



# Treace Medical Concepts Compression Implant System

Surgical Technique  
Lapidus, Lesser TMT, and 1<sup>st</sup> MTP Fusion

# Lapidus Fusion

The Treace Medical Concepts (TMC) Compression Implant System is composed of a variety of implant designs and sizes. The correct implant selection for the procedure is extremely important, and preoperative consideration of the proper fixation option will increase the potential for surgical success.

## *Surgical Approach*

1. Perform a longitudinal incision dorsally over the 1st tarsometatarsal (TMT) joint medial to the extensor hallucis longus. Release the plantar ligaments with an osteotome to allow for mobilization of the metatarsal. Make frontal (rotation), sagittal, and transverse plane adjustments to position the metatarsal in corrected alignment. Use a K-wire placed from the 1st metatarsal through the 2nd metatarsal to temporarily hold the correction in place. With a cutting device, remove the cartilage and small amount of subchondral bone from the base of the metatarsal and remove the excised material. Make a cut to the face of the cuneiform and remove cut cartilage/bone fragment. Use the appropriate size drill to expose bleeding bone on both cut surfaces to maximize fusion potential.
2. Provisionally fixate and pre-compress the 1st metatarsal and cuneiform bones together in proper alignment using threaded olive wire(s) and/or straight K-wire(s) as surgeon desires. Olive wires should be placed distal-dorsal to proximal plantar across the joint.

Note: Autograft or allograft may be utilized as needed to enhance fusion potential.

## *Preparation for Implantation*

3. Select the appropriate two or four legged compression implant for the Lapidus fusion procedure that meets the specific needs associated with the patient's anatomy and surgical goals.
4. Select the appropriately sized drill guide and place it on the bone surface dorsally or dorsal-lateral in such a way that drill guide spans the fusion site, ensuring that there is adequate room for the implant on either side of the fusion.

Note: Provisional fixation of the drill guide with two K-wires may be used to both stabilize the drill guide on the bone and to predict implant trajectory on fluoroscopy. If trajectory is deemed unacceptable, the surgeon may remove the drill guide and reposition it.

Note: All prongs of the drill guide should be in contact with bone, which may require contouring of the bone surface to properly seat the drill guide.

5. Using the appropriate drill, drill through the drill guide to the proper depth.
6. Leave the drill in the drill guide or place a temporary fixation pin through the drill guide into the drilled hole to help maintain the drill guide position while the additional hole(s) are drilled.

7. Using the appropriate drill, drill the additional holes in the drill guide to the proper depth.
8. Remove the drills, and/or temporary fixation pins from the drill guide. Then remove the drill guide. K-wires, if utilized, can be left in for guidance during insertion of the implant.

### *Implant Insertion*

9. Select the appropriate TMC compression implant and check that the pre-installed inserter arms are fully installed.
10. While manually squeezing the inserter arms to a parallel position, insert the inserter arms into the corresponding holes of the inserter cap to hold the implant in a pre-loaded configuration.

Caution: Use care to not squeeze the inserter arms past a parallel position, as this can result in permanent deformation of the implant.

11. Insert the legs of the TMC implant into the pre-drilled holes in the bone. Light tapping on the inserter cap may be helpful in advancing the implant. When properly installed, the bottom surface of the implant should sit flush against the surface of the bone.

Caution: Avoid excessive force or impaction when inserting the implant into the bone.

Note: If using provisional fixation of the two K-wires from the drill guide step, apply the inserter cap over the provisional fixation K-wires to guide the TMC implant into the pre-drilled holes in the bone.

12. While lightly squeezing the inserter arms, manually remove the inserter cap to release the pre-loaded TMC compression implant. Manually unthread the inserter arms from the implant to remove them. Proper implant placement can be confirmed on fluoroscopy.

Note: A T15 driver can also be used to remove the inserter arms.

13. Align the end of the inserter cap with the bridge of the implant and use as needed to completely seat the implant.
14. A second TMC compression implant may be used in the procedure as deemed necessary by the surgeon. In the Lapidus fusion procedure, it would be advised to place the second implant at approximately a 90-degree circumferential offset (medial or medial-plantar position) to the first dorsally-located implant. Install the second implant following the same steps as described for the first implant. Care should be taken to avoid extensive dissection or periosteal stripping if using a second compression implant.
15. Remove any remaining K-wires.

## *Implant Removal*

16. To remove the implant, attach the inserter arms into the threaded holes in the implant and/or use general orthopedic instrumentation to remove the implant. Where utilizing the inserter arms, manually squeeze the inserter arms and utilize an osteotome or forceps/needle driver to loosen and remove the implant from the bone.

Note: If there is tissue growth within the implant that prevents removal, the tissue may be removed with a generally available surgical instrument.

Note: If the implant is recessed, use an elevator to lift the implant bridge and then use forceps to remove the implant. If solidly connected, implants can be removed by either cutting the bridge of the implant or cutting the leg of the implant near the bridge and removing the remnants with an elevator.

# Lesser TMT Fusion

The Treace Medical Concepts (TMC) Compression Implant System is composed of a variety of implant designs and sizes. The correct implant selection for the procedure is extremely important, and preoperative consideration of the proper fixation option will increase the potential for surgical success.

## *Surgical Approach*

1. Perform a longitudinal dorsal incision over the selected lesser tarsometatarsal (TMT) joint. Expose the joint and use a cutting device to remove the articular cartilage from the joint surfaces. Use the 2mm drill to expose bleeding bone on both cut surfaces to maximize fusion potential.
2. Provisionally fixate and pre-compress the metatarsal and cuneiform bones together in proper alignment using threaded olive wire(s) and/or straight K-wire(s) as surgeon desires.

Note: Autograft or allograft may be utilized as needed to enhance fusion potential.

## *Preparation for Implantation*

3. Select the appropriate two or four legged compression implant for the lesser TMT fusion procedure that meets the specific needs associated with the patient's anatomy and surgical goals.
4. Select the appropriately sized drill guide and place it on the bone surface dorsally in such a way that drill guide spans the fusion site, ensuring that there is adequate room for the implant on either side of the fusion.

Note: Provisional fixation of the drill guide with two K-wires may be used to both stabilize the drill guide on the bone and to predict implant trajectory on fluoroscopy. If trajectory is deemed unacceptable, the surgeon may remove the drill guide and reposition it.

Note: All prongs of the drill guide should be in contact with bone, which may require contouring of the bone surface to properly seat the drill guide.

5. Using the appropriate drill, drill through the drill guide to the proper depth.
6. Leave the drill in the drill guide or place a temporary fixation pin through the drill guide into the drilled hole to help maintain the drill guide position while the additional hole(s) are drilled.
7. Using the appropriate drill, drill the additional holes in the drill guide to the proper depth.
8. Remove the drills, and/or temporary fixation pins from the drill guide. Then remove the drill guide. K-wires, if utilized, can be left in for guidance during insertion of the implant.

## *Implant Insertion*

9. Select the appropriate TMC compression implant and check that the pre-installed inserter arms are fully installed.
10. While manually squeezing the inserter arms to a parallel position, insert the inserter arms into the corresponding holes of the inserter cap to hold the implant in a pre-loaded configuration.

Caution: Use care to not squeeze the inserter arms past a parallel position, as this can result in permanent deformation of the implant.

11. Insert the legs of the implant into the pre-drilled holes in the bone. Light tapping on the impactor cap may be helpful in advancing the implant. When properly installed, the bottom surface of the implant should sit flush against the surface of the bone.

Caution: Avoid excessive force or impaction when inserting the implant into the bone.

Note: If using provisional fixation of the two K-wires from the drill guide step, apply the inserter cap over the provisional fixation K-wires to guide the TMC implant into the pre-drilled holes in the bone.

12. While lightly squeezing the inserter arms, manually remove the inserter cap to release the pre-loaded implant. Manually unthread the inserter arms from the implant to remove them. Proper implant placement can be confirmed on fluoroscopy.

Note: A T15 driver can be used to remove the inserter arms if additional grip is required.

13. Align the end of the inserter cap with the bridge of the implant and use as needed to completely seat the implant.
14. Remove any remaining K-wires.

## *Implant Removal*

15. To remove the implant, attach the inserter arms into the threaded holes in the implant and/or use general orthopedic instrumentation to remove the implant. When utilizing the inserter arms, manually squeezing the inserter arms and utilize an osteotome or forceps/needle driver to loosen and remove the implant from the bone.

Note: If there is tissue growth within the implant that prevents removal, the tissue may be removed with a generally available surgical instrument.

Note: If the implant is recessed, use an elevator to lift the implant bridge and then use forceps to remove the implant. If solidly connected, implants can be removed by either cutting the bridge of the implant or cutting the leg of the implant near the bridge and removing the remnants with an elevator.



# 1st Metatarsophalangeal (MTP) Fusion

The Treace Medical Concepts (TMC) Compression Implant System is composed of a variety of implant designs and sizes. The correct implant selection for the procedure is extremely important, and preoperative consideration of the proper fixation option will increase the potential for surgical success.

## *Surgical Approach*

1. Perform a longitudinal incision beginning just proximal to the interphalangeal joint and extending over the 1st MTP joint medial to the extensor hallucis longus. Expose the proximal phalanx and metatarsal head and release the sesamoids. Denude all cartilage surfaces with a rongeur or using your preferred method until bleeding subchondral bone is exposed.
2. Provisionally fixate and pre-compress the metatarsal and phalanx bones together in proper alignment using threaded olive wire(s) and/or straight K-wire(s) as surgeon desires.

Note: Autograft or allograft may be utilized as needed to enhance fusion potential.

## *Preparation for Implantation*

3. Select the appropriate two or four legged compression implant for the MTP fusion procedure that meets the specific needs associated with the patient's anatomy and surgical goals.
4. Select the appropriately sized drill guide and place it on the bone surface dorsal-laterally in such a way that drill guide spans the fusion site, ensuring that there is adequate room for the implant on either side of the fusion.

Note: Provisional fixation of the drill guide with two K-wires may be used to both stabilize the drill guide on the bone and to predict implant trajectory on fluoroscopy. If trajectory is deemed unacceptable, the surgeon may remove the drill guide and reposition it.

Note: All prongs of the drill guide should be in contact with bone, which may require contouring of the bone surface to properly seat the drill guide.

5. Using the appropriate drill, drill through the drill guide to the proper depth.
6. Leave the drill in the drill guide or place a temporary fixation pin through the drill guide into the drilled hole to help maintain the drill guide position while the additional hole(s) are drilled.
7. Using the appropriate drill, drill the additional holes in the drill guide to the proper depth.
8. Remove the drills, and/or temporary fixation pins from the drill guide. Then remove the drill guide. K-wires, if utilized, can be left in for guidance during insertion of the implant.



## *Implant Insertion*

9. Select the appropriate compression implant and check that the pre-installed inserter arms are fully installed.
10. While manually squeezing the inserter arms to a parallel position, insert the inserter arms into the corresponding holes of the inserter cap to hold the implant in a pre-loaded configuration.

Caution: Use care to not squeeze the inserter arms past a parallel position, as this can result in permanent deformation of the implant.

11. Insert the legs of the implant into the pre-drilled holes in the bone. Light tapping on the impactor cap may be helpful in advancing the implant. When properly installed, the bottom surface of the implant should sit flush against the surface of the bone.

Caution: Avoid excessive force or impaction when inserting the implant into the bone.

Note: If using provisional fixation of the two K-wires from the drill guide step, apply the inserter cap over the provisional fixation K-wires to guide the TMC implant into the pre-drilled holes in the bone.

12. While lightly squeezing the inserter arms, manually remove the inserter cap to release the pre-loaded implant. Manually unthread the inserter arms from the implant to remove them. Proper implant placement can be confirmed on fluoroscopy.

Note: A T15 driver can be used to remove the inserter arms if additional grip is required.

13. Align the end of the inserter cap with the bridge of the implant and use as needed to completely seat the implant.
14. Remove any remaining K-wires.
15. A second implant may be used in the procedure as deemed necessary by the surgeon. In the MTP fusion procedure, it would be advised to place the second implant at approximately a 90-degree circumferential offset (medial or dorsal-medial position) to the first dorsal-lateral located implant. Install second implant following same steps as described for the first implant. Care should be taken to avoid extensive dissection or periosteal stripping if using a second compression implant.

## *Implant Removal*

16. To remove the implant, attach the inserter arms into the threaded holes in the implant and/or use general orthopedic instrumentation to remove the implant. Where utilizing the inserter arms, manually squeeze the inserter arms and utilize an osteotome or forceps/needle driver to loosen and remove the implant from the bone.

Note: If there is tissue growth within the implant that prevents removal, the tissue may be removed with a generally available surgical instrument.

Note: If the implant is recessed, use an elevator to lift the implant bridge and then use forceps to remove the implant. If solidly connected, implants can be removed by either cutting the bridge of the implant or cutting the leg of the implant near the bridge and removing the remnants with an elevator.



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