



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Health Outcomes Following Extremity Trauma Establishing the Mineral Apposition Rate of Heterotopic Ossification (HO)

HO is a debilitating condition that occurs following traumatic injury and may restrict the range of motion and delay rehabilitation. The timing and efficacy of surgical resection have varied widely, and there is a gap in knowledge between clinical predictors of HO recurrence and histological analysis. Current timing of surgical interventions can prevent incidence of the development of HO which restricts joint movement in post-trauma patients. Data from CRSR has demonstrated a link between benchtop research and bedside care, with the mineral apposition rate elevated in patients with HO and correlated with recurrence severity.^{1,2} Many of the Service Members who have sustained blast injuries have complications with HO, which causes pain via skin pressure and ulceration, associated inflammation, limitations of joint motion, and neurovascular entrapment. Resection of symptomatic HO and recurrence in injured Service Members has remained a challenging problem given the high potential for comorbidities and severity of the injuries sustained. As a result, poor prosthetic fit may occur and delay the rehabilitation for Service Members who require socket adjustments to compensate for HO formation. Understanding the etiology of HO will lead to improved care management and may minimize the number of surgeries required to excise these masses.

- 1 Isaacson, B. M., Potter, B. K., Bloebaum, R. D., Epperson, R. T., Kawaguchi, B. S., Swanson, T. M., & Pasquina, P. F. (2016a). Link Between Clinical Predictors of Heterotopic Ossification and Histological Analysis in Combat-Injured Service Members. *The Journal of Bone & Joint Surgery*, 98(8), 647. <https://doi.org/10.2106/JBJS.15.00895>
- 2 Isaacson, B. M., Potter, B. K., Bloebaum, R. D., Epperson, R. T., Kawaguchi, B., Swanson, T. M., & Pasquina, P. F. (2016b). Determining the Mineral Apposition Rate of Heterotopic Ossification in Military Healthcare System Patients after Total Joint Replacement: A Case Series. *Bone and Tissue Regeneration Insights*, 7(5517– BTRI–Determining–the–Mineral–Apposition–Rate– of–Heterotopic–Ossification– pdf), 1–5. <https://doi.org/10.4137/BTRI.S38041>

