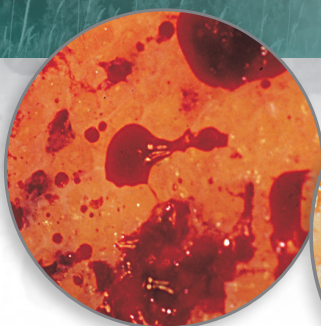


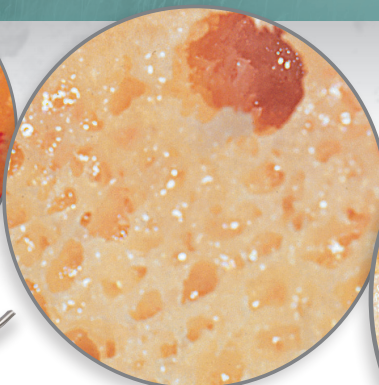
Concerned About Implant Loosening?

Aseptic loosening is a predominant failure mode in cemented primary knee arthroplasty.^{1,2}

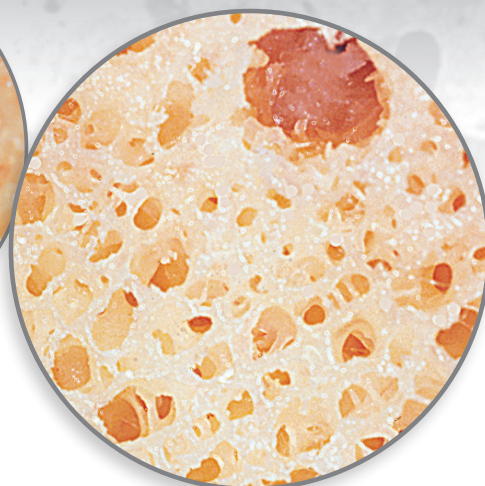
Tibia After
Resection



After Pulsatile
Saline Lavage



After CarboJet®



CarboJet®

CO₂ 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 (CO₂) gas jet quickly and thoroughly removes fluid debris from the bone bed resulting in increased cement penetration^{3,4} and increased cement bond strength⁵. **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.

Increase Cement Penetration

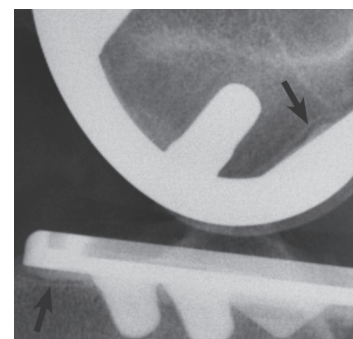
3. Meneghini (2019) The Effect of Tourniquet Use and Sterile CO₂ Bone Preparation on Cement Penetration in Primary TKA. J Arthroplasty.
4. Goldstein (2007) Improvement of cement mantle thickness with pressurized CO₂. ISTA.

Increase Bone-Cement Interface Strength

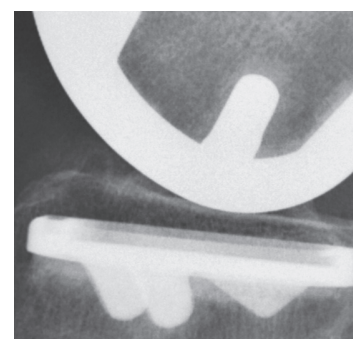
5. Stanley (2010) Bone-cement interface strength using two preparation techniques. Hand Surg.

Reduce Opportunity for Micro-Emboli

6. Lassiter (2010) Intraoperative embolic events with use of pulsatile saline versus CO₂ 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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