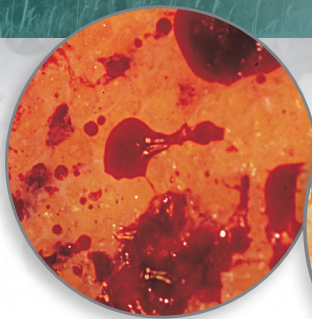


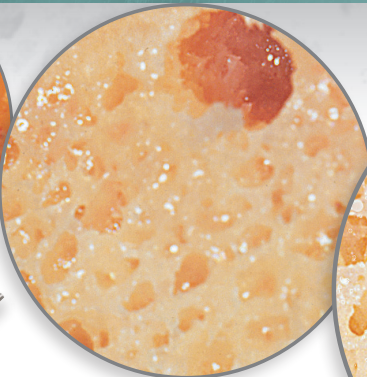
# Concerned About Implant Loosening?

Aseptic loosening is a predominant failure mode in cemented primary knee arthroplasty.<sup>1, 2</sup>

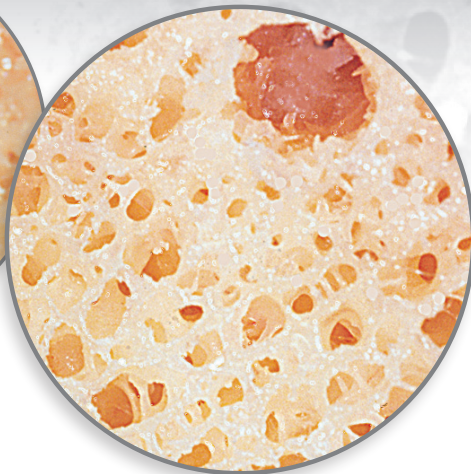
Tibia After Resection



After Pulsatile Saline Lavage



After CarboJet®



## CarboJet®

### CO<sub>2</sub> Bone Preparation System

1. Schroer, K.R. Berend, Lombardi, Barnes, Bolognesi, M.E. Berend, Ritter, Nunley, (2013) Why Are Total Knees Failing Today? Etiology of Total Knee Revision in 2010 and 2011. J Arthroplasty, 28 Suppl:116-9.
2. Sharkey et al (2014) Why Are Total Knee Arthroplasties Failing Today—Has Anything Changed After 10 Years? J Arthroplasty, 29: 1774-8.

Are you looking for a way to more effectively remove lipids/marrow elements, blood, and saline from the cement interface? **CarboJet's** carbon dioxide (CO<sub>2</sub>) gas jet quickly and thoroughly removes fluid debris from the bone bed resulting in increased cement penetration<sup>3</sup> and increased cement bond strength<sup>4</sup>. **CarboJet** has been shown to be safe and effective in multiple clinical studies and in tens of thousands of joint reconstructive procedures. Nozzles are available for use in TKA, UKA, THA, TSA and other cemented applications. Give it a try and see what a really clean bone bed is all about!

#### An essential tool for tourniquetless TKA!

Meneghini (2018) Tourniquetless TKA...Decreases Pain & Opioid Consumption in Women. J. Arthroplasty.  
Jones (2011) Total knee arthroplasty without the use of a tourniquet. Seminars in Arthroplasty.

#### Remove Fluid Debris for Increased Cement Penetration

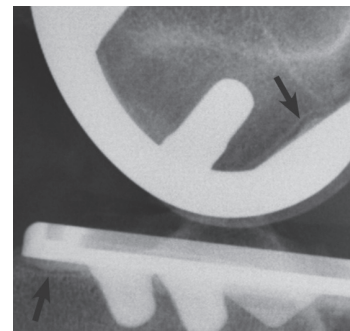
3. Goldstein (2007) Improvement of cement mantle thickness with pressurized CO<sub>2</sub>. ISTA.

#### Increase Bone-Cement Interface Strength

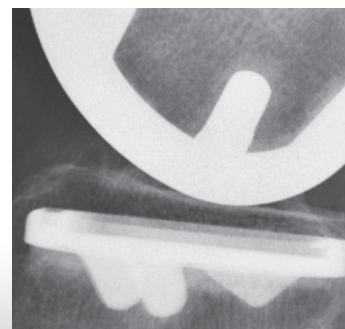
4. Stanley (2010) Bone-cement interface strength using two preparation techniques. Hand Surg.

#### Reduce Opportunity for Micro-Emboli

5. Lassiter (2010) Intraoperative embolic events with use of pulsatile saline versus CO<sub>2</sub> lavage. ORS.



Bone bed prepared with pulsatile saline lavage. Arrows indicate radiolucent lines.



Bone bed prepared with CarboJet. No radiolucent lines visible.



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