



# DYNANAIL MINI®

## HOW WELL DO YOUR ARTHRODESIS DEVICES SUSTAIN COMPRESSION WHEN FACING BONE RESORPTION?

Beals CJ, Wong GAS, Dupont KM, Safranski DL. Effect of Simulated Bone Resorption on the Biomechanical Performance of Intramedullary Devices for Foot and Ankle Arthrodesis. J Foot Ankle Surg. 2022 Mar 10; S1067-2516(22)00084-9

### OVERVIEW

#### DYNANAIL MINI® VS. WRIGHT SALVATION™ BEAM

**30-63%**

Greater compression

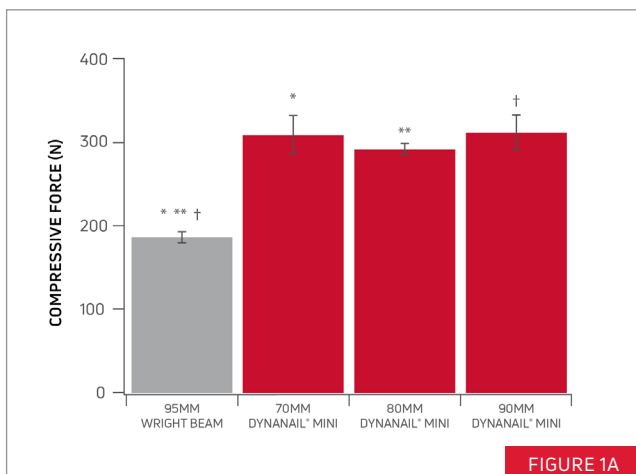
**3-7x**

Greater simulated resorption capacity

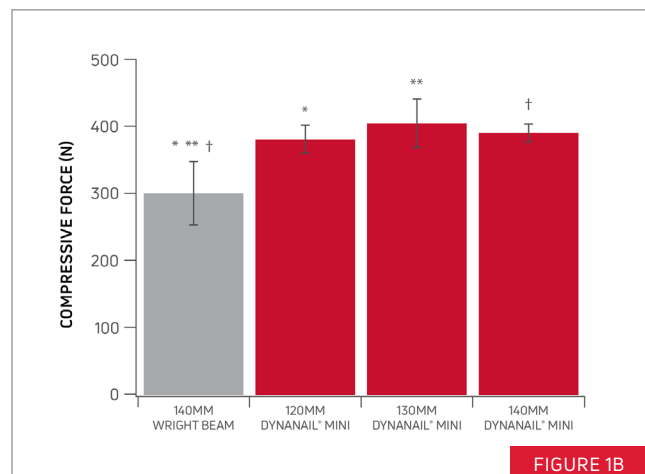
**2x**

Greater bending stiffness during simulated resorption

For subtalar fusion, the DynaNail Mini exerts 63% more compression than the Wright Salvation Beam and for medial column fusion, 30% more compression. (FIGURE 1)



SUBTALAR FUSION



MEDIAL COLUMN FUSION

\*, \*\*, † signify p < .01.

The Wright Salvation Beam (95mm) loses all compression by 0.65mm of simulated resorption, while DynaNail Mini (70-90mm) sustains compression for 2.1mm-3.7mm of simulated resorption (3x-5x more than Wright). The Wright Salvation Beam (140mm) loses all compression by 0.78mm of simulated resorption, while the DynaNail Mini (120-140mm) sustains compression for 4.5mm-5.5mm of simulated resorption (5x-7x more than Wright). (FIGURE 2)

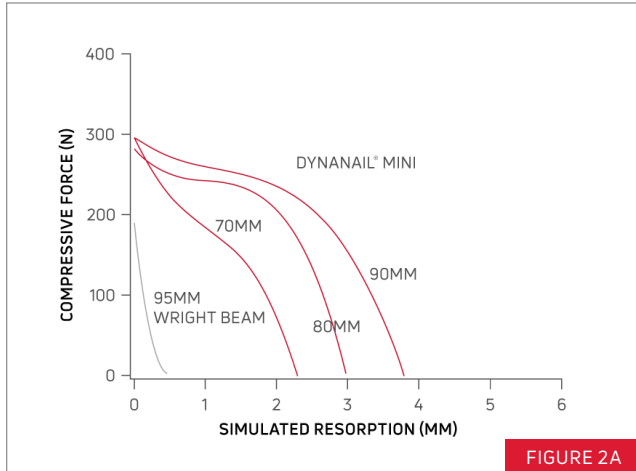


FIGURE 2A

SUBTALAR FUSION

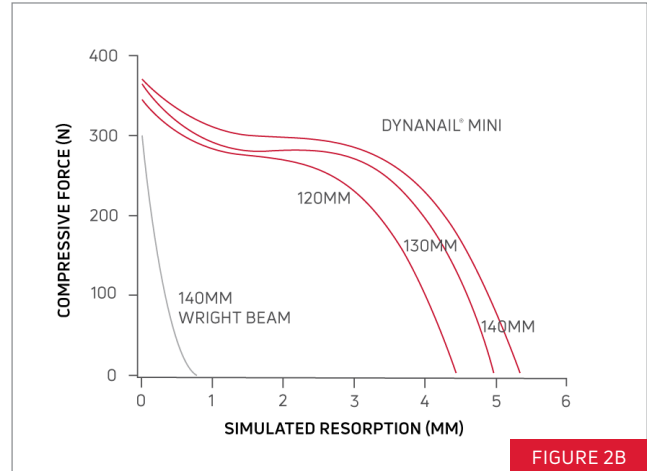


FIGURE 2B

MEDIAL COLUMN FUSION

Because of rapid loss in compression, the Wright Salvation Beam experienced a 66% decrease in bending stiffness, while the DynaNail Mini experienced only a 5% decrease in bending stiffness during 2mm of simulated resorption. (FIGURE 3)

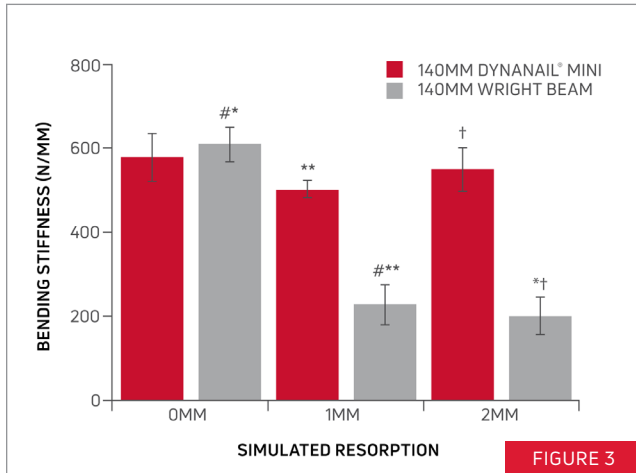


FIGURE 3

\*, \*\*, #, † signify p < .01.

CONCLUSION

Foot and ankle surgeons should be aware of a device’s ability to sustain compression post-operatively, especially in cases where bone resorption is prevalent, like Charcot neuroarthropathy.



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