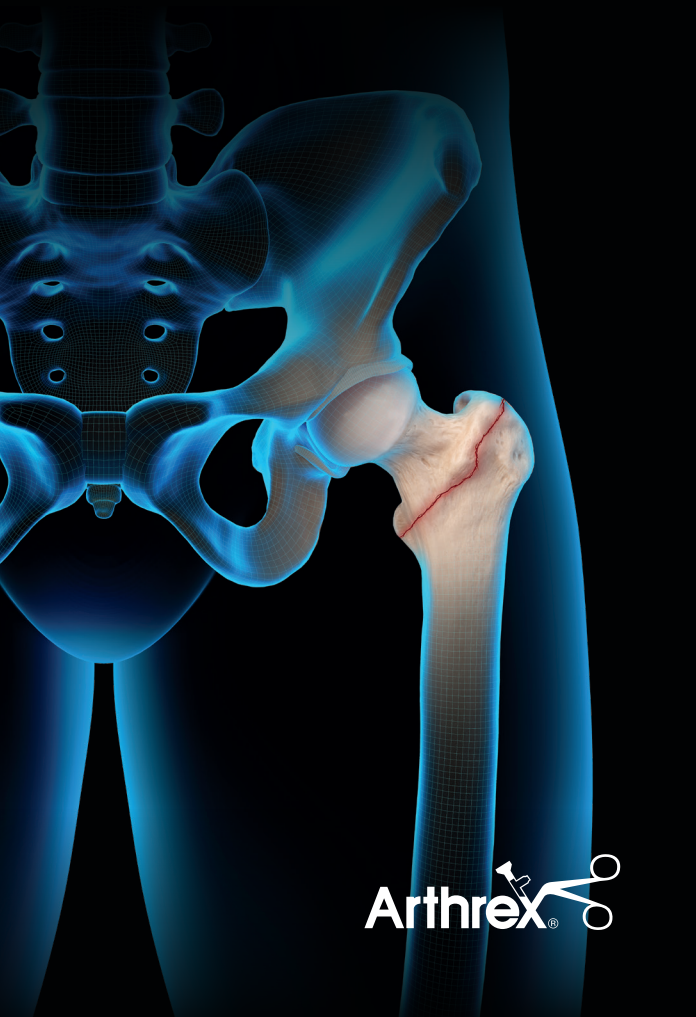
Intertrochanteric Fracture

Better with BIO™

Augmenting Trochanteric Nails With Biologics: Bone Void Fillers

Scientific Insights



Arthrex®



Arthrex is one of the world's leading companies in trauma, orthobiologics, and minimally invasive surgery.

For four decades, Arthrex has been known for superior innovation and uncompromising quality. We have developed more than 18,000 products and surgical procedures, and we distribute medical devices in over 100 countries worldwide. As a company with a strong culture of innovation, Arthrex is committed to improving and maximizing the quality of life for patients across the globe.

We are now making surgical care Better with BIO™ through the integration of biologic techniques. Building on a legacy of innovation, Arthrex continues to develop biologic solutions designed to support healing and help advance patient care.

If you have any questions, your local Arthrex representative will be happy to provide further information.

Clinical Relevance

Proximal femur fractures are increasingly common in the aging population, often requiring surgical fixation. Trochanteric fracture repair is challenging in poor-quality bone, where poor density weakens screw anchorage and raises the risk of cut-out and fixation failure. Augmentation aims to improve implant stability, reduce complications, and enable early mobilization.

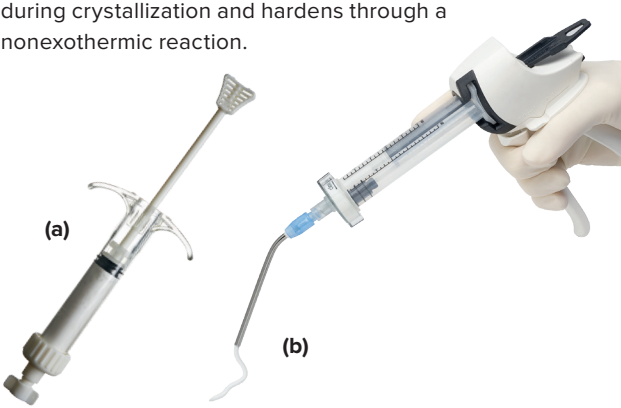
Polymethylmethacrylate (PMMA) cement has demonstrated improved mechanical stability and reduced implant failure rates in multiple studies[1-3] but also has limitations, such as thermal necrosis from polymerization heat, risk of cement leakage, or complicated revision due to difficult removal.[2]

As an alternative, calcium phosphate (CP) cement offers osteoconductivity and gradual resorption, supporting bone ingrowth and long-term biological stability.[4]

Arthrex Biologic Options

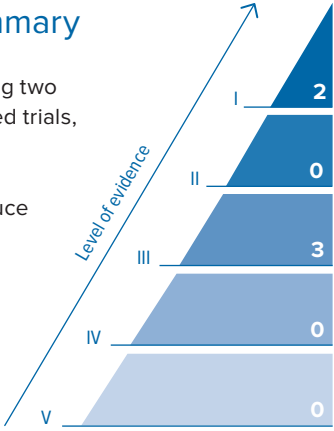
BoneSync™ Cement (a)
This fast-setting calcium phosphate cement features a collagen additive, allowing autologous fluids (eg, PRP, concentrated PRP from bone marrow aspirate) to be mixed into the graft. The collagen additive also supports improved integration with native bone.

Quickset™ Cement (b)
This ready-to-use, macroporous, injectable, hardening, resorbable bone cement delivered in a closed mixing system. It exhibits no shrinkage during crystallization and hardens through a nonexothermic reaction.



Evidence Summary

Five studies, including two randomized controlled trials, have shown that CP cement can improve fixation stability, reduce postoperative pain, support bone integration, and limit leakage.



Number of published studies on trochanteric nail augmentation with biological bone substitutes used in this review



Radiological and biomechanical assessments highlight the benefits of biologic augmentation in improving fixation and overall surgical outcomes.

- **Enhanced Fixation Stability**
  CP augmentation significantly improves implant anchorage compared to nonaugmented controls[2,5-7]
- **Reduced Postoperative Pain**
  Patients experience meaningful pain relief with CP augmentation[7]
- **Improved Bone Structure**
  CP supports restoration of natural bone architecture[4]
- **Reduced Cement Leakage**
  Lower risk of extravasation, remaining confined within bone defects[1]

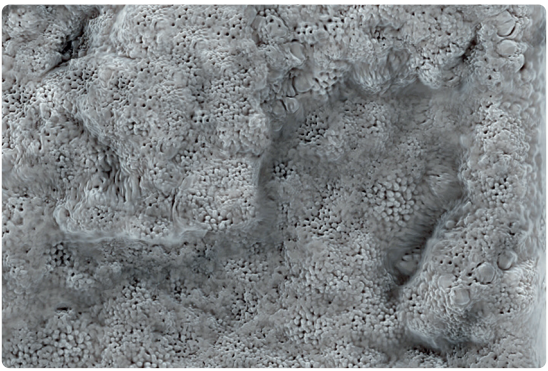
Key Takeaways

- CP augmentation improves fixation in osteoporotic bone and reduces cut-out risk[6]
- PMMA provides immediate mechanical strength but lacks biological integration
- CP cement offers a promising alternative that is osteoconductive and provides overall positive clinical and biomechanical outcomes

Opportunities for Further Study

- Few high-level studies on biologic augmentation
- Small sample sizes and heterogeneous designs
- No standardized protocols for CP cement use in trochanteric nails

> **Note:** Different synthetic bone substitutes from several manufacturers were used in these studies.



References

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6. Kim SJ, et al. *Osteoporos Int.* 2018;29(9):2021-2028.
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Literature Search: PubMed, Google Scholar, Publication Center, Oct 2025; Search criteria: ("trochanteric" OR "hip fracture") AND "augmentation"

Explore more ways to make your procedures Better with BIO™



The information contained in this brochure is not medical advice and is not meant to be a substitute for the advice provided by a surgeon or other qualified medical professional on the use of these products. You should talk with your physician or health care provider for more information about your health condition and whether Arthrex products might be appropriate for you. The surgeon who performs any surgical procedure is responsible for determining and using the appropriate techniques for surgical procedures on each individual patient. Arthrex recommends that surgeons be trained on the use of any particular product before using it in surgery. A surgeon must always rely on their own professional medical judgment when deciding whether to use a particular product when treating a particular patient. A surgeon must always refer to the package insert, product label, and/or directions for use before using any Arthrex product. Postoperative management is patient-specific and dependent on the treating professional's assessment. Individual results will vary and not all patients will experience the same postoperative activity level or outcomes. Products may not be available in all markets because product availability is subject to the regulatory approvals and medical practices in individual markets. Please contact Arthrex if you have questions about the availability of products in your area.

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