



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Health Outcomes Following Extremity Trauma Characterization and Comparison of Combat-related Injuries in Women during Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF)

With the elimination of the direct combat exclusion rule for women, mission responsibilities will continue to change, bringing increased physical and mental risks to female Service Members as they take on more combat assignments. By studying gender differences that may exist in battle-injured Service Members, military leaders and healthcare providers will gain understanding into how health outcomes in male and female Service Members may be affected in unique ways. To support gender-based research efforts in the Military, researchers at the Naval Health Research Center (NHRC), funded by the Extremity Trauma and Amputation Center of Excellence (EACE), critically examined what types of combat-related injuries military women sustained in recent conflicts. The researchers also investigated the likelihood of leaving active military duty after a deployment-related injury, as well as an examination of acute care medical resource usage in the severely injured female population. Service Women who sustained combat-related injuries in OIF or OEF between January 2003 and May 2014 were identified from NHRC's Expeditionary Medical Encounter Database (EMED). Injuries were then characterized using abbreviated injury scale (AIS) and International Classification of Diseases, 9th Revision codes (ICD-9). For study purposes, 844 combat-related injury episodes in women were used from EMED. Fifty-one percent ($n = 433$) were OIF injuries and 49 percent ($n = 411$) were OEF injuries. Blast events were responsible for 90 percent of injuries.^{1,2} The average injury severity score (ISS) was three, with no statistical difference in means between OIF and OEF. Of significance were increased head injuries in OEF compared with OIF (80 percent versus 48 percent; $p < 0.001$). Although the majority of combat-related injuries suffered by women were mild, some women suffered life-threatening injuries, and nearly 65 percent of the injury episodes resulted in more than one injury. In-patient hospital days averaged 31.6 days post-injury in women with severe injuries ($ISS > 9$). At the time of this study, more than 65 percent of the injured women remained on active military status, either active duty, Reserve, or National Guard. Future studies will investigate quality of life (QOL) outcomes and gender differences in combat-related injuries.

- 1 Dye, J. L., Eskridge, S. L., Tepe, V., Clouser, M. C., & Galarneau, M. (2016). Characterization and Comparison of Combat-Related Injuries in Women During OIF and OEF. *Military Medicine*, 181(1 Suppl), 92–98. <https://doi.org/10.7205/MILMED-D-15-00237>
- 2 Dye, J. L., Eskridge, S. L., Clouser, M. C., & Galarneau, M. R. (2014). Characterization and Comparison of Combat-Related Injuries in Women During OIF and OEF. Presented at the Military Health System Research Symposium, Fort Lauderdale, FL.

