REDEFINING SEGMENTAL DEFECT TREATMENT

Reconstructing injured limbs with critical-sized segmental bone defects can be clinically challenging, in part because of significant bone loss and difficulty to reconstitute structural integrity as well as clinical complications such as non-unions and infections. Soft tissue damage coupled with bone loss compounds the severity of the injury and complicates management of the defect. Currently, there is no standard protocol to treating segmental defect. Treatment methods have traditionally included distraction osteogenesis, induced membrane (Masquelet technique), bone-grafting and amputation.

NO STANDARD TREATMENT PROTOCOL EXISTS

Average of 6.1 interventions before recovery at a cost of 43K per procedure

66% NONUNION

6.6% AMPUTATION

Introducing TRUMATCH® Graft Cage – Long Bone

Optimal Graft Retention
Designed to prevent bone graft collapse for the healing duration. Overall construct mimics previous bone shape.

Slow Resorption Rate
Made of PCL, which has a slow resorption rate of 2 – 4 years, and hence provides graft retention and structure for the healing period.

Osteoconductive Coating
Coated with calcium phosphate which promotes mineralization at the surface of the implant and conversion to bone.

Preserves Intramedullary Canal
Tube-in-tube design supports nutrient access to bone graft circumferentially and through the intramedullary canal.
An animal study was conducted to evaluate bone healing in a critical segmental tibial defect in sheep using autologous bone graft contained by either a polymeric mesh or the graft cage. The results show bone remodeling over 18 weeks for both types of graft containment devices (Fig. 1.1). However, animals treated with the TRUMATCH Graft Cage had a greater final bone volume after 18 weeks compared to polymeric mesh. μCT analysis showed animals treated with the TRUMATCH Graft Cage had increased total bone at earlier timepoints, more total bone deposition at 18 weeks (55% greater for TRUMATCH Graft Cage), and a faster transition from woven to dense bone (Fig. 1.2). Additional analysis revealed 58% of the animals with TRUMATCH Graft Cage achieved greater than 80% of torsional strength of the contralateral limb while the polymeric mesh had 33% of the animals reach the same level of torsional strength.5,6

TRUMATCH Graft Cage – Long Bone Delivery Process

REFERENCES
4. DePuy Synthes Claims Matrix TRUMATCH Long Bone Graft Cage, 2019 Ref: 115360-190528 DSUS.