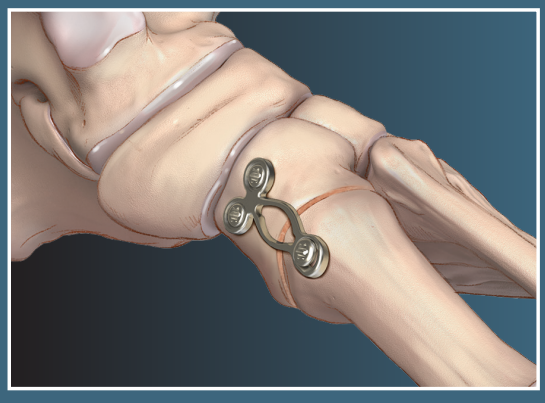
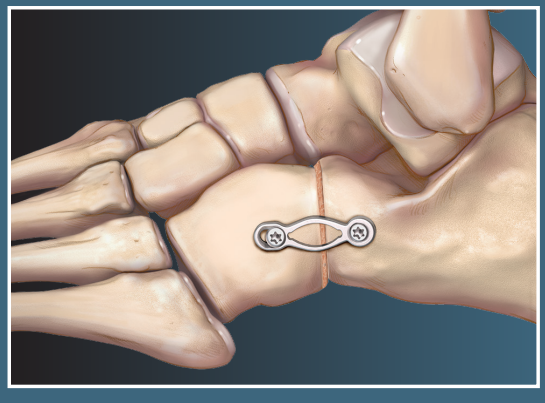
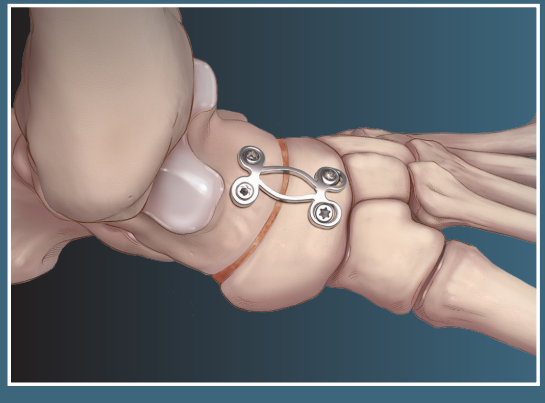
Arthrex®

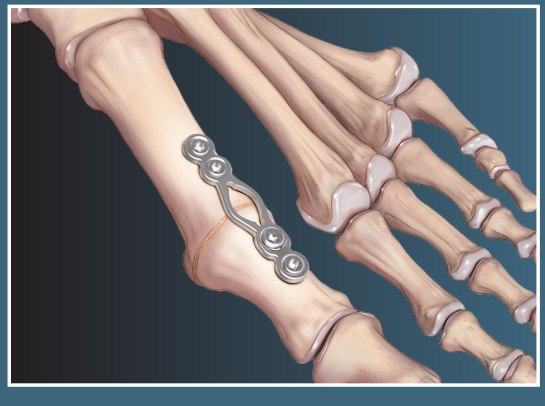
Double Compression Plate System

Surgical Technique









Double Compression Plate System

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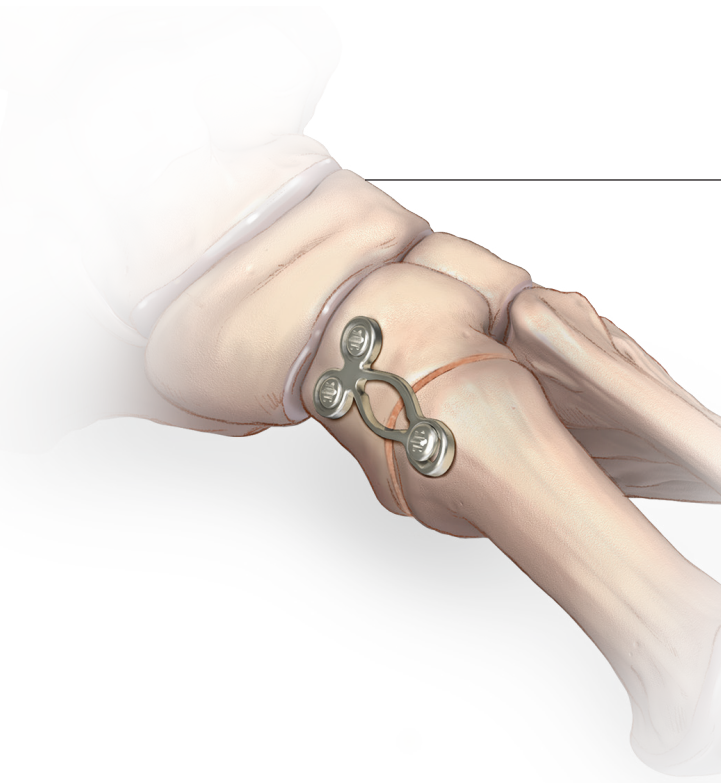


The Double Compression System is a new fixation construct from Arthrex® that allows maximal surgical compression across fusion sites. The hallmark of this design is the improved compression achieved using the double compression mechanism. Initial compression is achieved using standard compression hole principles. Additional secondary compression is achieved through the bridge "arms" of the plate construct. This double compression mechanism allows the surgeon maximal compression potential with direct visual and tactile controlled feedback.

The plating system's unique bridge thickness and geometry allow for low profile contour with improved fatigue rigidity. The flexibility of locking and nonlocking compression hole options and multiple geometric plate configurations allow the surgeon the opportunity to optimize fixation while maximizing the advantages of the nonlocking compression hole mechanism.

The fixation system's simplicity, ease-of-use and multiple plate configurations allow these plates to be used for talonavicular, calcaneocuboid, transverse tarsometatarsal, forefoot and hindfoot arthrodesis sites.

The improved overall compression achieved with the double compression mechanism allows for the maximal potential for bone-to-bone opposition, which is known to be the most critical factor in overall construct stability. Clinically, this can translate to improved fusion rates for simple and complex arthrodesis throughout the foot and ankle.

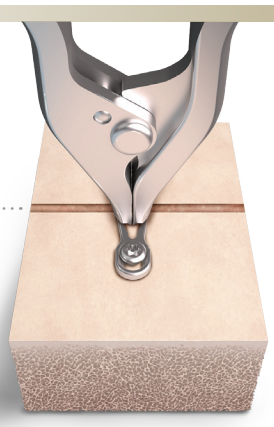
Examples of various surgical techniques are described on the following pages.

Compression Distractor

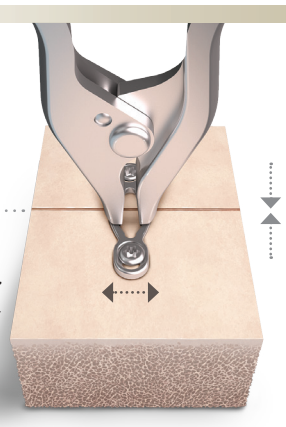
In order to illustrate the expansion capabilities of the Double Compression Plates, these two photographs taken from a plantar view, depict the 2-hole plate before and after using the Compression Distractor

*Utilizing the oblong compression hole, 14 pounds of additional compression is achieved**

*The distraction of the inner arms, combined with utilizing a screw in the oblong screw slot, adds 7 pounds of additional compression**



The distractor fits into the inner slot in the plate. As the handle is squeezed the plate expands, thus lessening the space between the bones.



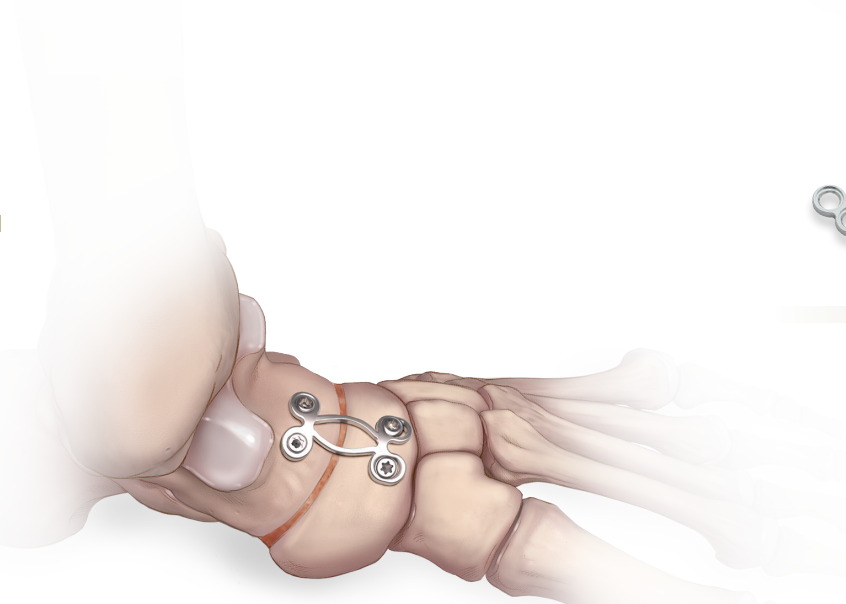
When the distractor is squeezed, the inner arms are pulled apart and the screws are brought closer together. This provides additional compression to the fusion site.

**data on file*

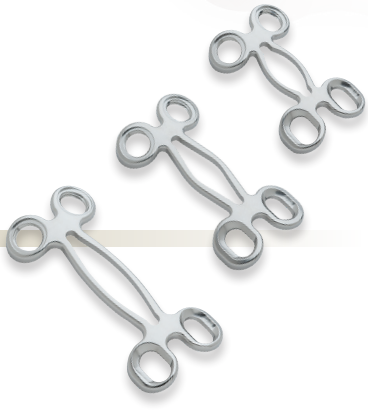
The Double Compression Plate System was designed in conjunction with Anand Vora, MD

Three-hole Double Compression Plate for Lapidus Arthrodesis in 20 mm, 25 mm and 30 mm lengths

Two-hole Double Compression Plate for Calcaneocuboid Arthrodesis in 20 mm, 25 mm and 30 mm lengths



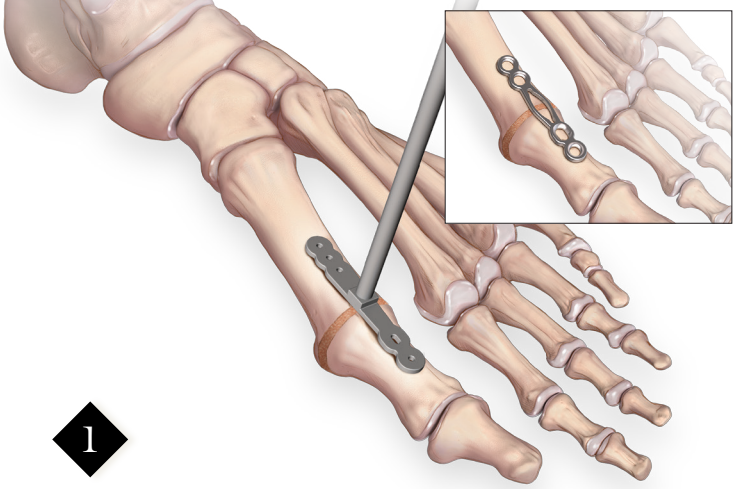
Four-hole Double Compression Plate (straight) for 1st MTP Arthrodesis in 20 mm, 25 mm and 30 mm lengths



Four-hole Double Compression Plate (square) for Talonavicular Arthrodesis in 20 mm, 25 mm and 30 mm lengths

1st MTP Arthrodesis

Standard joint exposure and joint preparation is performed. This can be facilitated by using the Mini Joint Distractor/ Compressor for enhanced exposure of the arthrodesis surfaces.

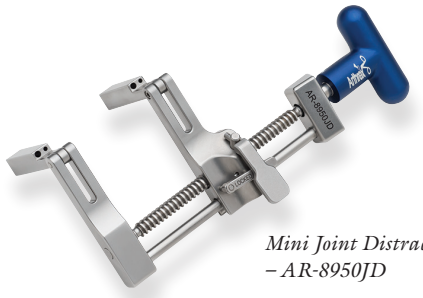


1

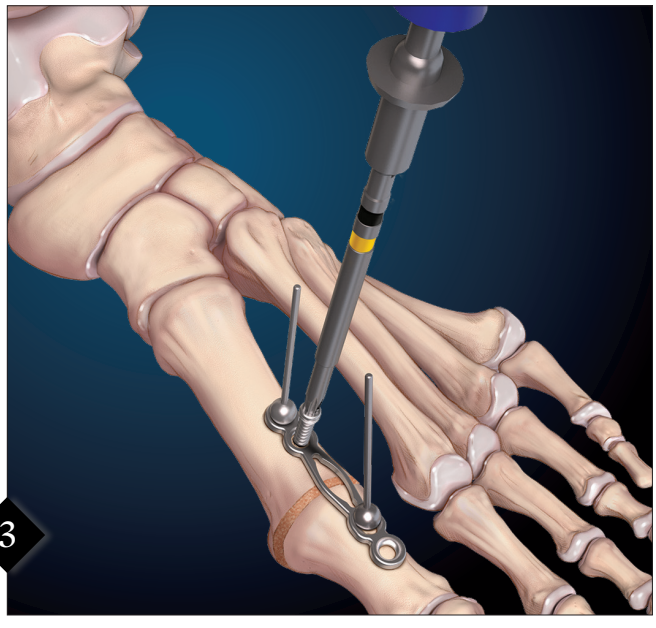
The appropriate length plate is chosen (20, 25 or 30 mm) and temporarily stabilized using BB-Taks™. Fluoroscopic and direct visualization is used to confirm appropriate plate placement. The plate should be placed such that the side of the plate with locking holes is placed on the side of the arthrodesis site in which worse bone quality may be encountered (when applicable). *Notes: Alternatively, the plate can be switched to have the locking screws on the phalanx and the oblong hole on the first metatarsal. Additionally, an interfragmentary compression screw can be placed crossing the joint before the plate is secured.*

2

The Locking Drill Guide is placed within the plate, and the hole is drilled using a 2.5 mm Drill Bit. Screw length can be measured directly from the guide or using a standard Depth Guide.

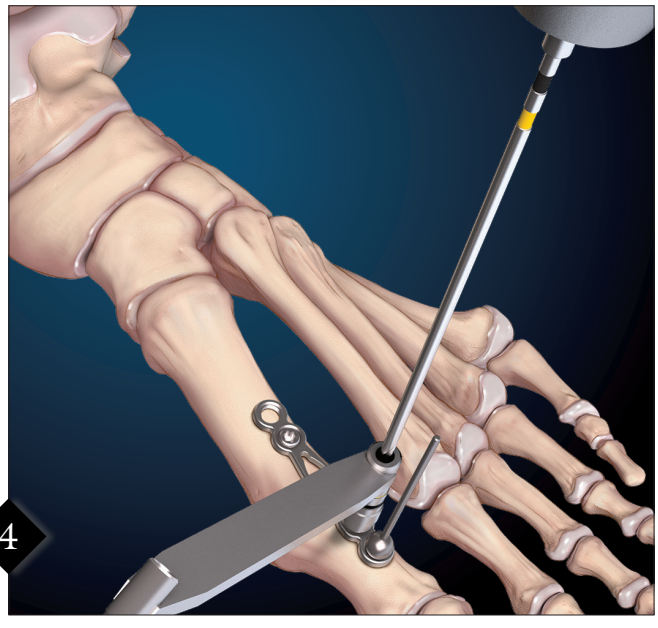


Mini Joint Distractor – AR-8950JD



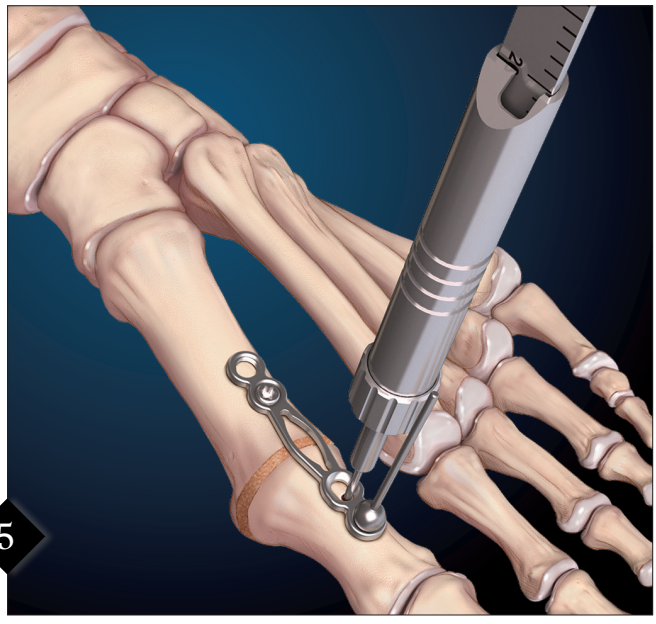
3

A 3.5 mm Locking Screw is placed to secure the proximal portion of the plate-to-bone.



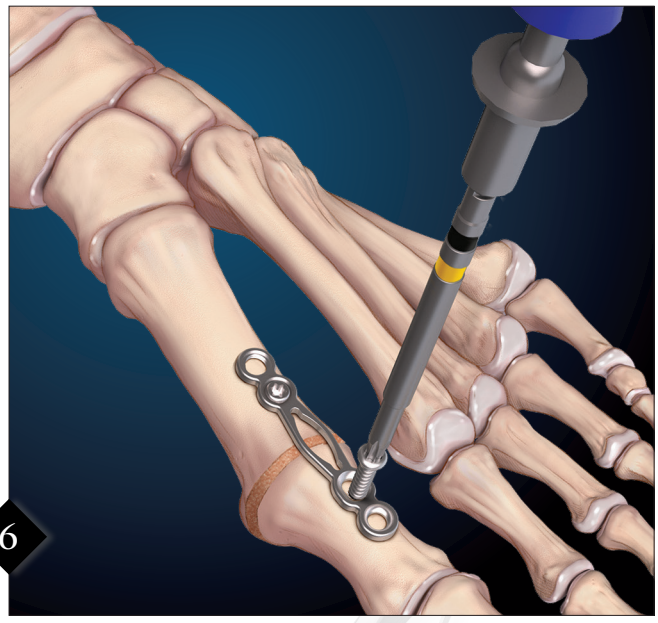
4

On the opposite side of the plate, the oblong compression hole is now drilled eccentrically using a 2.5 mm Drill Bit.



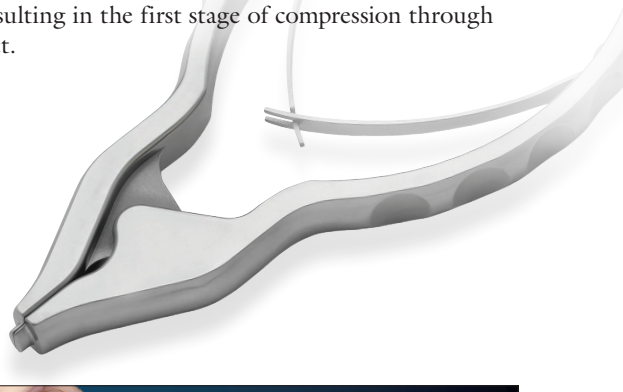
5

A standard Depth Guide is utilized to obtain appropriate length for a 3.5 mm Cortical Screw (or 4 mm Cancellous Screw).



6

BB-Taks™ are now removed and the screw is placed within this hole, resulting in the first stage of compression through the construct.



7

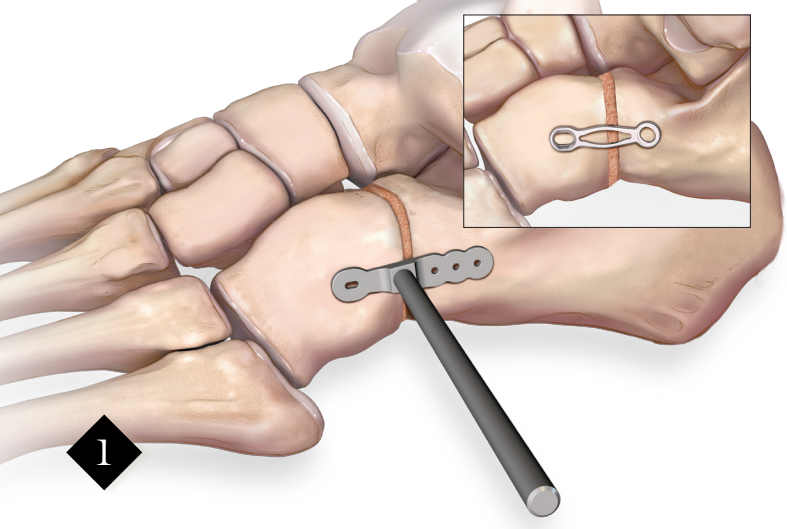
Additional locking and nonlocking screws are placed within the plate holes to secure fixation. The plate "compressor" is now placed within the plate "arms" and the plate is further compressed to provide the second stage of compression across the arthrodesis site.

8

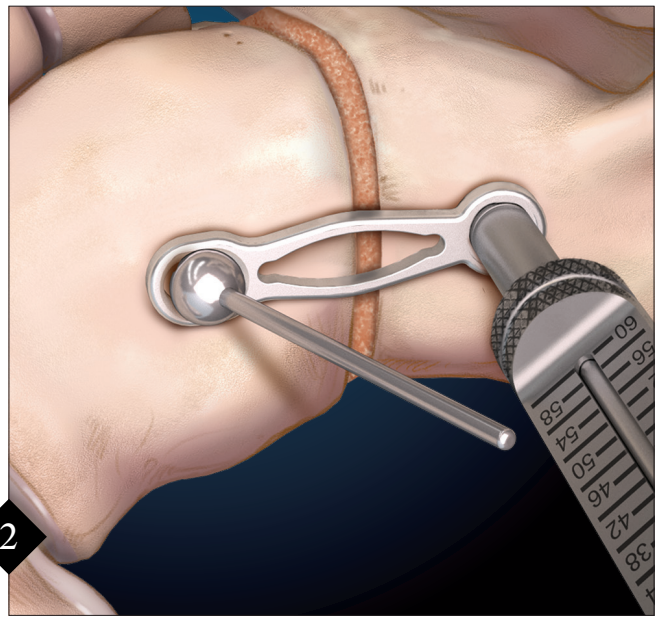
Final construct is demonstrated. *Note: An interfragmentary compression screw can be placed crossing the joint before or after the plate is secured.*

Calcaneocuboid Arthrodesis

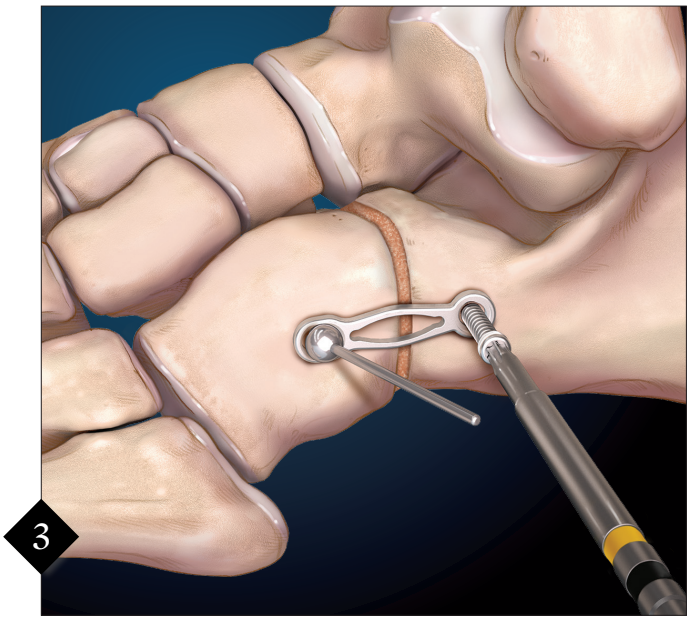
Standard joint exposure and joint preparation is performed. This can be facilitated by using the Mini Joint Distractor/ Compressor for enhanced exposure of the arthrodesis surfaces.



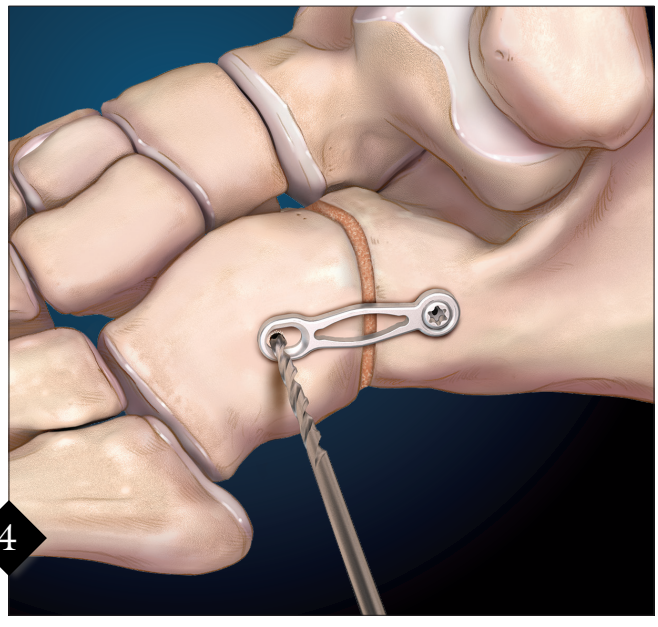
The appropriate length plate is chosen (20, 25 or 30 mm) and temporarily stabilized using BB-Taks™. Fluoroscopic and direct visualization is used to confirm appropriate plate placement. The plate should be placed such that the side of the plate with locking holes is placed on the side of the arthrodesis site in which worse bone quality may be encountered (when applicable).



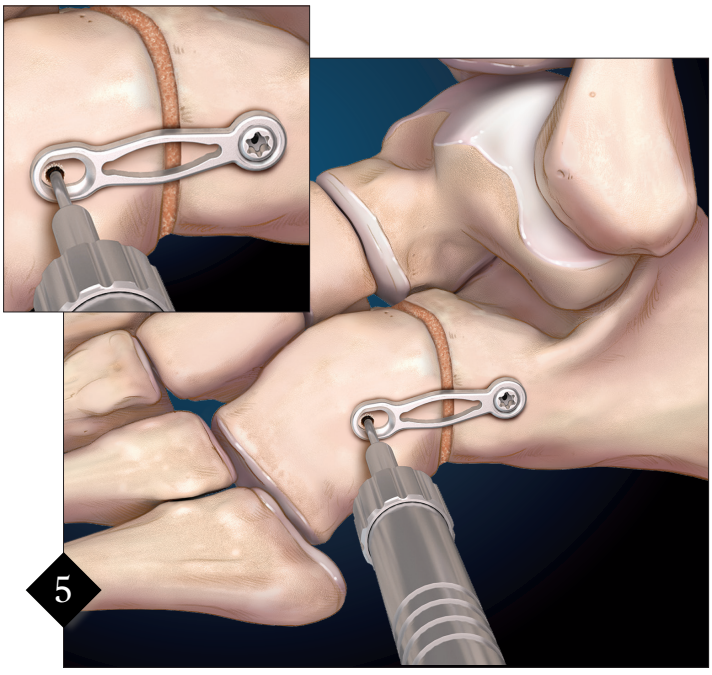
The Locking Drill Guide is placed within the plate, and the hole is drilled using a 2.5 mm Drill Bit. Screw length can be measured directly from the guide or using a standard Depth Guide.



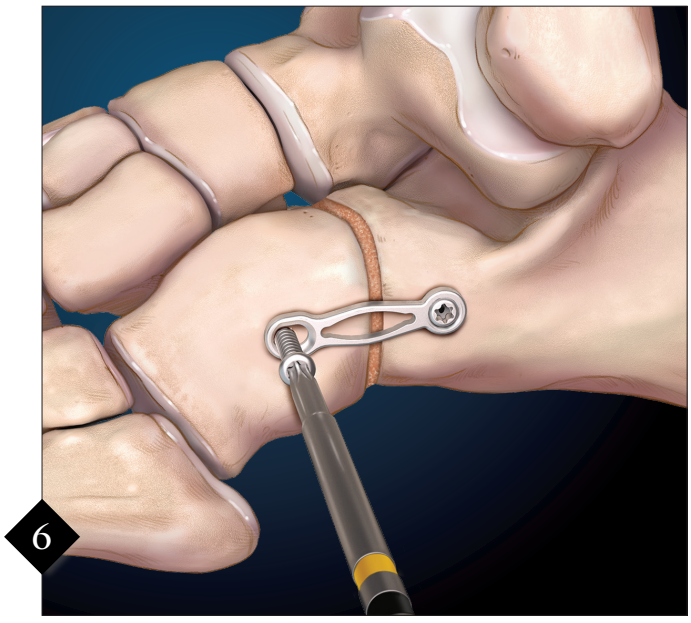
A 3.5 mm Locking Screw is placed to secure the proximal portion of the plate-to-bone.



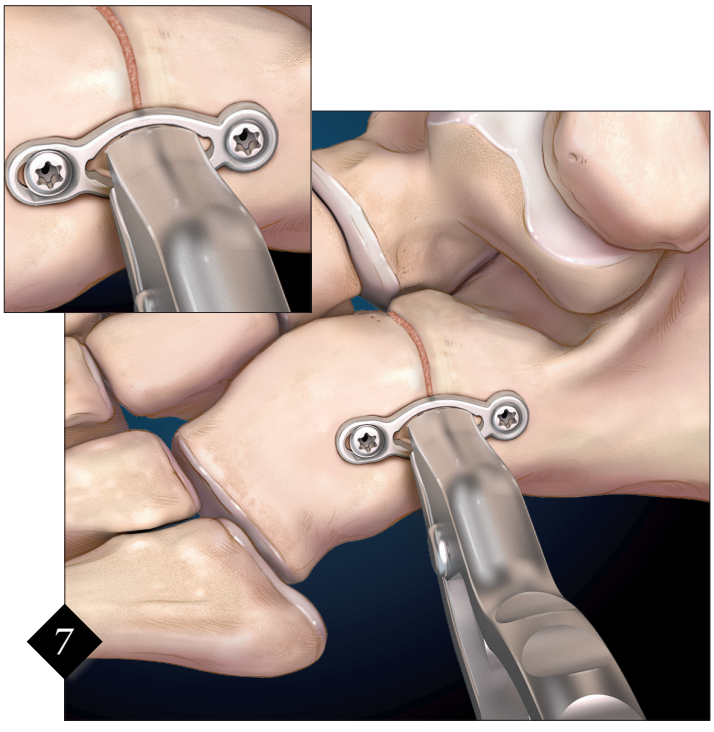
On the opposite side of the plate, the BB-Tak is removed and the oblong compression hole is now drilled eccentrically using a 2.5 mm Drill Bit.



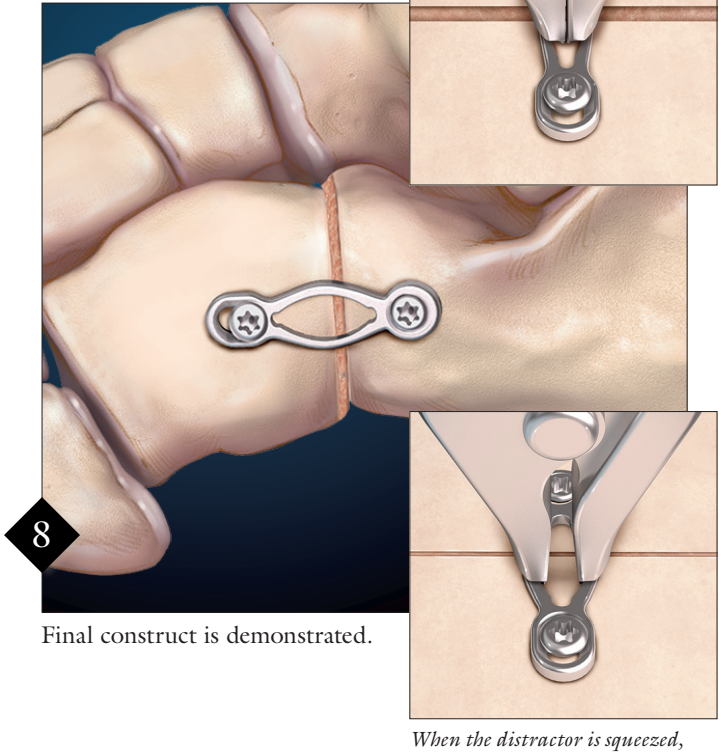
A standard Depth Guide is utilized to obtain appropriate length for a 3.5 mm Cortical Screw (or 4 mm Cancellous Screw).



A screw is placed within this hole, resulting in the first stage of compression through the construct.



The plate "compressor" is now placed within the plate "arms" and the plate is further compressed to provide the second stage of compression across the arthrodesis site.



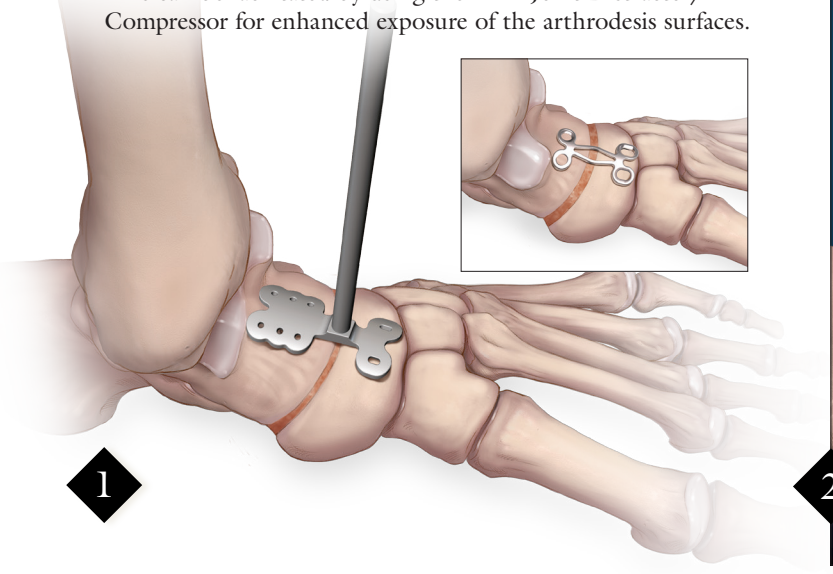
Final construct is demonstrated.

The distractor tip is placed inside the inner arms of the plate

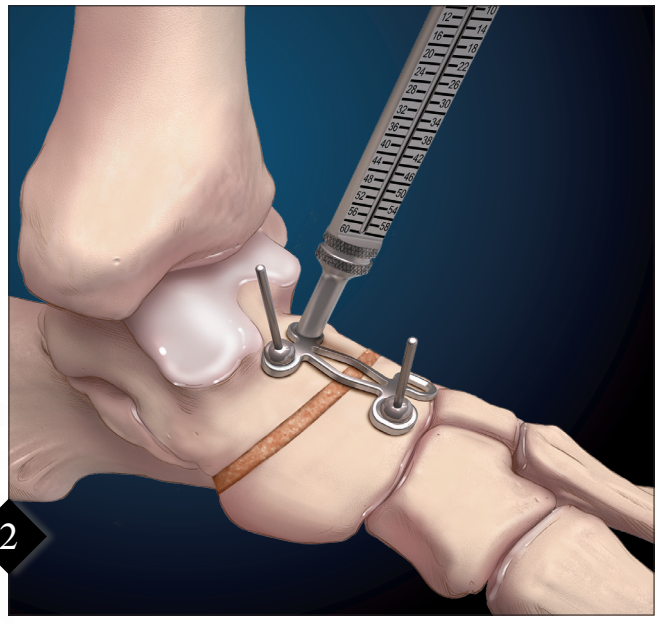
When the distractor is squeezed, the inner arms are pulled apart and the screws are brought closer together. This provides additional compression to the fusion site.

Talonavicular Arthrodesis

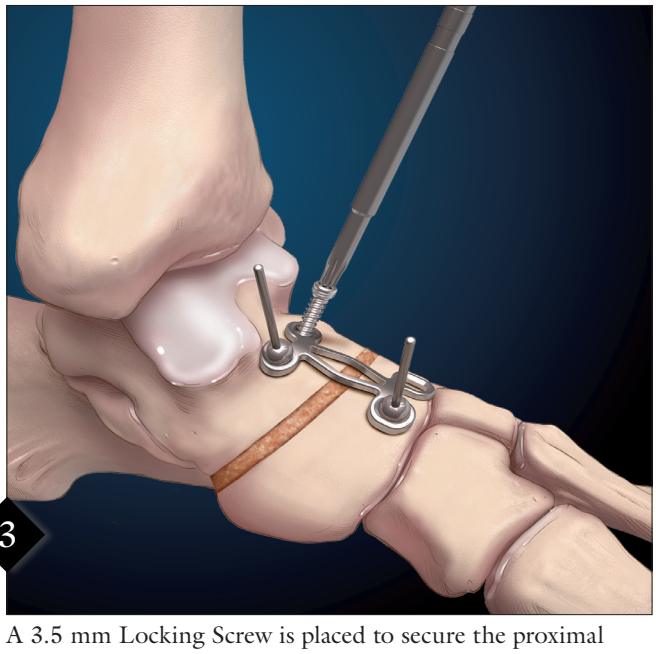
Standard joint exposure and joint preparation is performed. This can be facilitated by using the Mini Joint Distractor/ Compressor for enhanced exposure of the arthrodesis surfaces.



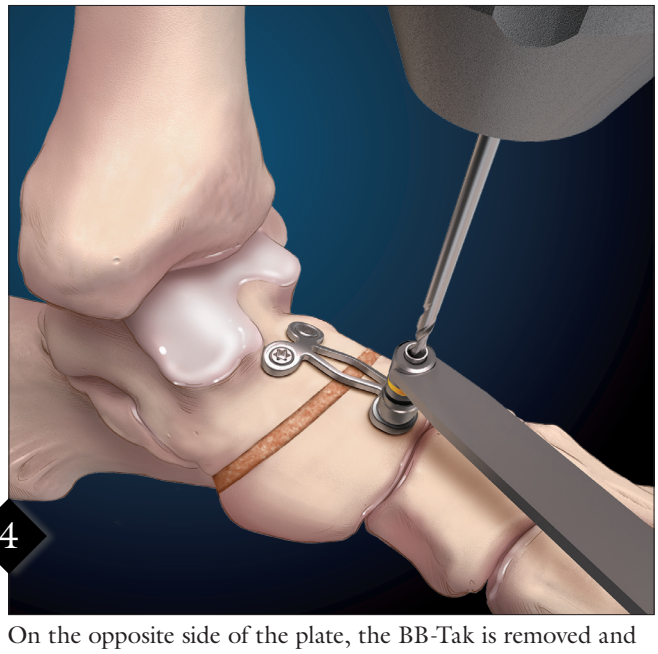
The appropriate length plate is chosen (20, 25 or 30 mm) and temporarily stabilized using BB-Taks™. The plate should be placed such that the side of the plate with locking holes is placed on the side of the arthrodesis site in which worse bone quality may be encountered (when applicable).



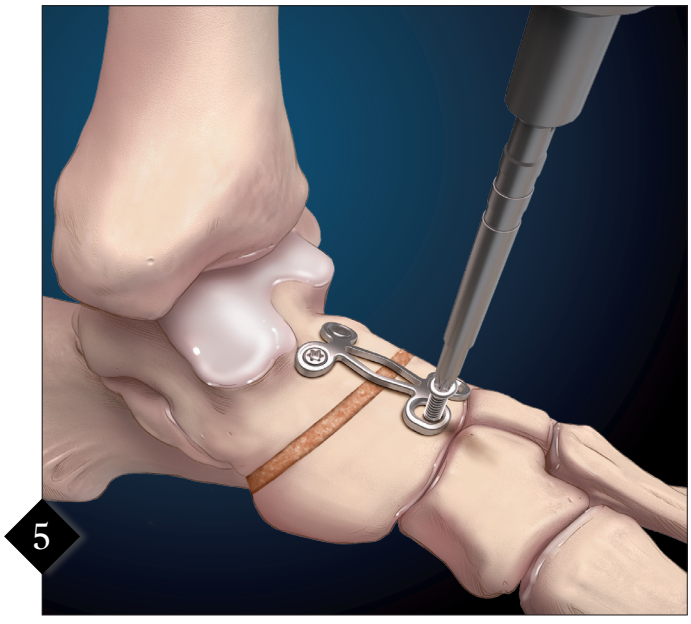
The Locking Drill Guide is placed within the plate, and the hole is drilled using a 2.5 mm Drill Bit. Screw length can be measured directly from the guide or using a standard Depth Guide.



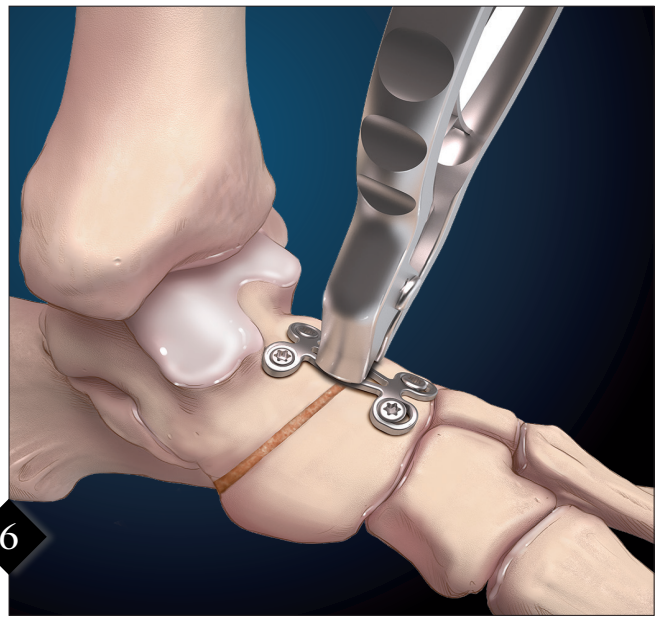
A 3.5 mm Locking Screw is placed to secure the proximal portion of the plate-to-bone. The adjacent Locking Screw is drilled and placed using the same technique.



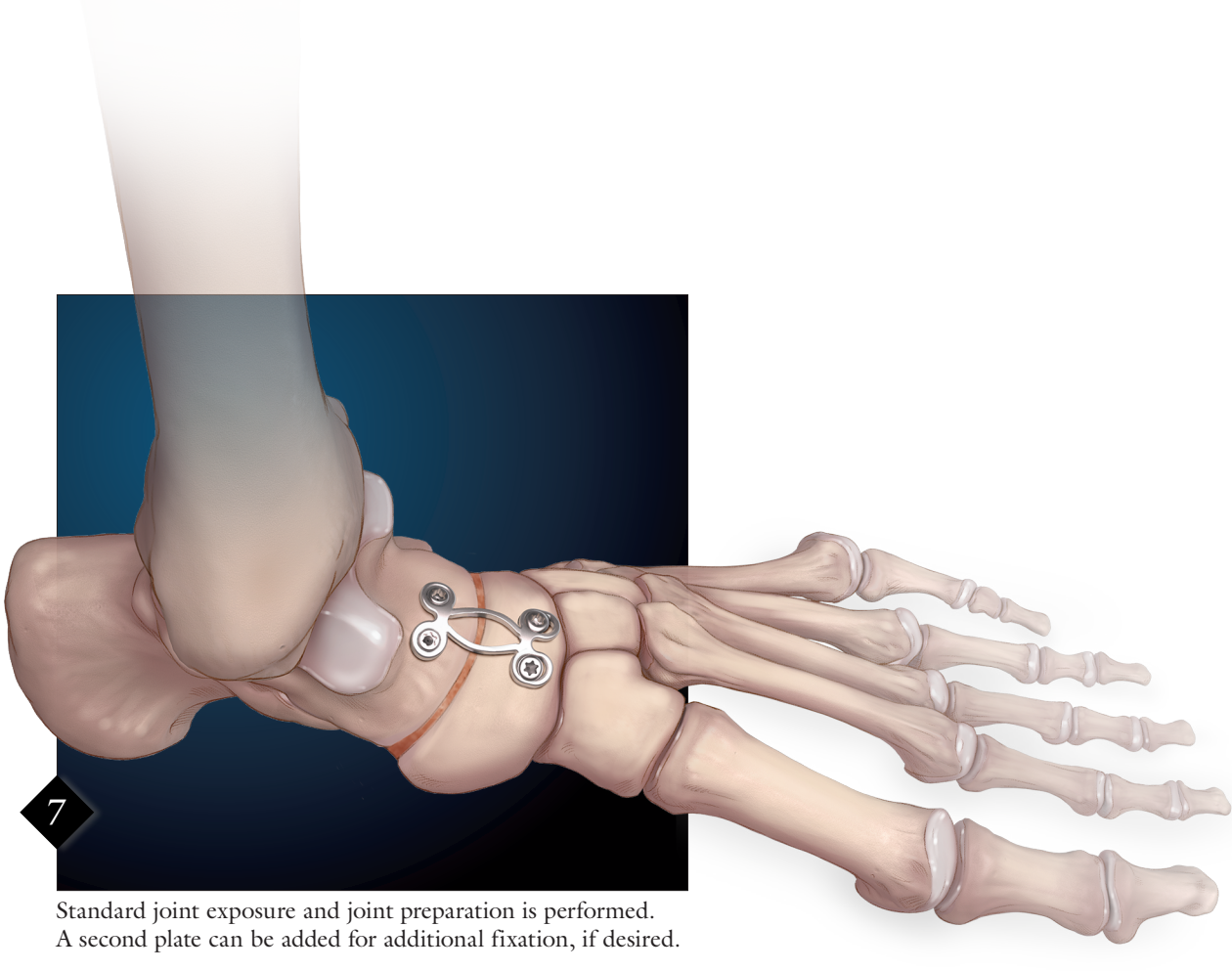
On the opposite side of the plate, the BB-Tak is removed and the oblong compression hole is now drilled eccentrically using a 2.5 mm Drill Bit. A standard Depth Guide is utilized to obtain appropriate length for a 3.5 mm Cortical Screw (or 4 mm Cancellous Screw).



The screw is placed within this hole, resulting in the first stage of the compression through the construct. The adjacent compression hole is drilled and placed using the same technique for additional potential compression.



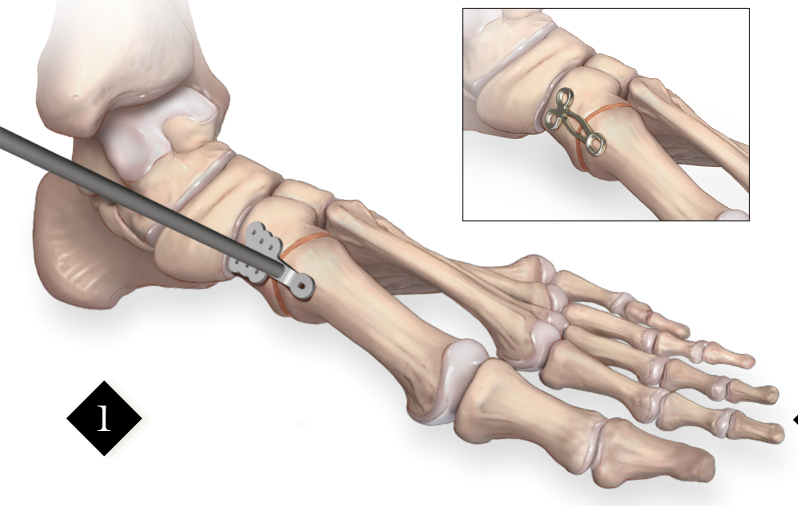
The plate "compressor" is now placed within the plate "arms" and the plate is further compressed to provide the second stage.



Standard joint exposure and joint preparation is performed. A second plate can be added for additional fixation, if desired.

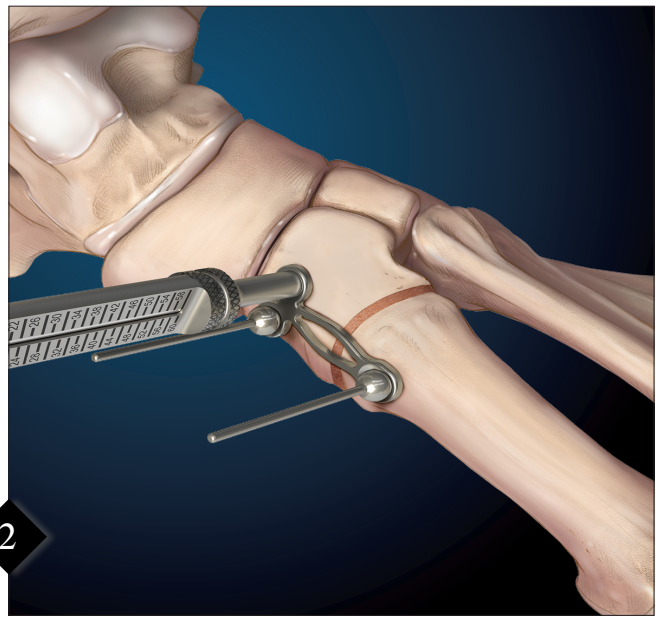
Lapidus Arthrodesis

Standard joint exposure and joint preparation is performed. A second plate can be added for additional fixation, if desired. This can be facilitated by using the Mini Joint Distractor/ Compressor for enhanced exposure of the arthrodesis surfaces.



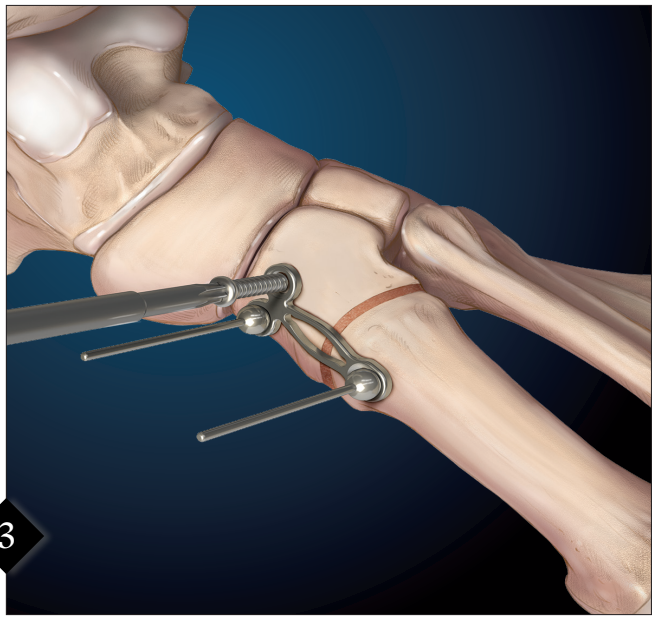
1

The appropriate length plate is chosen (20, 25 or 30 mm) and temporarily stabilized using BB-Taks™. The plate should be placed such that the side of the plate with locking holes is placed on the side of the arthrodesis site in which worse bone quality may be encountered. *Note: An interfragmentary compression screw can be placed crossing the joint before the plate is secured.*



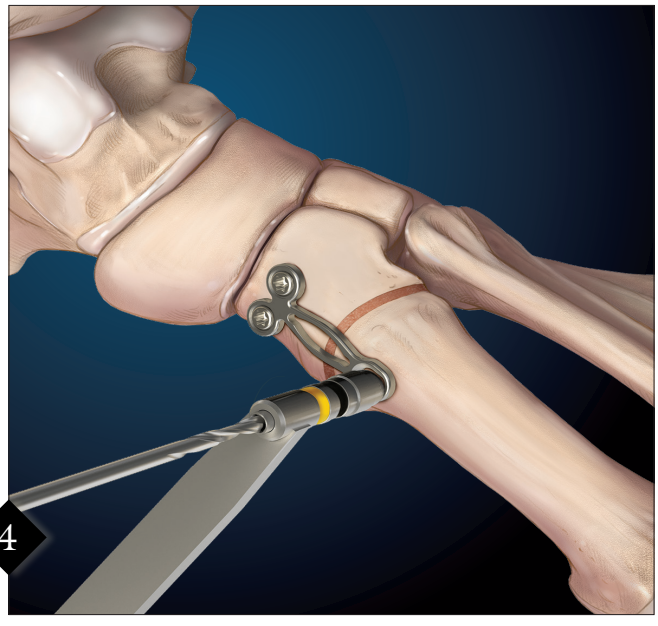
2

The Locking Drill Guide is placed within the plate, and the hole is drilled using a 2.5 mm Drill Bit. Screw length can be measured directly from the guide or using a standard Depth Guide.



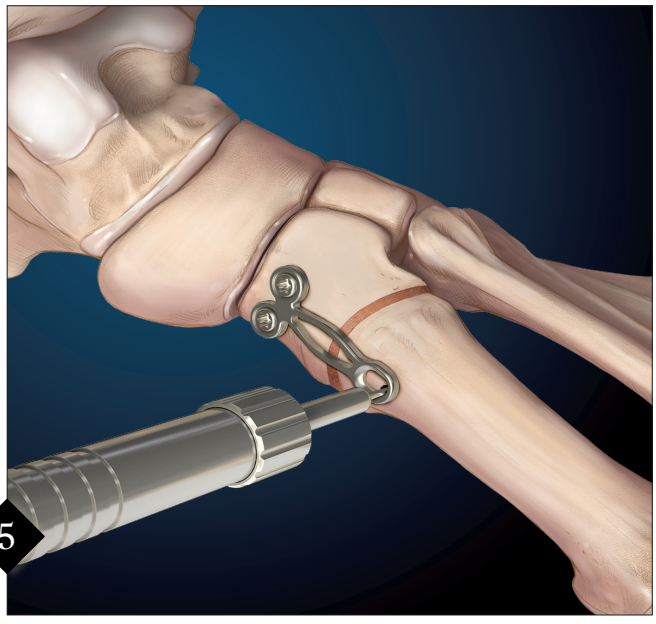
3

A 3.5 mm Locking Screw is placed to secure the proximal portion of the plate-to-bone. The adjacent Locking Screw is drilled and placed using the same technique.

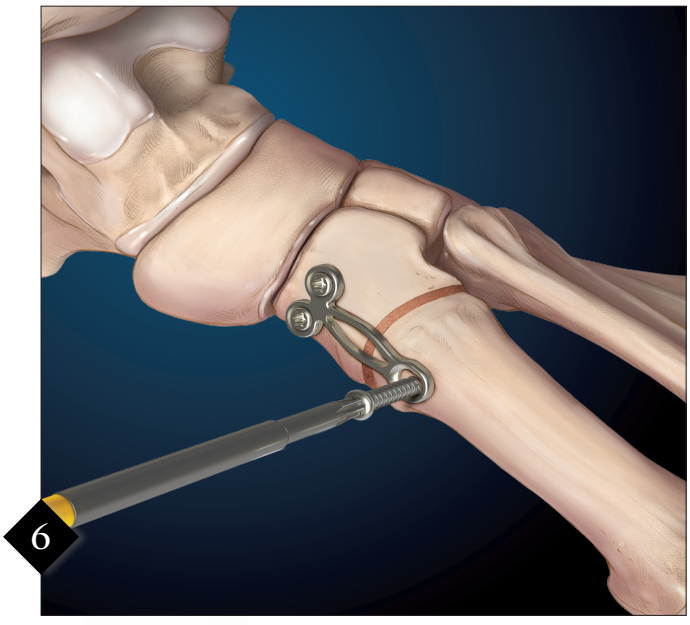


4

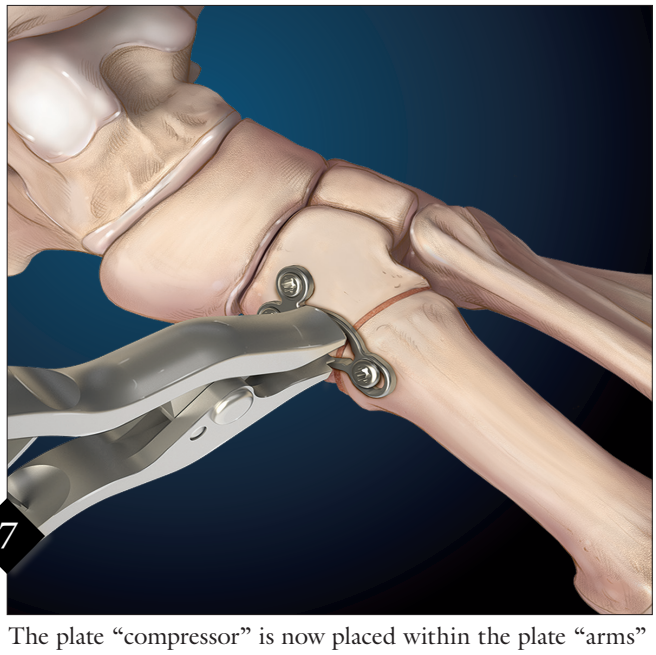
On the opposite side of the plate, the BB-Tak is removed and the oblong compression hole is now drilled eccentrically using a 2.5 mm Drill Bit.



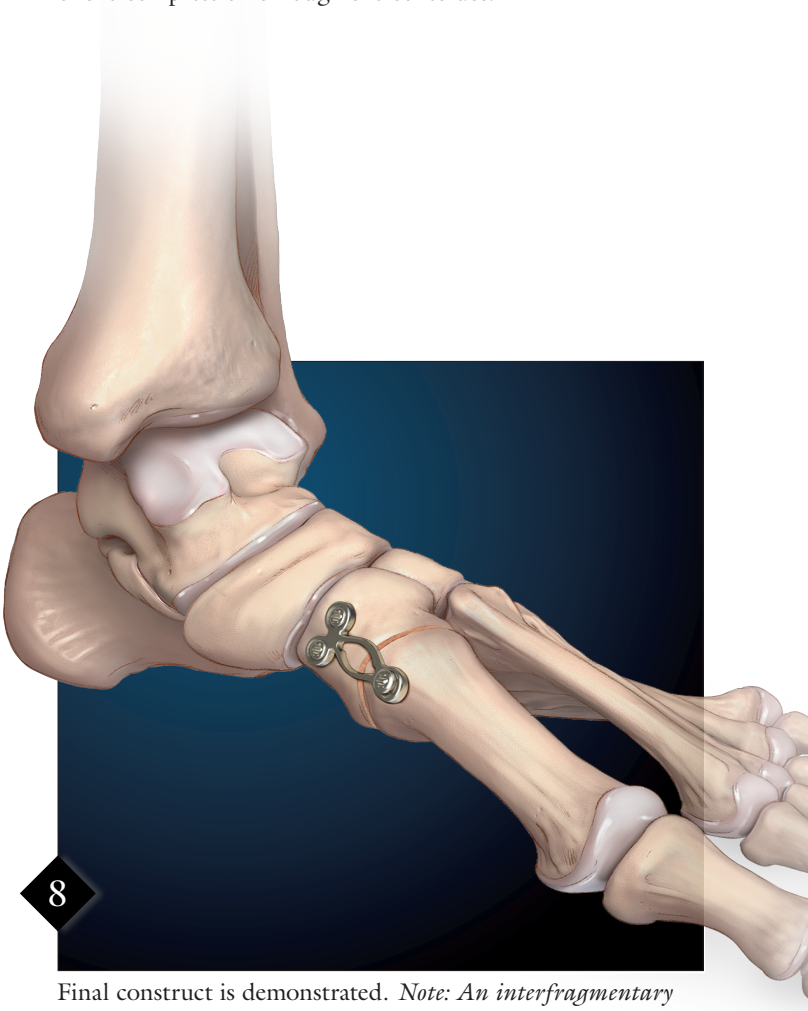
A standard Depth Guide is utilized to obtain appropriate length for a 3.5 mm Cortical Screw (or 4 mm Cancellous Screw).



A screw is placed within this hole, resulting in the first stage of the compression through the construct.



The plate "compressor" is now placed within the plate "arms" and the plate is further compressed to provide the second stage of compression across the arthrodesis site.



Final construct is demonstrated. *Note: An interfragmentary compression screw can also be placed crossing the joint before or after the plate is secured.*

Double Compression Plate Set (AR-8007S) includes:	
Low Profile Osteotome, Short, 5 mm	AR-13203-05
Low Profile Osteotome, Short, 10 mm	AR-13203-10
Low Profile Osteotome, Short, 12 mm	AR-13203-12
Driver Handle, w/AO connection, cannulated	AR-13221AOC
Driver, T15 Hexalobe, qty. 2	AR-8941DH
Drill Guide, 3.5 mm / 2.5 mm	AR-8943-14
Drill Guide, 3.5 mm, locking	AR-8943-43
Drill Bit, 2.5 mm	AR-8943-30
Drill Bit, 2.5 mm, calibrated	AR-8943-42
Depth Device, 2.7 mm /3.5 mm/ 4.0 mm	AR-8943-15
Bending Iron	AR-8943-18
Freer Elevator	AR-8943-19
Cup Curette, Straight Shaft, 100 mm long	AR-8661
Osteotomy Distractor	AR-13225
BB-Tak	AR-13226
Distractor, Compression Staple	AR-8005D
Trial, 2-Hole Double Compression Plate	AR-8006T
Trial, 3-Hole Double Compression Plate	AR-8007T
Trial, 4-Hole Double Compression Plate, straight	AR-8008T
Trial, 4-Hole Double Compression Plate, square	AR-8009T
Double Compression Plate Caddy	AR-8006C
Double Compression Instrument Case	AR-8007C-1
Double Compression Plates:	
Double Compression Plate, 2 Hole, 20 mm	AR-8006-20
Double Compression Plate, 2 Hole, 25 mm	AR-8006-25
Double Compression Plate, 2 Hole, 30 mm	AR-8006-30
Double Compression Plate, 3 Hole, 20 mm	AR-8007-20
Double Compression Plate, 3 Hole, 25 mm	AR-8007-25
Double Compression Plate, 3 Hole, 30 mm	AR-8007-30
Double Compression Plate, 4 Hole, Straight, 20 mm	AR-8008-20
Double Compression Plate, 4 Hole, Straight, 25 mm	AR-8008-25
Double Compression Plate, 4 Hole, Straight, 30 mm	AR-8008-30
Double Compression Plate, 4 Hole, Square, 20 mm	AR-8009-20
Double Compression Plate, 4 Hole, Square, 25 mm	AR-8009-25
Double Compression Plate, 4 Hole, Square, 30 mm	AR-8009-30
Low Profile Screws™, Stainless Steel:	
Cortical Screws, nonlocking, 3.5 mm x 10-50 mm	AR-8835-10 – 50
Locking Screws, 3.5 mm x 10-50 mm	AR-8835L-10 – 50
Cancellous Screws, nonlocking, 4 mm x 10-50 mm	AR-8840-10 – 50
Optional:	
Mini Joint Distractor	AR-8950JD
Low Profile Screws, Short Thread, cannulated, 4 mm x 30-60 mm	AR-8840C-30-60
Disposables:	
Guidewire w/Trocar Tip, .062" (1.6 mm x 150 mm)	AR-8941K
Guidewire w/Trocar Tip, .045" (1.1 mm x 120 mm)	AR-8737-04

This description of technique is provided as an educational tool and clinical aid to assist properly licensed medical professionals in the usage of specific Arthrex products. As part of this professional usage, the medical professional must use their professional judgment in making any final determinations in product usage and technique. In doing so, the medical professional should rely on their own training and experience and should conduct a thorough review of pertinent medical literature and the product's Directions For Use.

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