

**Outcomes of Amputation and Limb Salvage in Combat Injuries: Does Level of Injury Matter? A Secondary Analysis of METALS I Data**

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**Purpose:** Severe ankle and hindfoot trauma often results in residual disability. Several studies evaluating combat related lower extremity injuries, including the Military Extremity Trauma Amputation /Limb Salvage Study (METALS) have demonstrated improved patient outcomes with amputation compared to limb salvage. In contrast, the Lower Extremity Assessment Project (LEAP) study revealed equivalent outcomes in civilian patients undergoing lower extremity amputation versus limb salvage; however, limb salvage LEAP patients with hindfoot and ankle injuries fared worse than patients with similar injuries undergoing early amputations. In light of the discrepancy between METALS and LEAP results, the purpose of this study is to re-evaluate the METALS I data to determine whether ankle/hindfoot injury was the driver of the main results in that cohort.

**Methods:** METALS I study data were obtained and reanalyzed with the additional inclusion criteria of patients with a unilateral amputation at the transtibial or distal level, or unilateral limb salvage of a METALS qualifying injury distal to the femoral condyles. Patients with bilateral lower extremity injuries or upper extremity amputations were excluded. Patients with lower extremity amputations were compared to 2 limb salvage groups: those with severe ankle/hindfoot injuries versus those with more proximal injuries. A Kruskal-Wallis test was used to compare Short Musculoskeletal Function Assessment (SMFA) scores between groups.

**Results:** 163 patients were included in the analysis: 60 with amputation, 41 with limb salvage after ankle/hindfoot trauma, and 62 with limb salvage after other extremity trauma. The average age was 27 years and the cohort was predominantly male (95%). Average SMFA scores at 18 months post-injury were statistically significantly lower for amputation patients compared to ankle/hindfoot salvage patients for daily activities and bother index. SMFA scores were lower across all domains for amputation compared with limb salvage patients with more proximal injury (Table 1). There was no difference in SMFA scores between the 2 limb salvage groups.

**Conclusion:** This secondary analysis of the METALS I data reveals that the finding of superior functional outcomes after amputation applies to both ankle/hindfoot trauma as well as limb salvage for more proximal injuries. These data differ from the LEAP study in which more proximal injuries had similar outcomes following amputation and limb salvage, likely in part due to the differing nature of combat-related injuries.

Table 1: Average SMFA Scores

SMFA domain	Amputation (n=60)	Limb Salvage after ankle/hindfoot injury (n=41)	Limb salvage after proximal injury (n=62)
Daily activities	11.8	22.5	27.5
Emotional status	37.5	45.2	50.1
Mobility	28.4	34.4	37.8
Bother Index	20.9	27.5	31.1

See the meeting website for complete listing of authors' disclosure information. Schedule and presenters subject to change.