









# TrapEZ

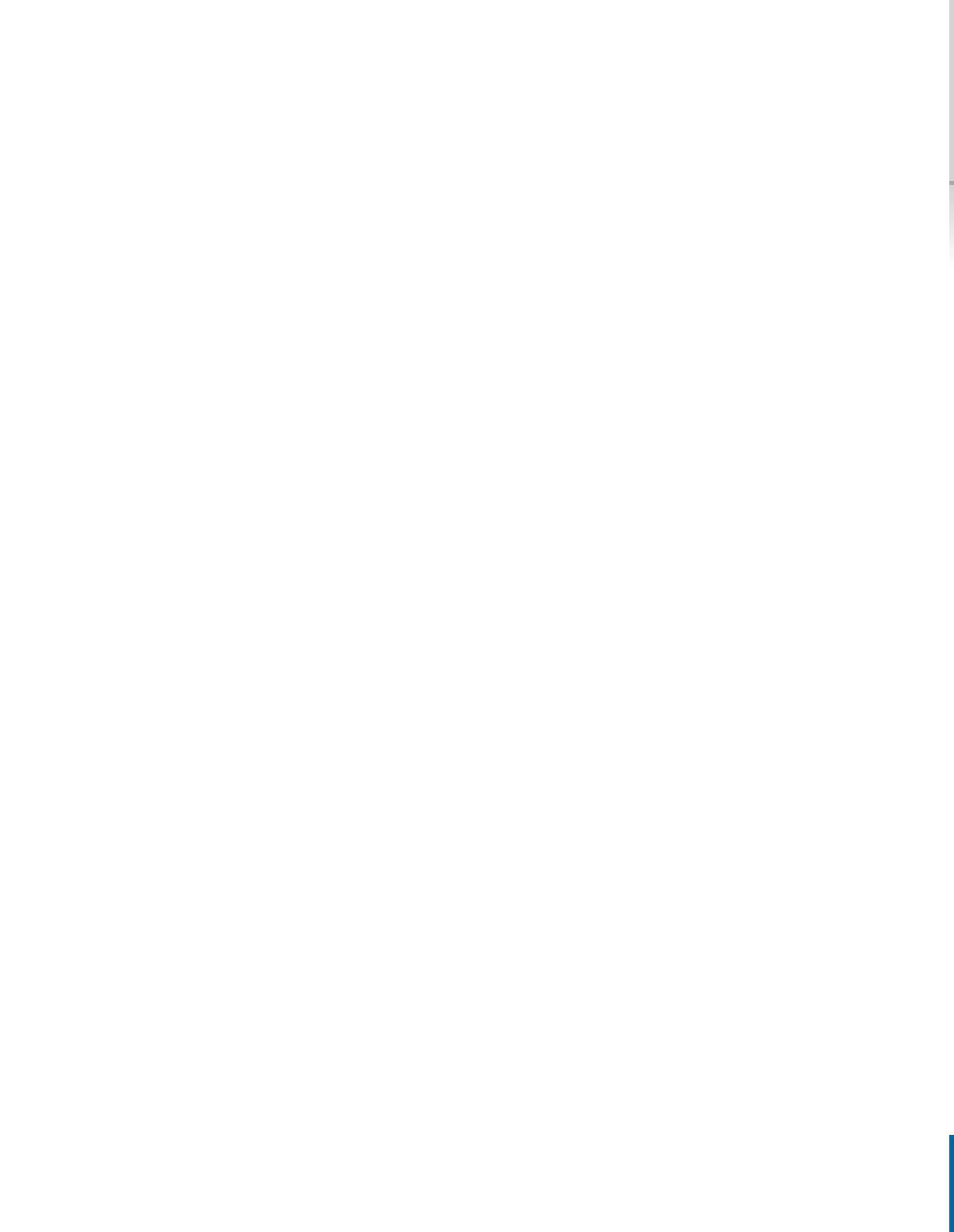
TRAPEZIUM  
REPLACEMENT

## Surgical Technique

### Features and Benefits

-  Anatomic Trapezium Replacement
-  Simple, fast procedure without complex instrumentation
-  No secondary procedure to harvest tendon
-  Preserves revision options
-  New alternative for failed LRTI
-  Suture anchor may be used for short term stability
-  Open space for the potential of soft tissue ingrowth
-  Restores biomechanical anatomy

Covered by one or more U.S. patents and other patents pending



*Designed in conjunction with:  
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*The biomechanics of the device were developed in collaboration with Professor J.J. Trey Crisco, Ph.D  
Director Bioengineering Laboratory, Department of Orthopaedics, Alpert Medical School of Brown University*

### **INDICATIONS FOR USE**

The Extremity Medical Trapezium Prosthesis is a surgical implant indicated for use in degenerative or post-traumatic (e.g. following an old Bennett fracture) arthritis of the thumb trapezium-metacarpal ("basal") joint with:

- Localized pain and palpable crepitus at the base of the thumb on the "grind test" (circumduction with axial compression of the thumb)
- Decreased motion, pinch, and grip strength
- X-ray evidence of arthritic changes of the trapeziometacarpal joint; as well as trapezioscapoid, trapezotrapezoid, and trapezium-second metacarpal joints, singly or in combination.
- Associated unstable, stiff, or painful distal joints of the thumb, including metacarpo-phalangeal hypermobility or hyperextension

### **SURGICAL TECHNIQUE**

The following surgical procedure is applicable for the size 1, 2, & 3 Right and Left side Extremity Medical Trapezium Prosthesis implants. All implants and instruments are laser marked to help distinguish between three different sizes. The only instruments specific to the implant(s) are the sizing trials. All other instruments used in the surgical technique are common access instruments that are readily available to a physician.

The implant approximates the anatomy of the trapezium. The straight side represents the radial and thus most superficial side of the implant, and the angled side includes the articulations of the trapezoid and second metacarpal. The scaphoid articulation slopes proximally on its volar side.



## STEP 1 – Approach

**Two standard approaches are recommended, volar and dorsal.**

**Volar approach:** An incision is made about the dorsal-radial longitudinal base of the thumb CMC joint between the dorsal, loose skin and the glabrous skin of the palm. Sensory branches in this area are identified and protected. The interval between the APL (Abductor Pollicis Longis) and thenar muscles is developed, releasing an accessory slip of APL inserting into the thenars if necessary. The capsule including the CMC (Carpometacarpal) and ST (Scapho-Trapezial) joints and the periosteum on the trapezium is divided and reflected; the volar branch of the radial artery is a useful landmark for identifying the ST joint.

**Dorsal Approach (Illustrated at right):** A 3-4 cm incision is made centered over the trapezium. Subcutaneous dissection with scissors is used to identify the sensory branch fibers of the Radial nerve and to dissect down to the retinacular sheath overlying the APL and Extensor Pollicis Brevis (EPB) tendons. A knife is used to open the interval between the APL and EPB tendon sheaths, sharply going through the joint capsule down to the bone from the base of the thumb metacarpal to the proximal portion of the trapezium. Care should be taken proximally in this incision, as once fatty tissue is seen, a branch of the radial artery is in that region. Essentially the proximal portion of this incision should stop at the Scaphotrapeziotrapezoid (STT) joint. A knife is used to reflect the capsule off the trapezium so that it is fully visualized.

**1a:** Designation of longitudinal incision along CMC joint

**1b:** Capsular incision

**1c:** Exposure of the trapezium



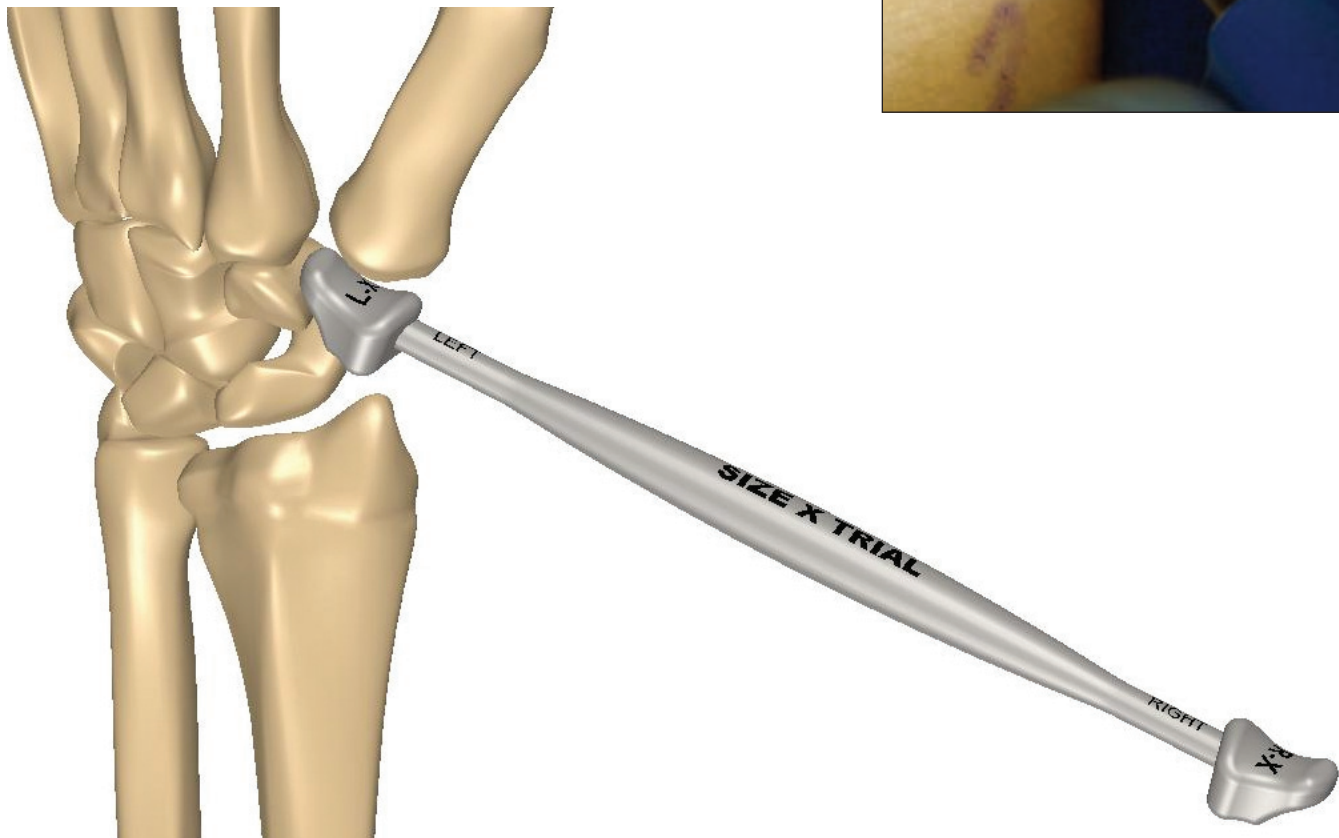
## STEP 2 - Remove the Trapezium

Remove the trapezium (trapeziectomy), either *en bloc* or piecemeal. Use great care to avoid injury to the surrounding structures, especially the Flexor Carpi Radialis (FCR), which runs obliquely across the volar trapezium toward the second metacarpal. Osteophytes and small loose bodies often are found in the deep ulnar capsule, and should be removed. If necessary, fluoroscopic imaging may confirm complete trapeziectomy.



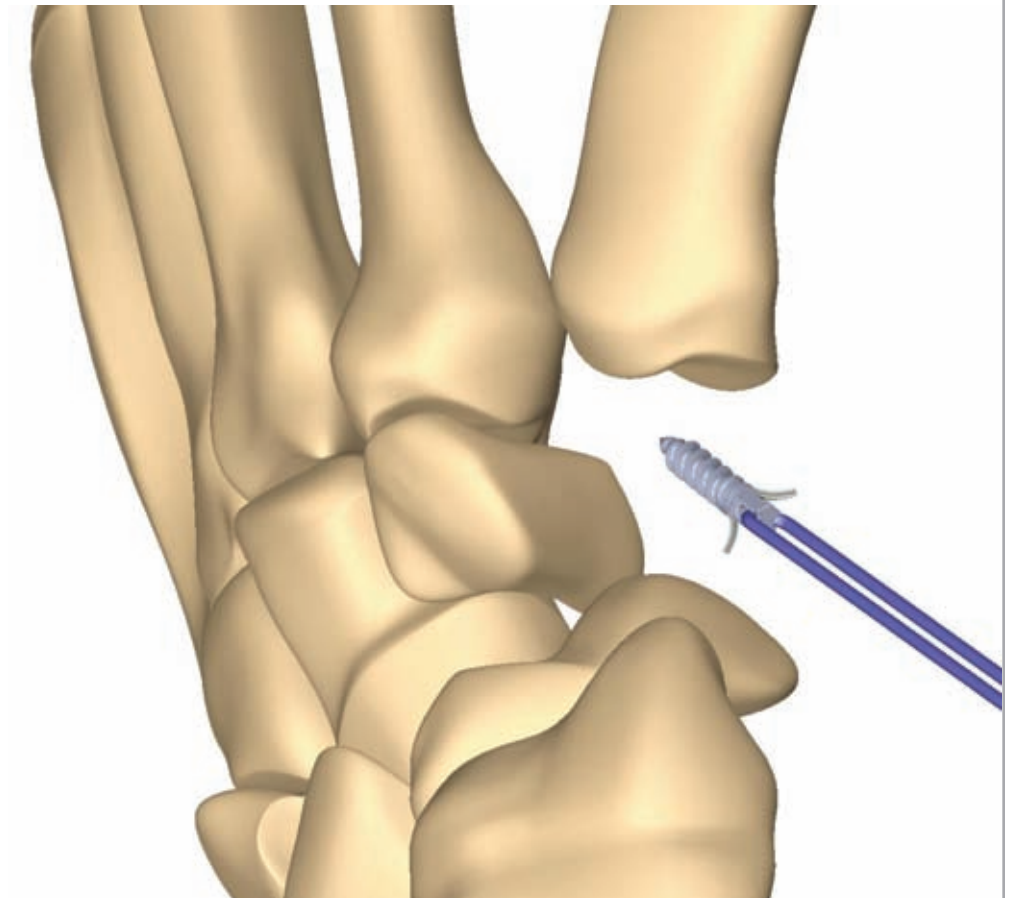
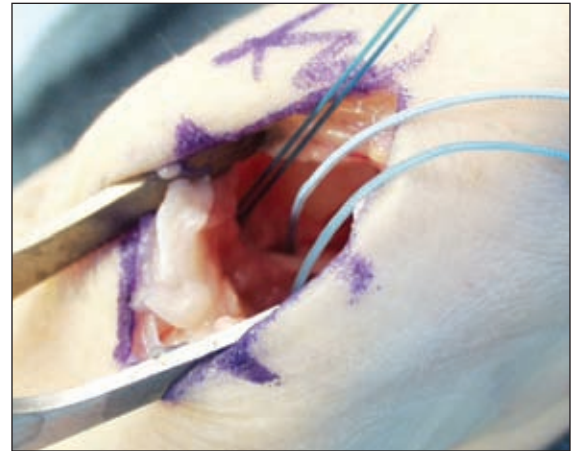
### STEP 3 - Select the correct size implant

Select the correct size implant by using the available trials, starting with the smallest first. The Extremity Medical Trapezium Prosthesis is made in sizes 1, 2, & 3 for the Right and Left sides. The implant size selected should fit within the trapeziectomy space and permit smooth range of motion of the metacarpal on the implant. This should be confirmed with fluoroscopy. If substantial erosion or significant subsidence of the metacarpal is present, then smoothing of the metacarpal base to fit the surface of the implant may be required.

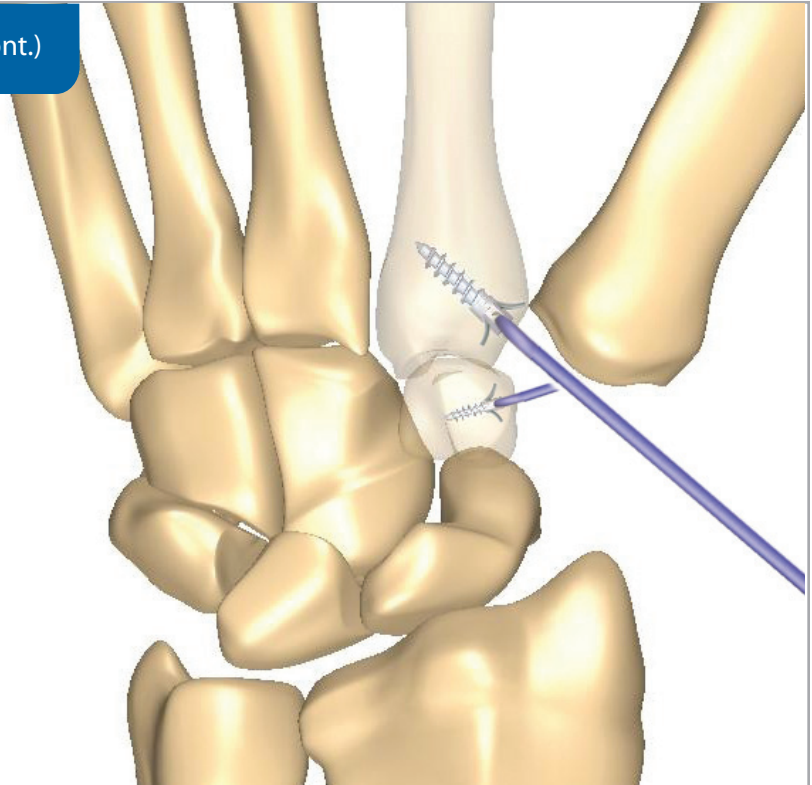


## STEP 4 – Insert Suture Anchor

Insert a general, currently marketed suture anchor with a durable suture into the base of the 2nd metacarpal and or the Trapezoid. For additional volar-ulnar support, an additional suture may be placed through the base of the FCR at its insertion into the 2nd metacarpal. The two limbs of these sutures may be passed with the sutures of the 2nd metacarpal through the implant as described below.

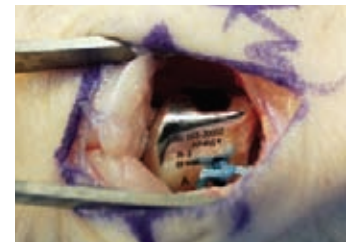


STEP 4 – Insert Suture Anchor (cont.)



STEP 5 – Insert the Implant

Insert the implant into the trapezium cavity and tension the sutures placed through the suture holes to position the implant. As the sutures are firmly tied, the implant is securely reduced into the desired position within the trapezium space. Ensure excess suture ends are removed. Verify the position and sizing of the implant.

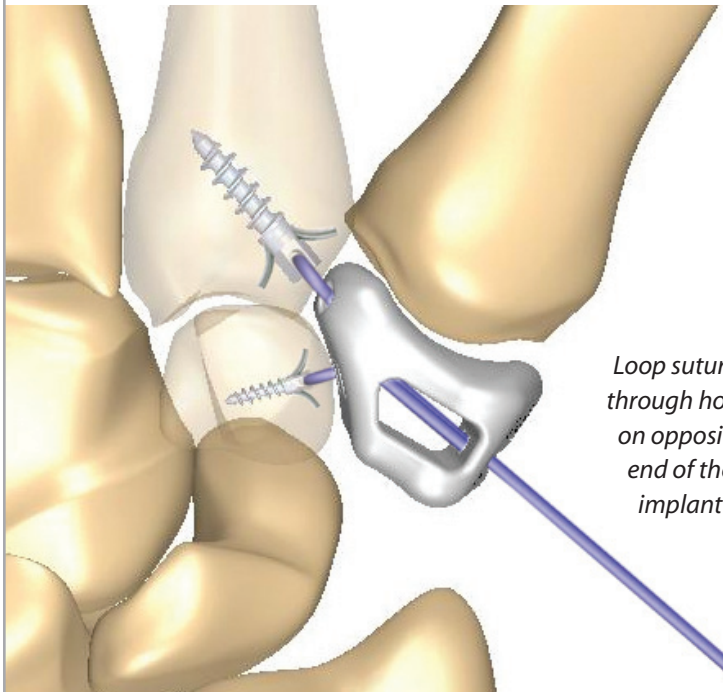


**STEP 5 – Insert the Implant (cont.)**

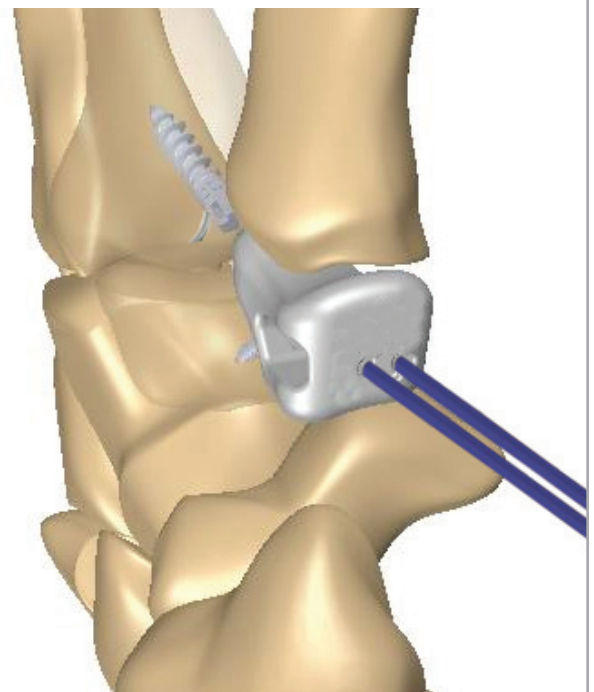
See Laser marking to verify implant size and side



Align and insert sutures into designated holes of implant



Loop sutures through holes on opposite end of the implant



## STEP 6 – Close the Capsule

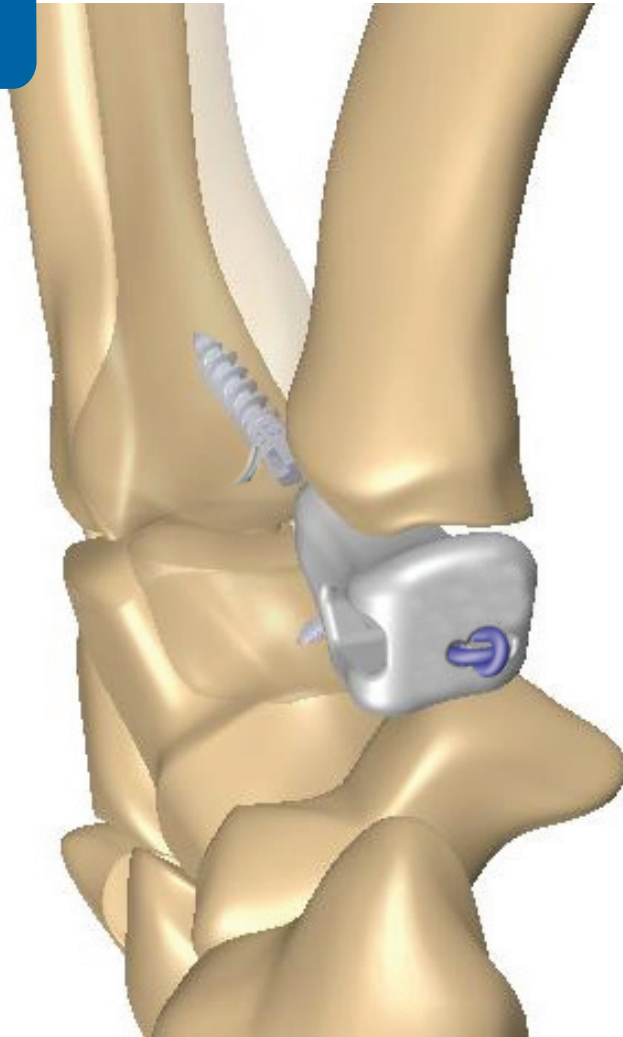
Close the capsule / periosteum using general, currently marketed suture. Closing the overlying soft tissues provides additional support for the implant localization. Type of skin closure and injection of local anesthetic is at the surgeon's discretion. Additional fluoroscopic visualization may be desired.



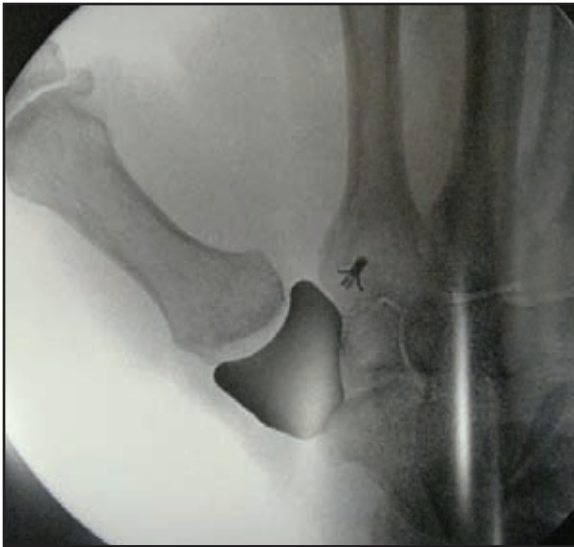
*Closing of capsule*



*X-Ray of Extremity Medical Trapezium Prosthesis*



## CASE EXAMPLES



## TRAPEZX REFERENCE NUMBERS

### Implants

| Catalog # | Description                           |
|-----------|---------------------------------------|
| 103-11001 | Trapezium Prosthesis (Size 1) - Left  |
| 103-11002 | Trapezium Prosthesis (Size 1) - Right |
| 103-21001 | Trapezium Prosthesis (Size 2) - Left  |
| 103-21002 | Trapezium Prosthesis (Size 2) - Right |
| 103-31001 | Trapezium Prosthesis (Size 3) - Left  |
| 103-31002 | Trapezium Prosthesis (Size 3) - Right |

### Instruments

| Catalog # | Description            |
|-----------|------------------------|
| 103-00000 | TrapEZ Instrument Tray |
| 103-00010 | Size 1 Trial Assembly  |
| 103-00020 | Size 2 Trial Assembly  |
| 103-00030 | Size 3 Trial Assembly  |

