

Justin Z. Laferrier PT, PhD, NCS, OCS, SCS, ATP, CSCS, AIB-VR is the Associate Director and Associate Professor in the Physical Therapy Department at Johnson & Wales University where his academic focus and expertise is in Biomechanics, Amputation and Poly-trauma rehabilitation, Adaptive Sport, Exercise, and Recreation (SER), Rehabilitation Engineering, Ehlers Danlos Syndrome (EDS), and Diagnostic Imaging. He is a Board-Certified Specialist in Neurology, Orthopedics, and Sports from the American Physical Therapy Association (APTA), a Certified Assistive Technology Professional from the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA), and a Certified Strength and Conditioning Specialist from the National Strength and Conditioning Association (NSCA) and a Certified Specialist in Vestibular Rehabilitation from the American Institute of Balance (AIB).

He has a Bachelor of Arts degree in biology and psychology, an MSPT in physical therapy from the University of Rhode Island, and a PhD in rehabilitation science and technology from the University of Pittsburgh. Dr. Laferrier is a veteran of the US Marines and US Army and while in the Army served as the officer-in-charge (OIC) of physical therapy for the polytrauma and amputee Centers for Excellence in Washington D.C. and San Antonio TX. has worked all over the world evaluating and treating some of the most severe and complex conditions found today. He currently sees patients in addition to his academic duties at Johnson & Wales University. His scholarly products include peer-reviewed publications, national and international presentations, and book chapters.

- Discuss the differences between the amputee population in low resource countries compared to industrialized countries.
- Identify need for low-cost prosthetic feet in low resource countries.
- Review the limitations of commonly used prosthetic feet in low resource countries.
- Review new prosthetic foot design prototypes.

References:

1. Pearlman, Jon, et al. Lower-limb prostheses and wheelchairs in low-income countries. *Engineering in medicine and biology*. March/April 2008: 12-22.
2. Hamner, Samuel R, Vinesh G Narayan, and Krista M Donaldson. Designing for scale: development of the ReMotion Knee for global emerging markets. *Annals of Biomedical Engineering* 2013; 41(9):1851-9.
3. Ikeda, Andrea J, et al. A scoping literature review of the provision of orthoses and prostheses in resource-limited environments 2000-2010. Part one: considerations for success. *Prosthetics and orthotics international*. 38: 269-281, 2013.
4. Winson C. C. Lee, Ming Zhang, Peggy P. Y. Chan, and David A. Boone. *Gait Analysis of Low-Cost Flexible-Shank Transtibial Prostheses*. 2006
5. Margrit R Meier, Sophie Lambla, Edward C Grahn, Joshua S Rolock. *The 'Shape&Roll' Prosthetic Foot: I. Design and Development of Appropriate Technology for Low-Income Countries*. 2004
6. J. Steen Jensen, R. Nilsen, N. H. Thanh, A. Saldana, & C. Hartz. *Clinical field testing of polyurethane feet for trans-tibial amputees in tropical low-income countries*. 2006

7. Harkins, Colette S, Anthony McGarry and Arjan Buis. Provision of prosthetic and orthotic services in low-income countries: A review of the literature. *Prosthetics and Orthotics International* Jan 2013. Volume 37, Issue :. pgs 353-361.
8. Madeleine Sharp. *The Jaipur Limb and Foot*. 2004
9. Hussain, Sofia. Toes that look like toes: Cambodian children's perspectives on prosthetic legs. *Qualitative Health Research*. 2011. 21(10): 1427-1440.
10. *Technologies for Global Health: The Lancet Commissions*. The Lancet. Aug 2014. Elsevier Health Science