

CLINICAL EXPERIENCE AND REHABILITATION OF AMPUTEE MILITARY SERVICE MEMBERS AT THE CENTER FOR THE INTREPID AT BROOKE ARMY MEDICAL CENTER (BAMC): PART 1 – OCCUPATIONAL THERAPY REHABILITATION SERVICES

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This lecture will discuss the clinical experiences and provision of rehabilitation services for amputee military service members at the Center For the Intrepid located at Brooke Army Medical Center (BAMC) Fort Sam Houston, Texas. This is part one of a series illustrating the prosthetic services, rehabilitation and research currently underway at BAMC. Case presentations will be utilized to illustrate the team approach to provide clinically appropriate amputee rehabilitation. This cohesive effort includes surgical considerations, early prosthetic fittings, long-term prosthetic care, rehabilitation services, case management, physiological and social support services. Protocols for advanced prosthetic training will be presented with emphasis on various prosthetic componentry. Advancements in the rehabilitation of the military amputee at the Center For the Intrepid will be discussed in detail to include functional capacity evaluations, drivers training, and firearms training simulator. A case study that involves an individual who sustained a dominant upper extremity transhumeral amputation with total loss of vision will also be discussed. In addition, current and future clinical research studies that involve individuals who have sustained upper extremity loss and who are undergoing rehabilitation at the Center For the Intrepid will be highlighted.

Current war fighting tactics in Iraq and Afghanistan, specifically the use of improvised explosive devices (IEDs), inflict traumatic injury on vast numbers of American and coalition forces [1]. However, technological advancements in medicine, military protective gear, and evacuation transportation have yielded a lower United States casualty percentage in comparison to past United States war conflicts [2]. Therefore, more soldiers are surviving traumatic injuries resulting in limb amputation [4].

Upper extremity amputation often results in significant loss of independence [3]. Soldiers with upper extremity amputations face complex challenges not only in rehabilitation programs but also when performing advanced activities of daily living (ADL) [5]. As of May 2, 2008 there have been a total of 29,911 United States casualties during Operation Iraqi Freedom (OIF) and 1,937 United States casualties during Operation Enduring Freedom (OEF). There have been a total of 770 OIF/OEF service members who have sustained amputations. Of that amount 22% (170 service members) sustained upper extremity amputations [6].

In early 2007, the United States military established the Center For the Intrepid at Brooke Army Medical Center, Fort Sam Houston, Texas. The mission of the Center For the Intrepid is to provide the highest quality of comprehensive outpatient rehabilitation for eligible patients in a

state of the art facility that is unlike any other in the world, facilitating the greatest opportunity for functional improvement and maximal performance in both the military and society while conducting leading edge research, education and training.

The Occupational Therapy rehabilitation service at the Center For the Intrepid is composed of many different rehabilitation specialists who are dedicated to providing the highest level of care to individuals who have sustained traumatic limb loss. Advanced research efforts and the development of new clinical protocols have led to the advancement of function and reintegration of many military service members who have sustained traumatic limb loss. The core of the Occupational Therapy Community Reintegration Program at the Center For the Intrepid is development and enhancement of appropriate psychosocial skills, peer-to-peer interactions, executive functions, motor planning and physical components for individuals with various levels and types of amputations. The overall terminal objective of the Occupational Therapy Community Reintegration Program is to provide a real world environment for individuals with amputations to develop the necessary cognitive and motor skills required for day-to-day social interactions, physical challenges and environmental obstacles.

The Computer Electronic/Accommodations Program (CAP) was initiated to provide assistive technologies and services to individuals with a variety of disabilities and functional deficits that impact the use of information technology and/or job performance. CAP is a Department of Defense (DoD) centrally funded program that provides assistive technologies and reasonable accommodations to individuals with disabilities. The Occupational Therapy process includes the identification of individuals throughout the DoD who could potentially benefit from the procurement and utilization of assistive technology and services. The specific types of assistive technology may include computer voice recognition software and one handed computer devices for individuals with upper extremity amputations.

REFERENCES

1. Covey, D.C., "Iraq war injuries", *Orthopedics*, 29(10), 884-886, 2006.
2. Gawande, A., "Casualties of war- Military care for the wounded from Iraq and Afghanistan", *The New England Journal of Medicine*, 351(24), 2471-2475, 2004.
3. Kejlaa, G.H., "Consumer concerns and the functional value of prostheses to upper limb amputees", *Prosthetics and Orthotics International*, 17, 157-163, 1993.
4. Petri, R.P. & Aguila, E., "The military upper extremity amputee", *Military Trauma Rehabilitation*, 13(1), 17-43, 2002.
5. Sebelius, F., Rosen, B.N., & Lundborg, G.N., "Refined myoelectric control in below-elbow amputees using artificial neural networks and a data glove", *The Journal of Hand Surgery*, 30A(4), 780-789, 2005.
6. Statistical Information Analysis Division (2008). *Military casualty information*. Retrieved May 2, 2008 from <http://siadapp.dmdc.osd.mil/personnel/CASUALTY/castop.htm>