Foot and Ankle Technique Guide
Ankle Syndesmosis Repair, Operative Technique
INVISiKNOT®
Ankle Syndesmosis Repair
Surgical Technique

The following technique guide was prepared under close collaboration with several physicians. It contains a summary of medical techniques and opinions based upon their surgical training and expertise, along with their knowledge of the Smith & Nephew INVISiKNOT Ankle Syndesmosis 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.

 Syndesmotic injuries involve disruption of the stabilizing ligamentous structures between the distal fibula and tibia, as well as a disruption of the deltoid ligament medially. They may occur with or without fractures to the ankle. Forceful external rotation and abduction of the ankle widens the ankle mortise. The talus pushes the distal fibula laterally away from its articulation with the distal tibia. Stretching or tearing of the syndesmosis, deltoid and associated ligamentous structures results in diastasis. A fibular fracture (usually above the ankle joint line) can be involved in more severe injuries.
This technique guide provides a complete description of Ankle Syndesmosis Repair procedure using the Smith & Nephew Ankle Syndesmosis Repair Kit. The kit is designed for use with a plate when an associated fracture of the fibula is present.*

The kit is comprised of a suture button construct and a 3.5mm drill tip passing pin.

The 3.5mm drill-tip passing pin is provided for bone tunnel preparation through the fibula and the tibia. The suture button construct is comprised of two buttons, medial and lateral, connected by ultrahigh molecular weight polyethylene (UHMWPE) suture tape, called ULTRATAPE® Suture. The medial button is 3.25mm x 10mm long and has a passing suture attached to it. The ULTRATAPE Suture has a one-way sliding knot, which enables the reduction of the lateral button onto the lateral cortex of the fibula. This sliding knot is assembled inside the lateral button. For fracture repairs, the lateral button (See Figure 1) is a button-like post with a round top, designed to fit inside the hole (or slot) in the fracture plate.

*Plate is purchased separately; see ordering information pg. 8
**WARNING:** Prior to performing this technique, consult the Instructions for Use (IFU 10601128) provided with the device – including indications, contraindications, warnings, cautions and instructions.

**Note:** When treating a syndesmotic injury with a fibular fracture, the fracture must be fixed first. Wherever applicable, use fluoroscopic guidance to assure accurate position of the device and stable fixation.

1. Approximately 3 – 4cm above the joint line, use a power drill to advance the 3.5mm drill-tip passing pin through a point slightly posterior to the midpoint of the fibula in the AP plane, aiming for the center of the tibia (approximately 30° anterior to the coronal plane) *(See Figure 2).* Advance the drill until the skin is tented on the medial side of the tibia. Take care to avoid damage to neurovascular structures when passing the drill-tip passing pin.

2. Advance the passing pin through the hole that is approximately 4cm above the joint line in the Smith & Nephew fracture plate. Ensure that the plate location allows for syndesmotic repair *(See Figure 2).*

![Figure 2: Hole drilled using 3.5mm drill-tip passing pin](image)

3. Nick the tented skin with a scalpel to allow the passing pin to exit. Disconnect the power drill from the passing pin.

4. Insert the passing suture through the eyelet on the 3.5mm drill-tip passing pin *(See Figure 3).* Advance the drill-tip passing pin through the fibula and the tibia, and retrieve the passing suture on the medial side of the tibia.
5. Establish tension by holding the suture tape between the lateral and medial buttons (See Figure 4). In a continuous motion, pull on the passing suture medially to advance the medial button until it exits the tibia.
6. Flip the medial button to place it flush on the medial cortex. Release the passing suture and pull back on the suture tape at the lateral button (See Figure 5). Confirm the button position and orientation.

7. While maintaining lateral tension on the suture tape, pull on the free ends in an alternating fashion to reduce the assembly until the lateral button is fully seated (See Figure 6). This will prevent bunching of the tape. Set the desired tension.
8. Tie two surgical knots to secure the lateral button. Take care to ensure that the knots fit inside the lateral button channel.
9. Cut the suture tape. **Figure 7** shows the completed repair.
10. Cut and remove the passing suture from the medial button.
11. If implant removal is necessary, cut the suture tape over the medial button. (This cannot be done on the lateral button.) The buttons and the tape can be removed separately. **Note:** Do not use the INVISIKNOT™ Fracture Kit (REF 72204834) without the fracture plate.

**Figure 7: Lateral side showing completed repair**

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**Postoperative Care***

Immobilize the ankle in a posterior splint or cast in the neutral position. The patient may be NWB for 4–8 weeks per surgeon’s protocol.

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**References**

Prior to performing this technique or utilizing any product referenced herein, please conduct a thorough review of each product’s indications, contraindications, warnings, precautions and instructions as detailed in the Instructions for Use provided with the individual components.