



US DEPARTMENT OF DEFENSE  
**BLAST INJURY RESEARCH PROGRAM**  
**COORDINATING OFFICE**

## Orthotics and Prosthetics

### EACE Research Efforts in Comorbidities and Secondary Health Effects of the Amputation Population

Researchers at EACE authored three major publications in FY14 on the comorbidities and secondary health effects associated with amputation. Comorbidities and secondary health effects are of great concern to Service Members and Veterans impacted by limb amputation. Research findings suggest an increased risk for early onset and progression of arthritis in the intact limb, especially in those with transfemoral limb loss. Preliminary work indicates that manual therapy may increase knee movement in amputees with knee osteoarthritis. There is also evidence that persons with lower limb amputations use an unnatural trunk movement strategy that may contribute to the risk of developing medical issues in the lower back and spine. A pilot study was conducted to determine whether bone bridge surgeries, as opposed to the traditional method, result in better outcomes; the results were inconclusive due to the small sample size, but indicate that preservation of residual limb length is crucial. In addition, there is a need for future work to assess the risk of overuse injuries with carried loads in the transtibial amputation population. Improving understanding of comorbidities and secondary health effects in the amputation population is critical for optimal prescription of prosthesis and physical activities, the health and well-being of the Warfighter, and the overall management of amputation and extremity injuries. This effort will ultimately prevent and/or mitigate disability in our Warfighters.