BIOLOGICALLY ORIENTED PROSTHESES

BIOPRO

SURGICAL TECHNIQUE

THE HORIZON SUBTALAR

30 YEARS

DESIGN BY REASON

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Introduction

The BioPro Horizon Subtalar Implant is used for the treatment of flatfoot and posterior tibial tendon dysfunction in both children and adults. Implanted within the sinus tarsi, it is designed to block excessive pronation while allowing normal subtalar joint motion. The patented design of the Horizon incorporates a partial thread with a smooth, slightly tapered lateral trailing edge. Additionally, the implant is cannulated for ease of insertion and removal.

Features and Benefits

Smooth lateral edge

The implant has a smooth, non-threaded, lateral surface

Why is this important? The design ensures that during the dynamic phase of gait, the lateral process of the talus and calcaneus interface with a smooth, flat surface, not a sharp thread. This decreases further arthrosis caused by erosion of bone thus reducing the incidence of post-op sinus tarsitis.

Tapered lateral edge

The smooth, lateral portion of the implant is slightly tapered from medial to lateral.

Why is this important? The slight taper on the smooth lateral surface ensures the implant cannot migrate laterally during the dynamic phase of gait.

Simple insertion and forgiving learning curve

The Horizon® Subtalar's instrumentation allows the surgeon to transition from the sizing probes to the final implant without the need to insert trial implants.

Why is this important? In addition to saving procedure time, eliminating the need to insert implant trials prevents any additional joint damage caused by a trial implant threading in and out of the joint.

Hybrid design available

In addition to the one piece titanium version, the Horizon® is available in a titanium polyethelyne hybrid design.

Why is this important? The hybrid design incorporates a polyethelyne sleeve over the lateral portion of the implant, offering a softer, more forgiving surface to interface the talus and calcaneus with.

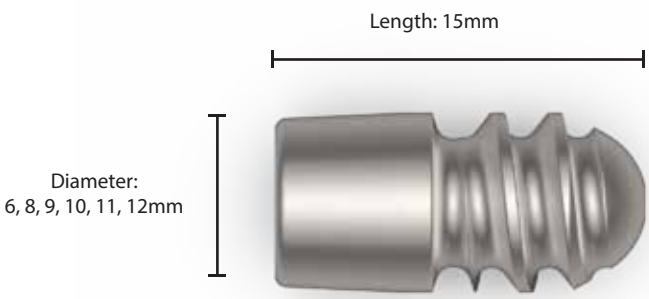
Hoizon® Subtalar Implant

Horizon® Hybrid Subtalar Implant

Ordering Information

The BioPro Horizon Subtalar Implant is manufactured from titanium and the Hybrid Implant is manufactured from titanium and polyethylene.

ITEM #	DESCRIPTION	SIZE
17478	HORIZON SUBTALAR	6MM
17221	HORIZON SUBTALAR	8MM
17222	HORIZON SUBTALAR	9MM
17223	HORIZON SUBTALAR	10MM
17224	HORIZON SUBTALAR	11MM
17225	HORIZON SUBTALAR	12MM
17085	HORIZON HYBRID SUBTALAR	8MM
17086	HORIZON HYBRID SUBTALAR	9MM
17087	HORIZON HYBRID SUBTALAR	10MM
17088	HORIZON HYBRID SUBTALAR	11MM
17089	HORIZON HYBRID SUBTALAR	12MM
17230	8" HORIZON GUIDE WIRE	
17606	12" HORIZON GUIDE WIRE	
17307	HORIZON SUBTALAR INSTRUMENT KIT	



Horizon Subtalar Implant Instrument Kit

HORIZON SUBTALAR KIT-17307

Item #	Description
17455	HORIZON STARTER PROBE
17481	HORIZON SIZER 6MM
17185	HORIZON SIZER 8MM
17186	HORIZON SIZER 9MM
17187	HORIZON SIZER 10MM
17188	HORIZON SIZER 11MM
17189	HORIZON SIZER 12MM
17523	HORIZON GUIDE WIRE HOLDER
17479	HORIZON TRIAL IMPLANT 6MM
17190	HORIZON TRIAL IMPLANT 8MM
17191	HORIZON TRIAL IMPLANT 9MM
17192	HORIZON TRIAL IMPLANT 10MM
17193	HORIZON TRIAL IMPLANT 11MM
17194	HORISON TRIAL IMPLANT 12MM
17228	HORIZON HEX DRIVER
17230	8" HORIZON GUIDE WIRE
17606	12" HORIZON GUIDE WIRE
17280	HORIZON INSTRUMENT TRAY

Indications

The Biopro Horizon Subtalar Implant is indicated for use in the treatment of the hyperpronated foot and stabilization of the subtalar joint.

- Flat foot treatment in children and adolescents
- Congenital flat foot
- Unsuccessful long term orthopedic treatment (orthotics)
- Tarsal coalitions
- Painfully flat foot
- Supple deformity in posterior tibial tendon dysfunction
- Paralytic flat foot
- Subtalar instability

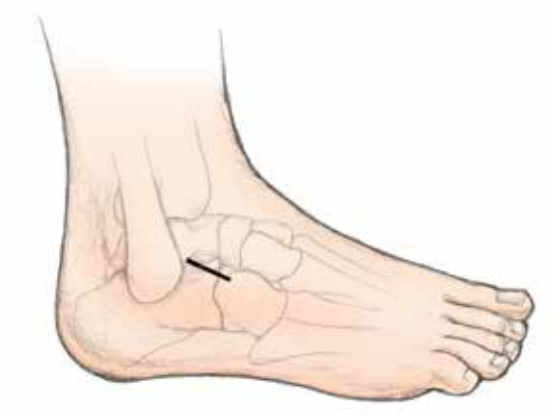
Contra-indications

- A debilitating general health problem that might pose a significant threat to the life of the patient if subjected to a major surgical procedure
- A previously infected joint that has not been quiescent for at least six months
- A local or systemic infection
- Insufficient bone stock to support the procedure

Surgical Technique

The following is a step-by-step technique using the BioPro Horizon Subtalar Implant.

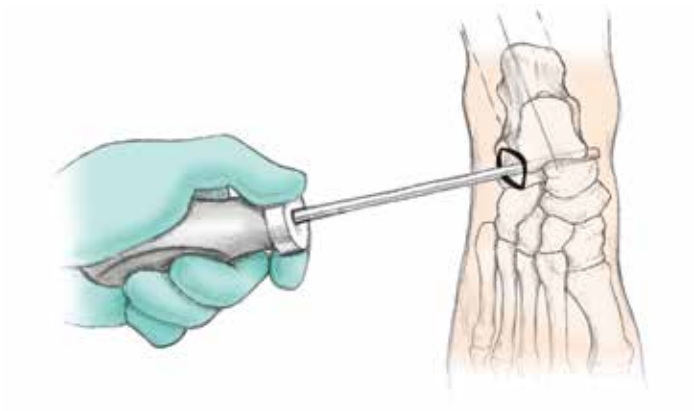
Fig. 1



Step One:

Attention is directed to the sinus tarsi. A linear incision centering over the sinus tarsi is made into relaxed skin tension line (RSTL), approximately 2cm in length. (Fig.1) The intermediate dorsal cutaneous nerve is identified, carefully retracted and preserved. Next, a linear incision is made into the retinaculum to expose the sinus tarsi.

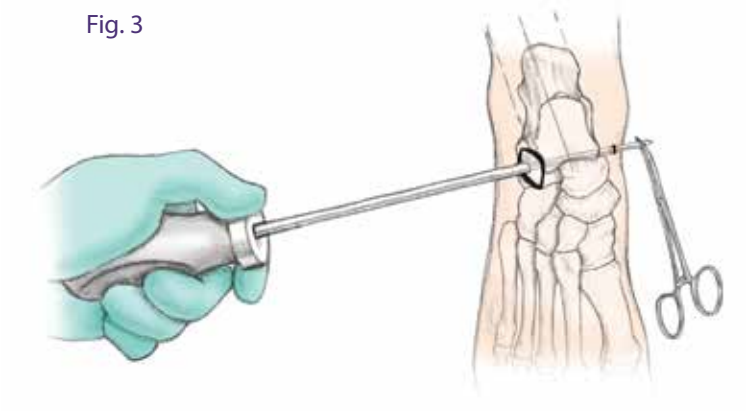
Fig. 2



Step Two:

A probe is used to slightly enlarge the sinus as well as the canalis tarsi and also to establish the subtalar joint axis. (Fig. 2) The leading edge of the probe should be palpated at the medial aspect of the subtalar joint with slight tenting of the skin. This should be appreciated just inferior to the posterior tibial tendon and slightly inferior and anterior to the medial malleolus. Care is taken to preserve the interosseous talocalcaneal ligament.

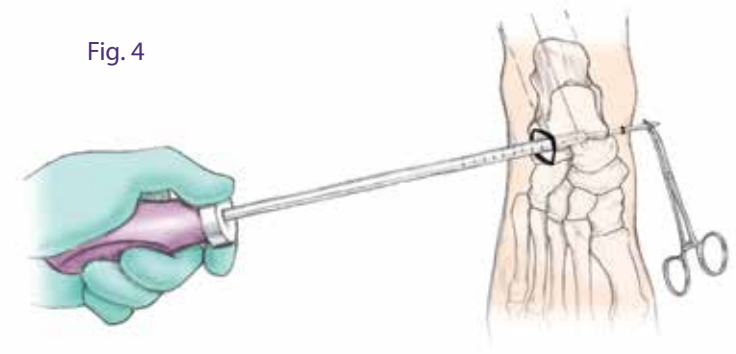
Fig. 3



Step Three:

Pass one of the provided guide wires through the cannulation on the Starter Probe until palpable under the skin on the medial aspect of the foot. Create a small incision over the point of the guide wire and pass through approximately 5mm of guide wire. Clamp a hemostat over the exposed guide wire to stabilize the wire. (Fig. 3) The Starter Probe can now be removed laterally.

Fig. 4

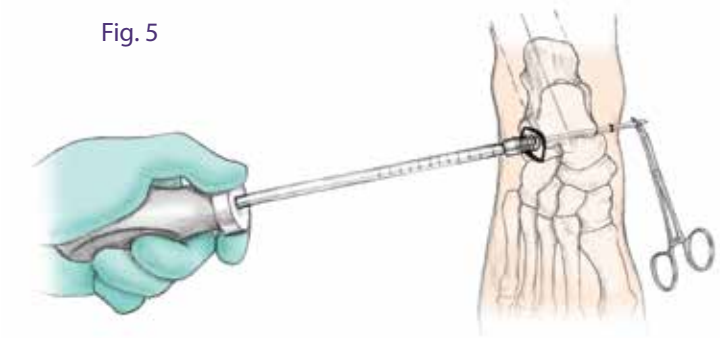


Step Four:

Place the Sizer Probes over the guide wire and insert into the subtalar joint until the end of the probe is just past the longitudinal bisection of the talus. (Fig. 4) Continue inserting the sequentially sized Sizer Probes until the desired restricted subtalar joint motion and clinical correction is achieved.

This can be assessed intraoperatively by everting and inverting the calcaneus and at the same time loading the lateral column. Approximately 4° to 6° of eversion of the calcaneus should be noted. Note the position of the skin line along the graduated markings on the sizing probe. Now, the Sizer Probe is removed and the guide wire is maintained.

Fig. 5



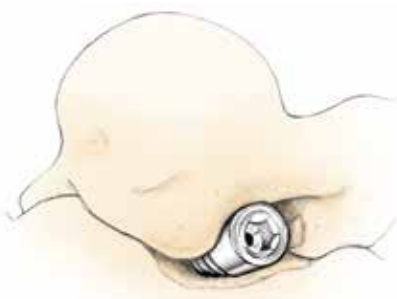
Step Five:

Note: color-coded trial implants are available in the instrument kit, but it is recommended to progress directly to the final implant once proper correction is achieved with the Sizer Probes.

The appropriately sized final implant is chosen, inserted over the guide wire, and threaded into place with the cannulated screwdriver. (Fig. 5) At this time the graduated markings of the screwdriver should match and correlate to the Sizer Probe placement markings.

Fig. 6

Fig. 7



Important: the sizer markings should not supersede the interoperative subtalar joint motion evaluation of the surgeon.

Again, subtalar joint motion is evaluated and clinical correction is appreciated. At this time the placement of the implant can be appreciated (surgeon's discretion) with the C-arm on anterior to posterior ankle view.

Important: The positioning should be noted where the medial or leading edge of the implant should go slightly past the longitudinal bisection of the talus (1-2mm). (Fig. 6)

Post-operative Protocol

When only an isolated arthroereisis procedure or combination arthroeresis and gastrocnemius recession has been performed, the postoperative care consists of a mildly compressive dressing with a removable AFO for three to four weeks. Gradually the patient is placed into a good walking or athletic type of shoe. Physical therapy may be necessary. By design the implant should reduce the incidence of sinus tarsitis, however all patients should be advised of intermittent sinus tarsitis for approximately two to three months. A short acting cortocosteroid injection may be indicated with persistent sinus tarsitis. Also, patients should be educated on custom molded orthotics as an integral postoperative protocol.

If other adjunctive procedures are performed then the postoperative protocol is tailored to those procedures and combined with the above mentioned protocol. If an Achilles tendon lengthening is performed in conjunction with the subtalar implant, the patient is placed in a below the knee, non-weightbearing fiberglass cast for four weeks. The patient is then gradually advanced into a walking cast or a removable AFO for approximately two weeks. At this time physical therapy is advised consisting of muscle strengthening, stretching, and range of motion exercises. If medial column arthrodesis is performed in conjunction, the usual and customary postoperative period is required for bony consolidation in a non-weightbearing, below the knee cast. Rehabilitation and physical therapy is advised at this time.

Caution should be taken if a calcaneal navicular coalition resection is performed in conjunction with the implant. This can lead to the implant dislodging. It is suggested that these procedures not be performed concurrently.

Notes

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