



Title: Radiographic Evaluation of Acute Distal Radius Fracture Stability: A Comparative Cadaveric Study Between a Thermo-Formable Brace and Traditional Fiberglass Casting

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Brandon Gerad Santoni, Ph.D., Jazmine R. Aira, MS, Miguel A. Diaz, MS, Thomas K. Stoops, MD, Peter Simon, Ph.D.

Place of Origin: Foundation for Orthopaedic Research and Education, 13020 N. Telecom Parkway, Tampa; Department of Chemical and Biomedical Engineering, University of South Florida, 4202 E. Fowler Avenue, ENB 118, Tampa; Department of Orthopaedics and Sports Medicine, University of South Florida, 13330 USF Laurel Drive, Tampa.

Correlation to DJO Product: The purpose of casting is to stabilize a fracture in order to enable bone healing. A biomechanical study was conducted to examine the ability of the EXOS® wrist brace to constrain severe, unstable and comminuted distal radius fractures in comparison to traditional fiberglass casting. The study was performed on cadaveric specimens with an average age of 73 constituting 5 females and 1 male. The movement of the fracture fragments was analyzed using radiographic measures under various loading parameters.

Link to product: <https://www.djoglobal.com/our-brands/exos>

Link to abstract: <https://www.ncbi.nlm.nih.gov/pubmed/?term=28554053>

Conclusion: The model successfully induced gross fracture fragment translations and rotations in the non-stabilized condition with 4.5N of load applied and this was verified on lateral radiographs. Stabilization successfully constrained the fracture fragments with both the Exos brace and fiberglass cast in sagittal plane rotations. 4 loads progressing from 4.5N to 66.7N were applied to all 3 models: non-stabilized, braced, and casted. After each of the 4 loads were applied, there were no statistically significant differences between the thermo-formable brace and the fiberglass cast in either translation or rotation.

Key Message: This study demonstrated that both thermo-formable and fiberglass casting successfully stabilized fracture fragments in severe, unstable and comminuted distal radius fractures. Therefore, the results of this study provide verification that the Exos thermo-formable braces are a viable option for treatment of these types of distal radius fractures.



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