

BONE MARROW ASPIRATION

Process Steps

MARROW CELLUTION™

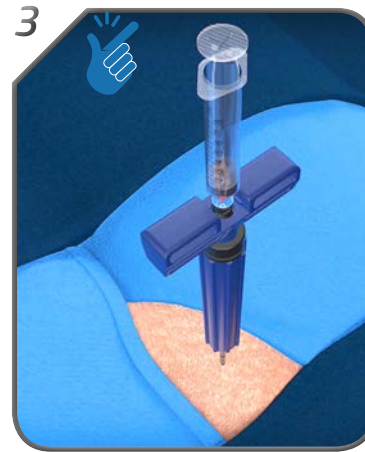
Autologous Bone Marrow Aspiration & Bone Graft Harvesting



Heparin Flush: rinse all kit components with heparin (2,000 Units/ml)



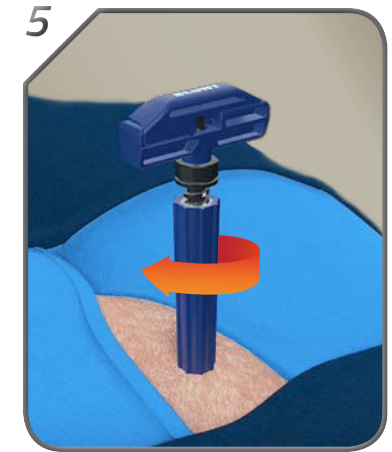
Insert Introducer Needle with Sharp Stylet just past cortex into medullary space
Ensure longitudinal orientation



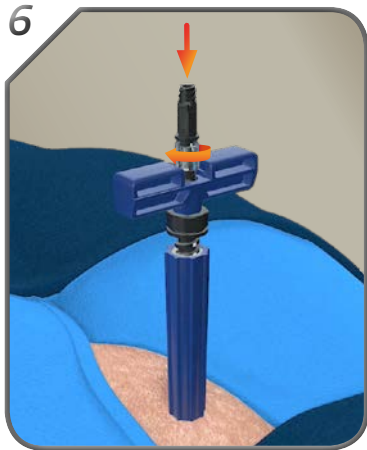
- Remove Sharp Stylet
- Attach Syringe
- Aspirate 1ml marrow to ensure proper positioning of needle tip



- Remove Syringe
- Insert & lock Blunt Stylet
- Continue to advance Introducer Needle to desired depth



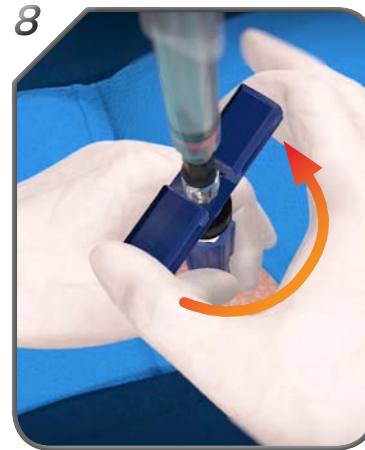
Rotate Guide Grip to skin level



- Remove Blunt Stylet
- Insert and secure Aspiration Cannula



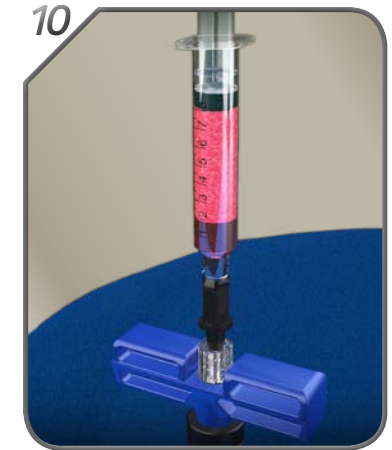
- Attach Syringe
- Aspirate 1ml marrow



Hold Guide Grip and rotate Handle 360° counter-clockwise



Aspirate 1ml marrow



- Repeat steps 8 & 9 as needed
- Reassemble for additional puncture (if required)



BONE CORE COLLECTION

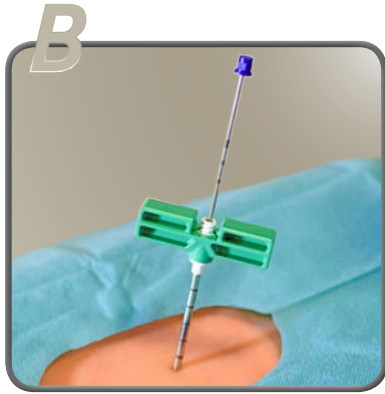
Process Steps (MC-RAN-8C and MC-RAN-8CSTS only)

MARROW CELLUTION™

Autologous Bone Marrow Aspiration & Bone Graft Harvesting



- Remove Sharp Stylet
- Use existing puncture site to insert and advance Trephine Needle (only) to desired depth (2-3cm)



- Insert marked Measurement Probe to check sample length in the Trephine Needle lumen
- 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 the bone core
- Remove both tools together

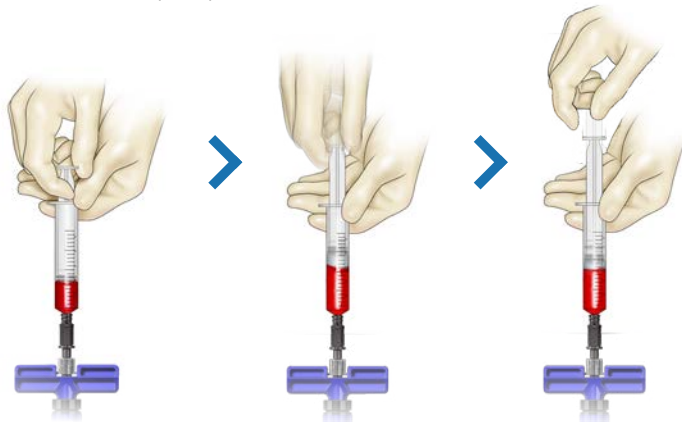


- Remove Extraction Tool from Trephine Needle
- Use Measurement Probe to push out the bone core

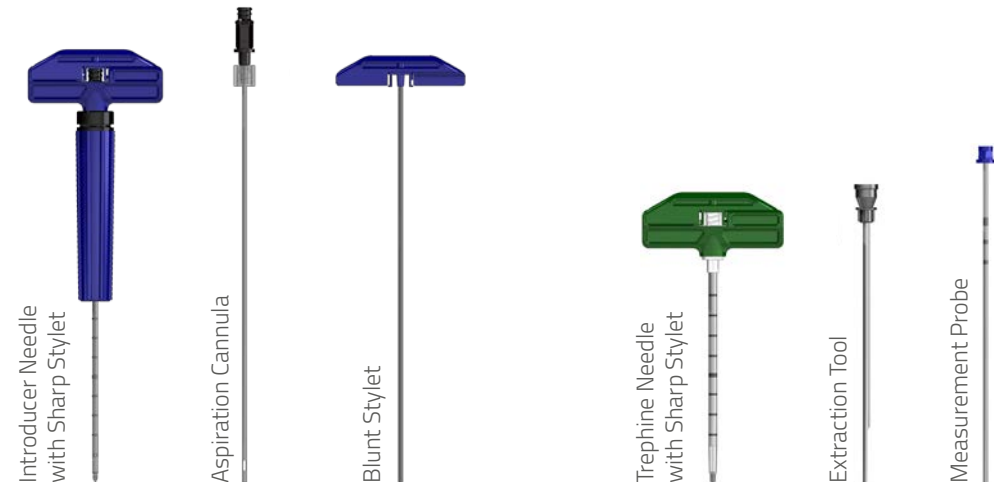


“Snap Back” Aspiration Technique

- Aspirate ~1ml from each aspiration level
- Retract plunger and immediately release it
- Reposition Marrow Cellution™ needle
- Repeat process



Marrow Cellution™ System Components



Each Marrow Cellution™ System includes all components shown above and one 10ml Syringe

Additional components for bone core collection included in MC-RAN-8C and MC-RAN-8CSTS