



Physical Medicine and Rehabilitation
Comprehensive Combat & Complex Casualty Care (C5)
Prosthetics

Defense Health Board Visit Prosthetics Overview

Department Head
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The views expressed herein are those of the author and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, nor the U.S. Government.



Who and What We See

- Population
 - Active Duty, Retirees, Family members
- Complexity
 - IED/Blast wound complications: Skin grafts
 - Heterotopic ossification, invaginations, shrapnel
 - Multi-limb amputees (~50%)
 - Loss of multiple joints
 - High proximal levels of amputation
 - Comorbidities: Intact limb involvement, neurological/musculoskeletal deficits, TBI/PTSD



Prosthetic Advancements

- Casting/fitting techniques
- Materials used: Thermoplastics, custom gels
- Access to latest technology
 - X3 Knee, Power Knee, BioM Powered Ankle, Michelangelo Hand, i-Limb
 - 3D Printing for diagnostics and rapid prototyping
 - Osteointegration
- Ability to utilize contracted expertise
 - Cosmesis
- Advanced activities
 - Driving prosthetic requirements
 - Return to Duty, Redeploy, Paralympic Sports, Ironman Triathlons, Marathons, 7 Summits, etc.



Orthotic Advancements

- Intrepid Dynamic Exoskeletal Orthosis (IDEO)
 - Limb salvage population
 - Goals:
 - Increase Function
 - Decrease Pain
 - Prevent Amputation



Capabilities: Prosthetics/IDEO

- 2.0 FTE - Prosthetists
 - Shared support staff
 - 16.5% RTD
 - 2% stay in MOS/NEC
- Custom fabrication
- Interdisciplinary care
- Gait studies
 - Efficacy of brace
- Return to run program
- IDEO brace
 - 65% RTD
 - Limb preservation





Future Considerations

- Need for ongoing support
 - Current population, new amputees, future conflicts - IEDs
- Lifelong care - DoD/VA partnership
 - Goal: Continue to improve quality of life
 - Maintain healthy lifestyle, fewer long term health issues
 - Continuity of care and level of care
 - Obtain devices at cost, plus discount, vice Medicare Reimbursable rate
 - Oceanside VA JIF - 18 May 2017
- Civilian amputee care
- Long-term outcome measures and device tracking



Professional Education and Clinical Partnerships

- MOU with Baylor for Prosthetic Residency
- Naval Special Warfare Command
- Veteran's Health Administration (VA)
- Extremity Trauma & Amputation Center of Excellence (EACE)
- GTMO

Up to 99.5 CME's provided annually

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Current Research

- Amputee
 - Prosthetic prototype
 - JHU/EACE/CARE Stem Cells
- PM&R
 - Recently accepted manuscript in the Orthopedic Journal of Bone & Joint Surgery
- Project C.A.R.E.
 - Skin Damage Study - Allogenic Stem Cell Infusion
 - VCA selection upper extremity amputation



Current Publications

1. Farrokhi S, Mazzone B, Eskridge SL, Shannon K, Hill O. Incidence of Overuse Musculoskeletal Injuries in Military Service Members with Traumatic Lower Limb Amputation. Archives of Physical Medicine and Rehabilitation. 2017, In Press.
2. Farrokhi S, Mazzone B, Schneider M, et al. Biopsychosocial Risk Factors Associated with Chronic Low Back Pain after Lower Limb Amputation. Medical Hypotheses. 2017.
3. Farrokhi S, Mazzone B, Yoder A, Grant K, Wyatt M. A Narrative Review of the Prevalence and Risk Factors Associated With Development of Knee Osteoarthritis After Traumatic Unilateral Lower Limb Amputation. Mil Med. 2016;181(S4):38-44.
4. Mazzone B, Yoder A, Zalewski B, Wyatt M, Sheu R. Comprehensive Treatment Strategy for Chronic Low Back Pain in a Patient with Bilateral Transfemoral Amputations Integrating Changes in Prosthetic Socket Design. Journal of Prosthetics and Orthotics. 2017;29(4):190-197.
5. Rabago CA, Clouser M, Dearth CL, et al. The Extremity Trauma and Amputation Center of Excellence: Overview of the Research and Surveillance Division. Mil Med. 2016;181(S4):3-12.



Thank You!

