Foot and Ankle Technique Guide

Metatarsal Shortening Osteotomy

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The following technique guide describes a metatarsal shortening technique using the HAT-TRICK Osteotomy Guide. This technique is based upon the training and expertise of the surgeon advisory team, along with its knowledge of the Smith & Nephew HAT-TRICK Lesser Toe Repair System. Smith & Nephew does not provide medical advice and recommends that surgeons exercise their own professional judgment when determining a patient’s course of treatment. This guide is presented for educational purposes only.

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The HAT-TRICK® Lesser Toe Repair System is a three-part solution to lesser toe injuries:

- The HAT-TRICK MTP Joint Repair System (Unilateral and Bilateral)
- The HAT-TRICK Osteotomy Guide for metatarsal shortening
- The HAT-TRICK PIP Fusion System

This technique guide provides a description of the procedure for the HAT-TRICK Osteotomy Guide. For information about additional lesser toe repair solutions using the HAT-TRICK Lesser Toe Repair System, please refer to those specific technique guides.

**HAT-TRICK® Osteotomy Guide**

Weil osteotomy procedures move the center of rotation of the metatarsal head in the plantar direction, off of the biomechanical axis. If a metatarsal shortening is required, the HAT-TRICK Osteotomy Guide enables a controlled, precise and reproducible approach that maintains the biomechanical axis (Figure 1).

The HAT-TRICK Osteotomy Guide is contained in the same reusable instrument tray as the HAT-TRICK MTP Joint Repair System. It can be used in conjunction with the Smith & Nephew Small Cannulated Screw System for definitive fixation of the osteotomy.

Information regarding the instruments used in the procedure can be found in the “Ordering Information” section at the end of this document.
Position the patient

1. Place the patient in the supine position with a thigh tourniquet and the foot at the end of the bed.
2. Place a sterile bump underneath the knee of the operative leg so that the foot is in plantar flexion, almost parallel to the ground.

Metatarsal Shortening Osteotomy Technique

Prepare the operative site

1. Create a longitudinal curvilinear skin incision from the mid-metatarsal to the mid-proximal phalanx while protecting the digital nerve branches. Ensure that the Extensor Digitorum Longus (EDL) Tendon is not damaged during the procedure (Figure 2).

2. Extend the incision proximally as needed to fit the HAT-TRICK® Metatarsal Osteotomy Guide onto the metatarsus.

3. Depress the side button and slide the distal portion of the guide to its most distal position.
4. Place the guide with its tongue in the MTP (metatarsophalangeal) joint in direct apposition to the metatarsal head. Position the spikes along the mid-shaft of the metatarsus (Figure 3).

Figure 3: Metatarsal osteotomy guide in place on the metatarsus
5. Secure the guide to the metatarsus using two 1.1mm K-wires (REF 71101413) (not provided) placed percutaneously through the proximal drill holes. Then place two 1.1mm K-wires (not provided) through the distal drill holes and directly into the metatarsal head without catching soft tissue (Figures 4a and 4b).
Perform the metatarsal cuts

1. Place the sagittal saw into the slot of the guide and perform the cut using saline irrigation. The first cut shortens the metatarsus by 1mm (Figures 5a and 5b).

**Figure 5a: Sagittal saw blade in the slot**

**Figure 5b: The first cut**

**Recommended blade size:**
Length: 40mm+
Width: Between 9mm and 13mm
Thickness: 0.4mm
2. If needed, slide the appropriate size spacer plate into the slot. Ensure that the spacer plate clicks and locks into position (Figure 6). Spacer plates ranging from 2mm–6mm are available.

**Note:** To remove the spacer plate, depress the tab and slide the spacer plate out of the guide.

3. Perform the next cut (Figure 7) and remove the metatarsal fragment.

4. If more bone must be removed, insert the appropriate size plate and repeat steps 2 and 3.
6. Reduce the fragments by depressing the side button and sliding the distal portion of the guide proximally (Figure 8).

Figure 8: Reduce the fragments

1. Depress side button
2. Slide guide to compress
7. Fix the two fragments using the appropriate Smith & Nephew QFX® Screws, which are available in sizes 8mm–18mm. Place each screw through the proximal window of the guide. The ramp can be used as a reference to place the screw at 90° to the osteotomy (Figure 9).

**Note:** For more information on the Smith & Nephew QFX Screws, please refer to the Smith & Nephew Small Cannulated Screw surgical technique.

![QFX Screw](image)

**Figure 9: Final construct with the screw**
Postoperative care*

**Weeks 1–6**
Apply a light bulky dressing, keeping the MTP joint in slight plantar flexion. The patient can do heel weight bearing as tolerated in a postoperative shoe with or without a walking aid. Gentle active ankle and MTP motion is encouraged.

**Weeks 6–12**
Allow weight bearing as tolerated in a hard-sole shoe. Limit activity to walking only.

**Weeks 12–16**
Return to low impact sports e.g. bike, pool, hiking, gym. No jumping, turning, twisting or high impact sports.

**Week 16**
Resume full activities as tolerated.

* The views and opinions expressed for postoperative care are solely those of the surgeon(s) and do not reflect the views of Smith & Nephew, Inc. In no event shall Smith & Nephew, Inc. be liable for any damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or other pecuniary loss) arising out of the use of or inability to use the expressed views.
Ordering Information

To order the items used in these techniques, call +1 800 238 7538 in the US or contact an authorized Smith & Nephew representative. Prior to performing these techniques, consult the Instructions for Use documentation provided with individual components – including indications, contraindications, warnings, cautions and instructions.

HAT-TRICK Osteotomy Guide Instrument Set
REF 72204306

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<thead>
<tr>
<th>Cat. No</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>72204340</td>
<td>HAT-TRICK Metatarsal Osteotomy Guide</td>
</tr>
<tr>
<td>72204341-45</td>
<td>HAT-TRICK Spacer Plates (2-6mm)</td>
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</tbody>
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**Caution:** *U.S. Federal law restricts these devices to sale by or on the order of a physician.*
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