will be presented, as well as studies that use systematic approaches to explore the effects of isolated prosthesis properties on user performance.

ABOUT DR. MAJOR
Dr. Matthew J. Major is an Assistant Professor at the Northwestern University Feinberg School of Medicine. His primary research interests include: investigating the sensory-motor mechanisms underlying postural control in individuals with neuromuscular or musculoskeletal pathology and use assistive devices, and integrating mechanical characterization of prostheses and orthoses with numerical simulation and human subject testing to explore the fundamental relationships between device properties and user performance.