



# Percutaneous Bone Graft Collection

**Produces Autologous Cancellous Graft Material with Osteoconductive, Osteoinductive & Osteogenic Properties**

**Minimally Invasive Cancellous Bone Core Extraction Technique**

**May Be Combined with Allogeneic, Autologous or Synthetic Bone Chips Hydrated with Marrow Cellution™ Aspirate**



## Intact Bone Cores vs. Morselized Bone

- Harvesting intact cancellous bone cores without disrupting the highly-organized living tissue is superior to transplanting pieces of bone. Intact grafts maintain the micro-vascular network within the graft promoting bone callus formation/remodeling and do not exhibit extensive resorption.<sup>1,2</sup>
- Intact bone exploits the biology of normal fracture healing rather than through slow creeping substitution associated with the slow incorporation of a non-vascularized graft.<sup>1</sup>
- Research demonstrates the enhanced survival of a bone graft as long as its primary blood supply is preserved. A living bone graft will shorten the time for bony union because the reconstructed bone is comparable to a bone with a double fracture.<sup>1,2</sup>
- Allogenic or synthetic bone chips hydrated with marrow can be packed around the living bone graft/core to accelerate anastomosis into the graft and minimize morbidity.<sup>1,2</sup>

## Minimally Invasive Bone Grafts

- Vascularized and cancellous autograft shows optimal skeletal incorporation but is limited by morbidity concerns.<sup>3</sup>
- Using the Marrow Cellution™ Graft Delivery Syringe and the Marrow Cellution™ Bone Core Harvest Device, the clinician can create a combination graft of a vascularized intact bone core in the center of the graft surrounded by allogeneic, autologous or synthetic bone chips hydrated with cellular marrow aspirate.
- Higher quality, less quantity, delivered appropriately minimizes host morbidity.



(1) Bleuming SA, et al. Bone morphogenetic protein signaling suppresses tumorigenesis at gastric epithelial transition zones in mice. *Cancer Res.* 2007 Sep; 1;67(17):8149-55.  
(2) Ostrup LT, et al. Distant transfer of a free, living bone graft by microvascular anastomoses. An experimental study. *Plast Reconstr Surg.* 1974 Sep;54(3):274-85.  
(3) Taylor GI, et al. The free vascularized bone graft. A clinical extension of microvascular techniques. *Plast Reconstr Surg.* 1975 May; 55(5):533-544.

# Marrow Aspiration & Cancellous Bone Graft

The Marrow Cellution™ Bone Marrow Aspiration- & Autologous Bone Harvesting System allows physicians to combine high quality bone marrow aspirate and percutaneously harvested cancellous bone autograft.

Harvesting intact cancellous bone cores without disrupting highly vascularized and organized tissue is superior to transplanting small pieces of morselized bone.

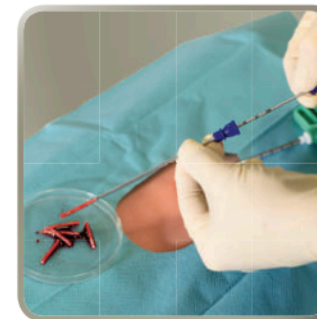
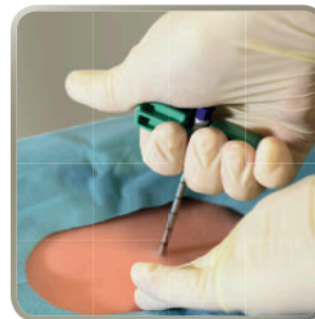
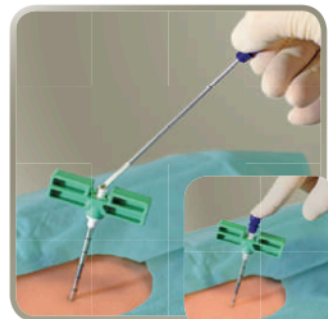
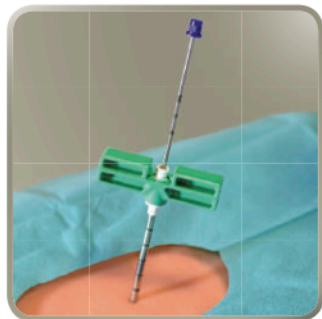
The highly active cellular composition of Marrow Cellution™ Aspirate combined with percutaneously harvested bone core(s) deliver autograft without the associated morbidity.

- Autologous graft material with Osteoconductive, Osteoinductive and Osteogenic properties.
- Minimally invasive technique – uses an 8 Gauge Trepine Needle for bone core extraction.
- Graft material may be combined with allogenic, autologous or synthetic bone chips hydrated with highly cellularized marrow aspirate.
- Percutaneous harvesting reduces donor site morbidity associated with standard harvesting techniques.



## Process Steps for Bone Collection *(Abbreviated Instructions. For Complete Instructions Please Refer To Official IFU Included In Kit)*

- Insert and advance Trephine Needle to desired depth and remove Sharp Stylet
- Insert Marked Measurement Probe to check sample length & remove Probe
- Insert Extraction Tool into the Trephine Needle cannula
- Push Extraction Tool to luer connection of the handle
- Rotate Trephine Needle and Extraction Tool together (!) to cut bone core
- Remove both tools together
- Remove Extraction Tool from Trephine Needle
- Use Measurement Probe to push out the bone core



\* Abbreviated instructions overview. Refer to package insert for detailed instructions for use.