Reduce skin and soft-tissue trauma
Cause less patient pain with fewer requests for implant removal
Decrease infection rates

In most cases, the fibula can be reduced percutaneously with slight traction and the application of forceps. However, surgeons can use for a plantar through a much smaller incision.

FibuLock™ holds your reduction

Fibular fractures are still predominantly repaired with surgical plates. Plates generally deliver an anatomic reduction, but require a substantial incision and frequently cause patient pain with subsequent removal. Peer-reviewed literature demonstrates incision-site infections and healing are significant issues which surgeons take multiple precautions to avoid. Despite these advantages, fibula fractures are still predominantly repaired with surgical plates. Plates generally deliver an anatomic reduction, but require a substantial incision and frequently cause patient pain with subsequent removal. Peer-reviewed literature demonstrates incision-site infections and healing are significant issues which surgeons take multiple precautions to avoid.

The Sonoma FibuLock™ nail is the first intramedullary device that has all of the other advantages and delivers anatomic reductions of intramedullary nailing.

It's now time for FIBULA NAILING!

Like femoral and tibial nails, the FibuLock™ nail is an excellent solution for comminuted fractures.

Comminution

Spanning

References
1. K.E. Bugler, T.O. White, P.T. Appleton, M.M. McQueen and C.M. Court-Brown. A Prospective, Randomised Controlled Trial Of A Fibular Nail Versus Standard Open Reduction And Internal Fixation For Fixation Of Ankle Fractures In Elderly Patients. Bone Joint J 2013 vol. 95-B no. SUPP 25 8
In the 1970s, intramedullary nails supplanted surgical plates as the gold standard for treating femoral and tibial fractures. Nails are now generally accepted as advantageous over plates because nails:

- Require fewer and smaller incisions.
- Decrease infection rates.
- Cause less patient pain with fewer requests for implant removal.
- Allow load sharing instead of load bearing to expedite patient rehabilitation.

In most cases, the fibula can be reduced percutaneously with slight traction and the application of forceps. However, surgeons can use the same reduction methods they would use for a plate through a much smaller incision.

**FibuLock™ Holds Your Reduction**

The Sonoma FibuLock™ nail is the first intramedullary device that has all of the other advantages of intramedullary nailing.

The Gold Standard Changed

**IN THE 1970s!**

The Sonoma FibuLock” nail is the first intramedullary device that has the same indications as plates and delivers anatomic reductions with all of the other advantages of intramedullary nailing.

It’s Now Time for FIBULA NAILING

LOCKS ANATOMIC REDUCTIONS FOR WEBER A, B AND C FRACTURES

References

**Plate Features In A Nail…**

**SYNDESMOSIS FIXATION, COMPRESSION and REMOVAL**

1. **SYNDESMOSIS FIXATION**
   - Patented **COMPRESSION**
     - **Patented Compression**
     - **Multiplanar Screws**

2. **COMPRESSION**
   - The FibuLock™ nail features a patent-pending mechanism that provides 2.5 mm of compression.
   - **Quick Thread** screws bore into bone twice as fast as traditional screws to expedite the procedure.

3. **SYNDESMOSIS ALIGNMENT**
   - The anatomic angulation of the FibuLock™ nail combines with the screw targeting outrigger to ensure the syndesmosis screw will be parallel to the plafond.
   - "Quick Thread" screws are designed to engage the means of the syndesmosis and provide 2.5 mm of compression and contact.

4. **END CAP (OPTIONAL)**
   - **Locks in compression**
   - **Prevent bone ingrowth**

5. **MULTI-PLANAR SCREWS**
   - **2.7 mm cortical**
   - **Locking**

6. **TRIANGULATION TALONS**
   - **Provide proximal fixation**
   - Over 3,000 implantations without a known breakage

**SPECIFICATIONS:**
- **3.0 mm and 3.8 mm diameters**
- **130 mm and 180 mm lengths**
- **316L stainless steel**

---

**Mechanisms to MAINTAIN STABILITY**

Most biomechanical research indicates the fibula sees 4% to 15% of body weight through mild compressive, bending and rotational loads. The FibuLock™ nail stabilizes the fractured canal against these forces with four mechanisms:

1. **Proximal triangulation talons**
   - Unlike other long bones, the fibula has a triangular cross section. The talons of the FibuLock™ nail are designed to engage the apexes of the triangular canal geometry to resist compression and rotation.

2. **Shaft interference fit**
   - The shaft locks into the canal as it is forced to flex in response to the slight curvature of the bone.

3. **Multiplanar locking screws**
   - Provide distal fixation

4. **Compression mechanism**
   - Increases proximity of bone fragments if necessary

Due to these stability and alignment mechanisms, the FibuLock™ nail is indicated for Weber A (high), B and C ankle fractures.

**Reduced COST AND COMPLICATIONS**

A recent study investigated whether intramedullary nailing of fibula fractures would reduce the incidence of wound and implant issues while delivering the same union and reduction rates as surgical plates. The study compared 50 plate and 50 intramedullary nail patients. The average patient age was 74-years-old and 75% were women. Functional results were slightly better for the intramedullary nail group, and the following table lists the complication results at 12-months.

<table>
<thead>
<tr>
<th>PLATES</th>
<th>8 PATIENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOUND INFECTIONS</td>
<td>0</td>
</tr>
<tr>
<td>PERCENTAGE OF TOTAL</td>
<td>0.0002</td>
</tr>
</tbody>
</table>

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**Surgical TECHNIQUE**

1. **STEP 1 | REDUCE THE FRACTURE**
   - The surgical approach may be varied depending on examination before morning.

2. **STEP 2 | ENTRY POINT**
   - After the entry point, with the tip of the fibula in the lateral view, insert the guidewire in a lat-to-med direction.

3. **STEP 3 | CLOSURE AND HICK**
   - The skin is then closed with a 4-0 monofilament suture for the proximal fixation.

4. **STEP 4 | MEASUREMENT**
   - Profile the implant and articulate the fibula.

5. **STEP 5 | COMPRESSION**
   - Make this implant and articulate the fibula.
**Surgical Technique**

1. **STEP 1 | REDUCE THE FRACTURE**
   - The wound must be made and the fracture reduced before making the incision.

2. **STEP 2 | ENTRY POINT**
   - Approach the entry point with the tip of the nail in the lateral view. Make the incision at the ankle and make sure the incision is not too long.

3. **STEP 3 | STARTING K-WIRE**
   - Drive the K-wire across the fracture line.

4. **STEP 4 | PREPARE THE DISTAL FIBULA**
   - Drive the 6.2mm tapered reamer over the K-wire.
   - Drive a flexible guide wire through the reamer into the proximal fibula.

5. **STEP 5 | REAM PROXIMALLY**
   - Sequentially ream the proximal canal using the proximal reamers.

6. **STEP 6 | IMPLANTATION**
   - Insert the implant and activate the talons.

7. **STEP 7 | INSERT SCREWS**
   - Insert the compression, distal and syndesmosis screws.

**Mechanisms to MAINTAIN STABILITY**

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1. **Proximal triangulation talons**
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2. **Shaft interference fit**
   - The shaft locks into the canal as it is forced to flex in response to the slight curvature of the bone.

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<tr>
<th>PLATES</th>
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<tbody>
<tr>
<td>Number of Patients</td>
<td>50</td>
</tr>
<tr>
<td>Wound Infections</td>
<td>0</td>
</tr>
<tr>
<td>Percentage of Total</td>
<td>0%</td>
</tr>
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In addition, even though the cost of the intramedullary nail was higher than the plate costs, the costs of treating intramedullary patients were lower. This finding is supported by a 2014 study by The Vanderbilt Orthopaedic Institute Center for Health Policy which examined the hospital economic impact of plate repair complications in patients with isolated ankle fractures without associated injuries (Weber A & B) and without associated ankle fractures (Weber C and D) in the hospital setting. The study found that the FibuLock™ nail reduced the number of patients with complications by 60%, and the cost of treating each patient with a FibuLock™ nail was lower due to the reduced number of complications.

**Plate Features In A Nail**

**SYNDESMOSIS FIXATION, COMPRESSION and REMOVAL**

**Patented COMPRESSION**

- The FibuLock™ nail features a patented compression mechanism that provides 2.5mm of compression.

**Removing Technique**

1. **STEP 1 | REMOVE THE END CAP AND SCREWS**
   - Use a 2.5mm hex driver.

2. **STEP 2 | DEACTIVATE THE TALONS**
   - The talons will close during extraction.

3. **STEP 3 | EXTRACT WITH THE SLAP HAMMER**
   - The implant is removed in one piece.
**STEP 1 | REDUCE THE FRACTURE**
The lateral malleolus may be reduced percutaneously before reaming.

**STEP 4 | PREPARE THE DISTAL FIBULA**
Drive the 6.2mm tapered reamer over the K-wire.
Drive a flexible guide wire through the reamer into the proximal fibula.

**STEP 5 | REAM PROXIMALLY**
Sequentially ream the proximal canal using the proximal reamers.

**STEP 6 | IMPLANTATION**
Insert the implant and activate the talons.

**STEP 7 | INSERT SCREWS**
Insert the compression, distal and syndesmosis screws.

**STEP 2 | ENTRY POINT**
Align the entry point with the long axis of the fibula in the lateral view. Aim for the canal center in the A/P view.

**STEP 3 | STARTING K-WIRE**
Drive the K-wire across the fracture line.

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Mechanisms to MAINTAIN STABILITY
Most biomechanical research indicates the fibula sees 4% to 15% of body weight through mild compressive, bending and rotational loads. The FibuLock™ nail stabilizes the fractured canal against these forces with four mechanisms:

1. **Proximal triangulation talons** – Unlike other long bones, the fibula has a triangular cross section. The talons of the FibuLock™ nail are designed to engage the apexes of the triangular canal geometry to resist compression and rotation.

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**Plate Features In A Nail…**

**SYNDESMOSIS FIXATION, COMPRESSION and REMOVAL**

**Removal TECHNIQUE**

**STEP 1 | REMOVE THE END CAP AND SCREWS WITH A 2.5MM HEX DRIVER**

**STEP 2 | DEACTIVATE THE TALONS**
The talons will close during extraction.

**STEP 3 | EXTRACT WITH THE SLAPHAMMER**

**Surgical TECHNIQUE**

**STEP 1 | REDUCE THE FRACTURE**
The surgical technique may be conducted under general anesthesia before morning.

**STEP 2 | ENTRY POINT**
Apply the entry guide with the tip of the guide needle in the desired location. Insert the guide needle into fibula.

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**STEP 3 | CHOOSE THE FRAME**
Select the frame across the fracture line.

**STEP 4 | PREPARE THE TOTAL FRAME**
Apply the frame with the template to locate the right size frame along the fracture line.

**STEP 5 | MEASUREMENTS**
Measure the implant and screw size.

**STEP 6 | INSERTION**
Insert the implant and close the template.

**STEP 7 | SUTURE**
Close the wound and drain the tubes.

**Patented COMPRESSION**
The FibuLock™ nail features a patent-pending mechanism that provides 2.5mm of compression.

**COMPRESSION & SYNDROMOSIS**

**Synesmosis Fixation**

- 3.5mm screws (40-70mm)
- Applicable for TightRope®-style fixation
- Nail geometry ensures screws are parallel to the plafond

**Compression Slot and Screw**

- Allows 2.5mm of compression

**End Cap (Optional)**

- Locks in compression
- Prevents bone ingrowth

**Multi-Planar Screws**

- 2.7mm cortical
- Locking

**Triangulation Talons**

- Provide proximal fixation
- Over 3,000 implantations without a known breakage

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**SPECIFICATIONS:**

- 3.0mm and 3.8mm diameters
- 130mm and 180mm lengths
- 316L stainless steel

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- Reduce skin and soft-tissue trauma 
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It’s Now Time for FIBULA NAILING

The Sonoma FibuLock™ nail is the first intramedullary device that has the same indications as plates and delivers anatomic reductions with all of the other advantages of intramedullary nailing.

Spanning COMMINUTION

Like femoral and tibial nails, the FibuLock™ nail is an excellent solution for comminuted fractures. The FibuLock™ nail can be used to span a highly comminuted portion of the fibula to avoid making an incision over the fragmented bone. The nail then holds the fibula to length and maintains the soft tissue envelope while the bone fragments are permitted to heal.

Specifications

- Lengths: 130mm & 180mm
- Diameters: 2.5mm, 3.0mm, 3.5mm
-河南省 with Self-Tapping Screw
- Fully threaded with a combination of 3.5mm Quick Thread Cortical Screw

References

1. K.E. Bugler, T.O. White, P.T. Appleton, M.M. McQueen and C.M. Court-Brown. A Prospective, Randomised Controlled Trial Of A Fibular Nail Versus Standard Open Reduction And Internal Fixation For Fixation Of Ankle Fractures In Elderly Patients. Bone Joint J 2013 vol. 95-B no. SUPP 25 8

Sonoma Orthopedic Products, Inc.
1388 Busch Parkway
Buffalo Grove, IL 60089
847-807-4378 Phone
847-947-8082 Fax
www.sonomaorthopedics.com

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