

TightRope[®] Implant System

Surgical Technique for Coxofemoral Luxation Repair



Arthrex[®]
Vet Systems

TightRope® Implant System for Coxofemoral Luxation Repair

The TightRope implant's FiberWire® suture is constructed of a multistrand, long-chain ultra-high molecular weight polyethylene (UHMWPE) core with a braided polyester and UHMWPE jacket, providing excellent strength, a soft feel, and abrasion resistance.

The **Standard** implantation technique is used with an open approach in which the implant is advanced through the tunnel, directed from lateral to medial.

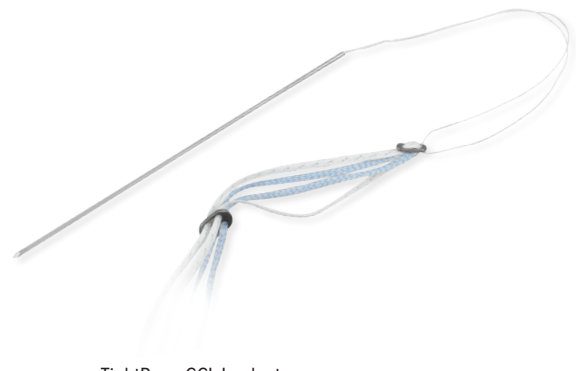
The **Reverse** implantation technique is used with an open approach in which the acetabula button is placed prior to suture material being advanced through the femoral tunnel from medial to lateral.

The **Reduced** implantation technique allows for the drilling of the acetabular hole and implantation of the TightRope system assembly with the femur reduced. This technique can be used through an open or minimally invasive approach. This method of implantation does not apply to Mini-TightRope System.

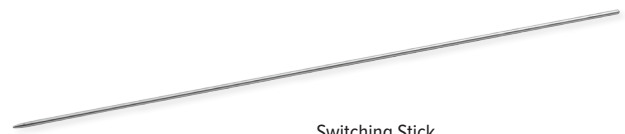
Guide to Drill Bit and Implant Size Based on Patient Weight

Dog Weight	Implant Size	Drill Bit Size
<20 lb	Mini TightRope Implant System	2.7 mm for the acetabulum and 2.0 mm for the femoral neck*
20-50 lb	Mini TightRope Implant System	2.7 mm
>50 lb	Standard TightRope Implant System	3.5 mm

*Used for Mini TightRope fixation with reverse implantation.



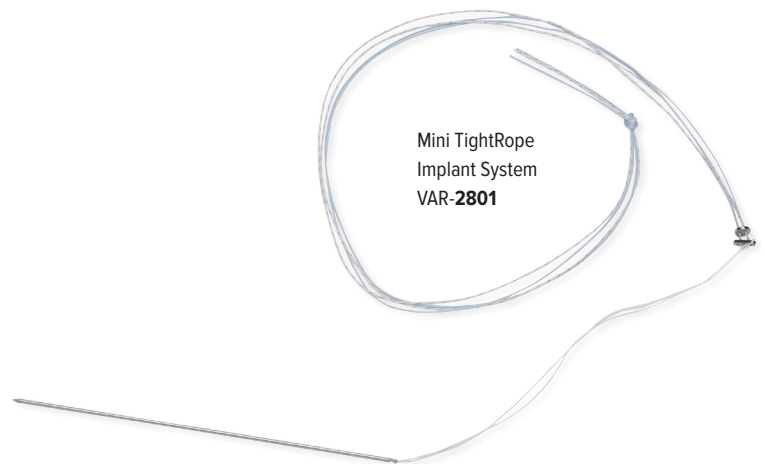
TightRope CCL Implant
VAR-2800



Switching Stick
AR-6572S

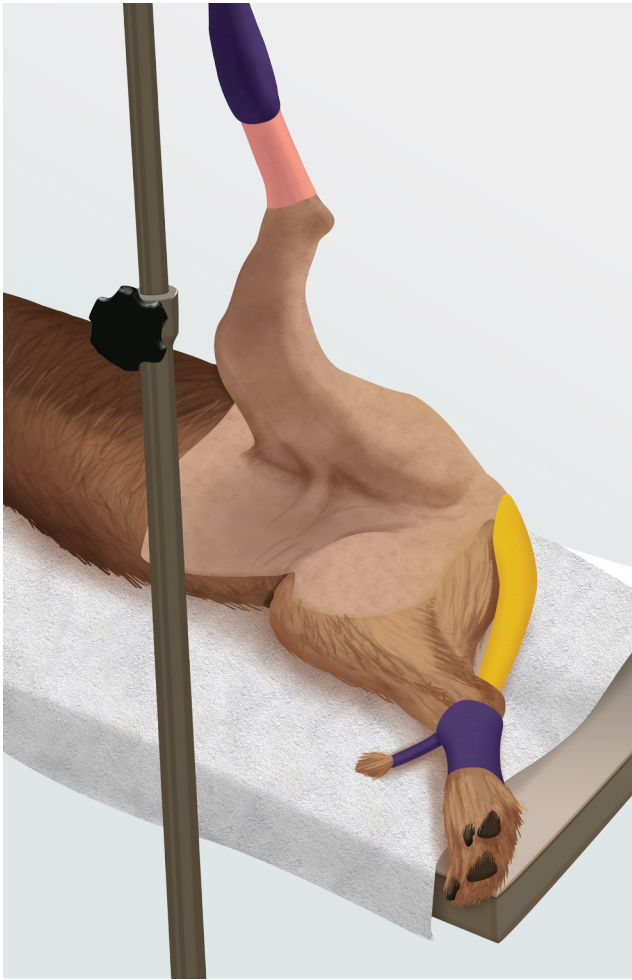


Button Inserter
VAR-2262



Mini TightRope
Implant System
VAR-2801

Standard Technique

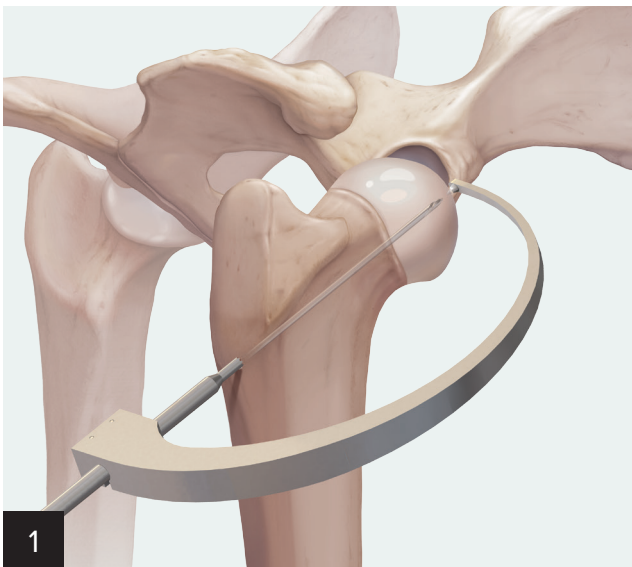


Hanging Leg Preparation

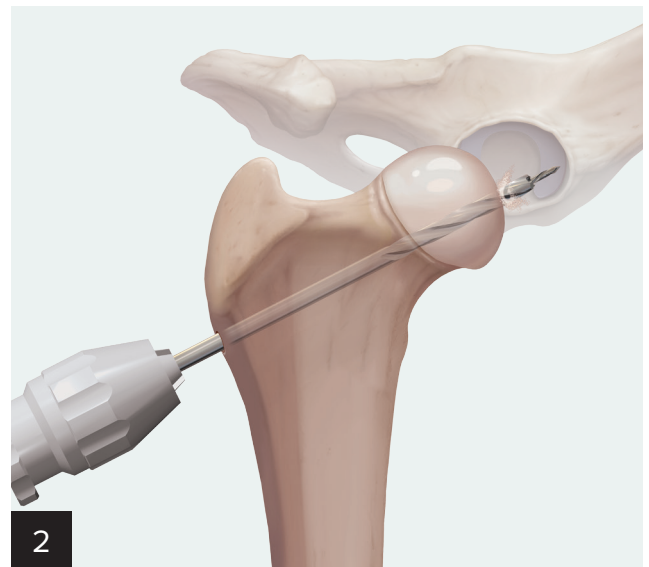
Position the patient in lateral recumbency under general anesthesia. Perform a hanging limb technique with aseptic preparation and appropriate draping. The use of an adherent impervious drape is recommended to keep the suture from coming in contact with the skin.

Perform a standard cranial lateral approach to the coxofemoral joint. Make a partial tenotomy of the deep gluteal tendon at the insertion site along the greater trochanter. Thoroughly evaluate the articular cartilage of the femoral head and acetabulum. Debride the acetabular fossa of ligament.

Standard Technique

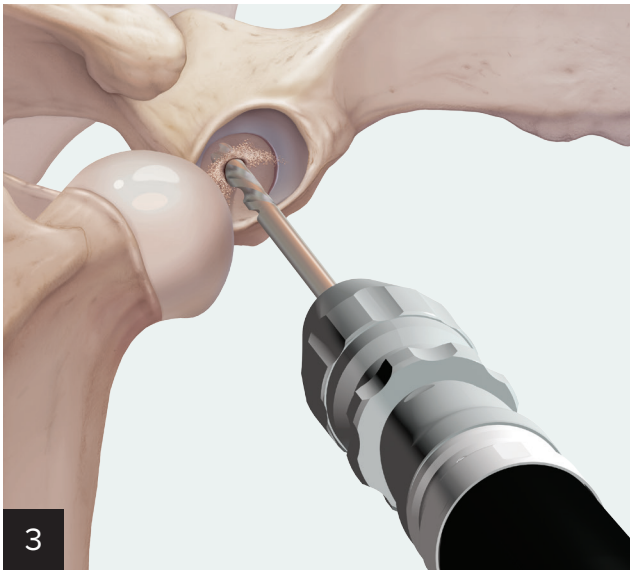


Using the femoral aiming guide, place a 0.049 inch K-wire from the third trochanter exiting the fovea capitis.

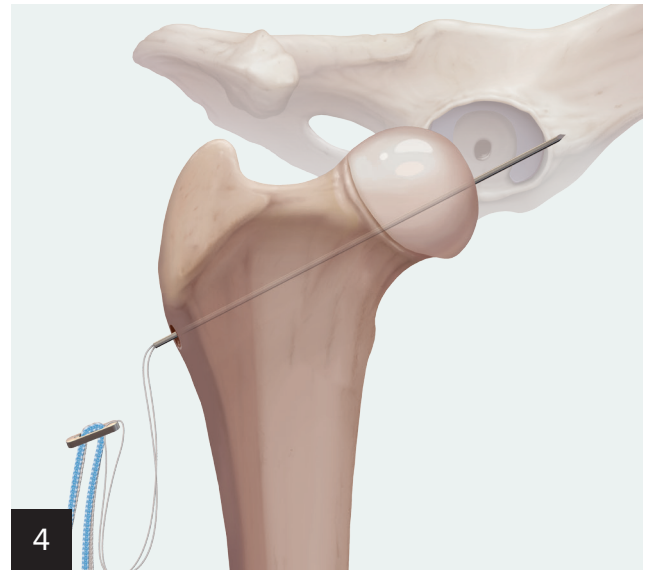


Insert the appropriate-sized cannulated drill bit over the guidewire and advance through the femoral bone. Gently ream back and forth or oscillate to ensure all bone is removed from the tunnel. Refer to the chart for the appropriate drill bit size.

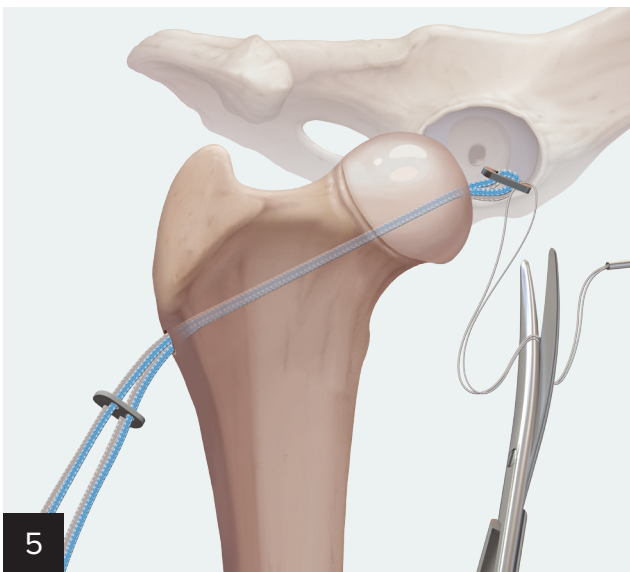
Standard Technique



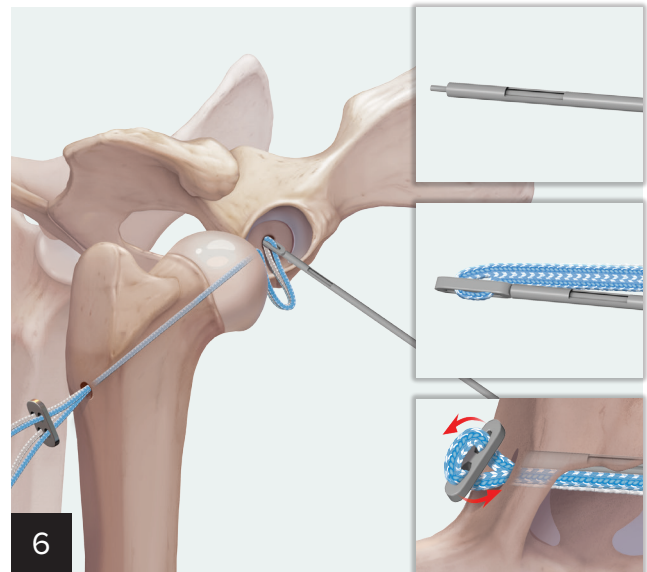
Use the cannulated drill bit to create a hole in the acetabulum at the acetabular fossa. Use caution when drilling to ensure you stop advancing the drill as soon as the medial acetabular wall has been penetrated.



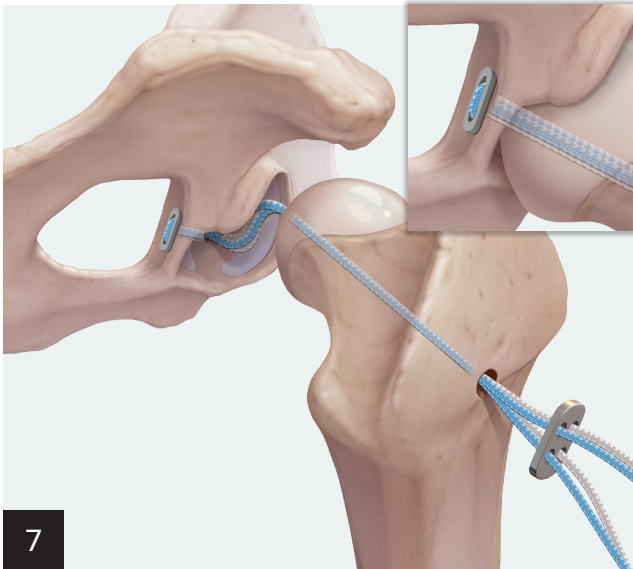
Insert the TightRope® system's lead needle through the femoral hole from the third trochanter to the location of the fovea capitis. As tension is applied on the toggle button, the button will lay flat, allowing it to be advanced through the tunnel. The 4-hole button is left on the third trochanter. Do not advance the lead needle into the hole in the acetabulum.



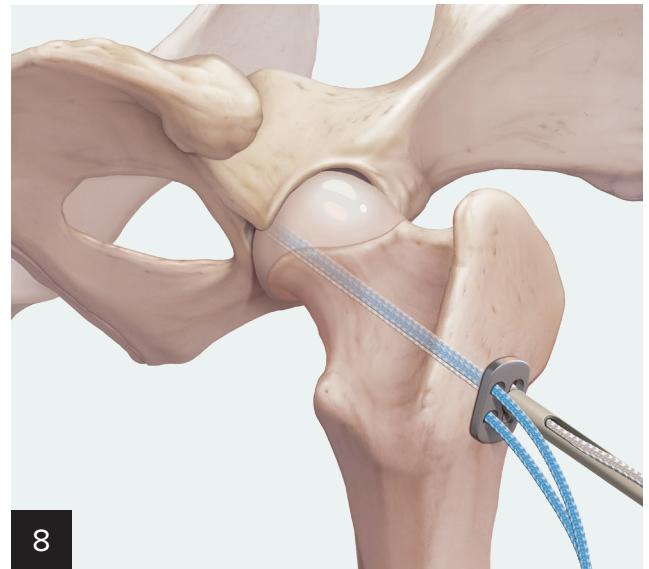
Once the toggle button has exited the femoral head, remove the lead needle from the TightRope system by cutting one strand of the white 2-0 suture attached to the lead needle and pulling the needle away from the joint.



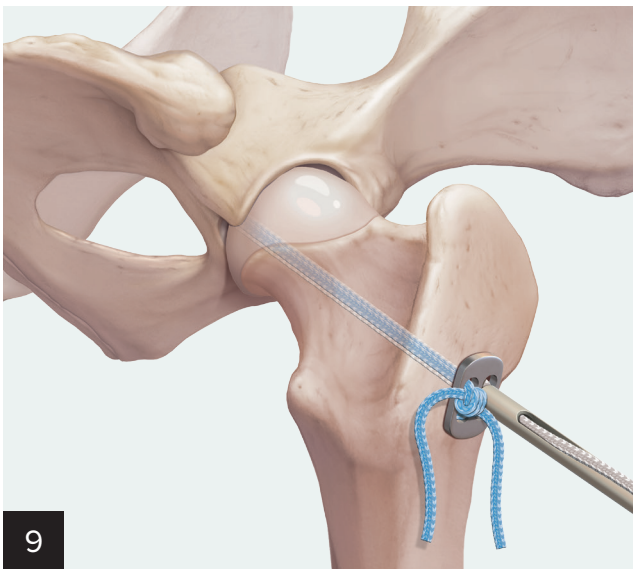
Hold tension on the suture limbs and insert the tip of the button inserter into the end of the toggle button. Maintain tension on the sutures and insert the button through the medial acetabular fossa drill hole. Pull back on the inserter's level to release the button (Does not apply to Mini-TightRope System).



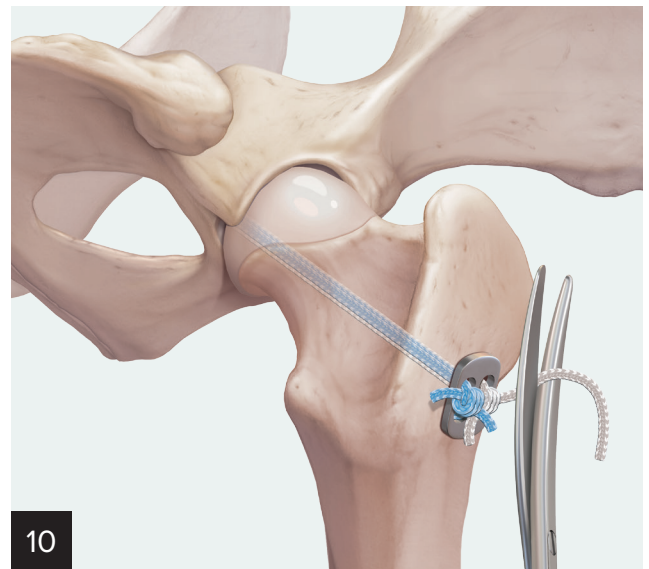
Remove slack from the suture material as the femoral head is reduced into the acetabulum to ensure the femoral head is properly oriented.



Apply the tensioner to the TightRope® implant system by pulling 2 strands of same-colored suture into the tensioning device and setting at a low tension (5 lb-7 lb). Put the hip through a gentle range of motion (ROM) to ensure the repair is not overtightened.

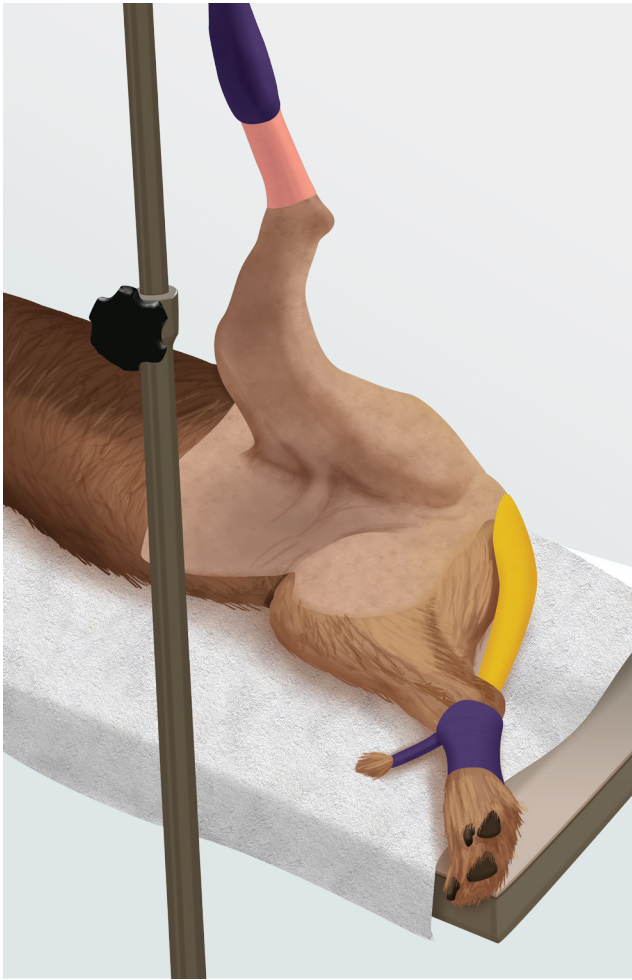


Tie the 2 strands of suture material not in the tensioner over the oval button. Four to 5 throws are recommended to secure the knot. Remove the tensioner from the suture material. Manipulate the hip to ensure a smooth ROM without impingement.



If satisfied with the ROM, tie the remaining strands of suture material and cut the suture limbs, leaving 2 mm-3 mm of suture. Close the joint capsule in a routine manner followed by a routine closure of the deep gluteal tendon, lateral fascia, and more superficial tissues. External coaptation is not necessary following this procedure.

Reverse Technique

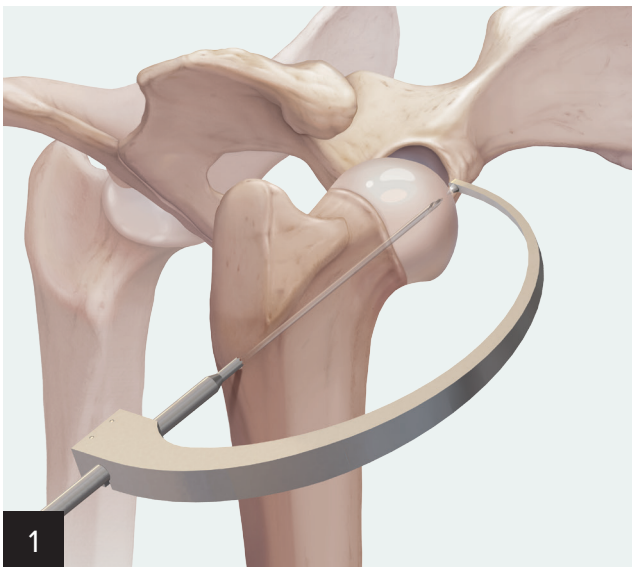


Hanging Leg Preparation

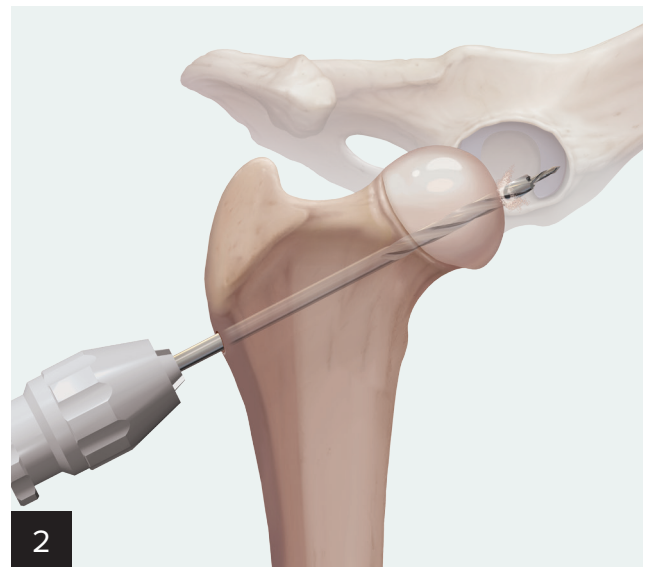
Position the patient in lateral recumbency under general anesthesia. Perform a hanging limb technique with aseptic preparation and appropriate draping. The use of an adherent impervious drape is recommended to keep the suture from coming in contact with the skin.

Perform a standard cranial lateral approach to the coxofemoral joint. Make a partial tenotomy of the deep gluteal tendon at the insertion site along the greater trochanter. Thoroughly evaluate the articular cartilage of the femoral head and acetabulum. Debride the acetabular fossa of ligament.

Reverse Technique

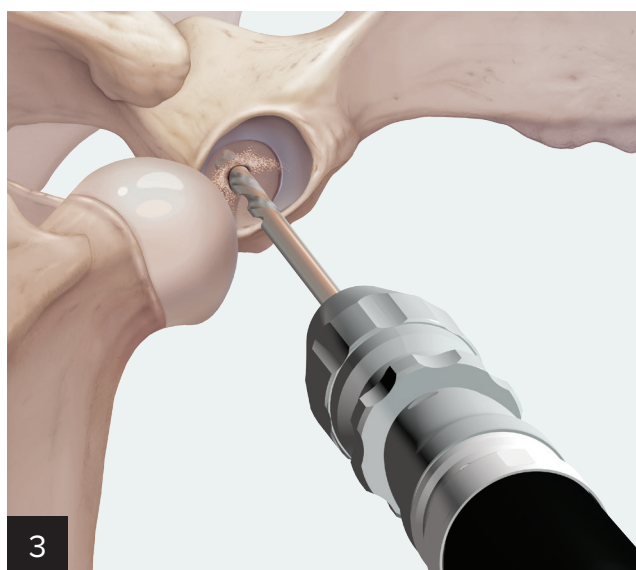


Using the femoral aiming guide, place a 0.049 inch K-wire from the third trochanter exiting the fovea capitis.

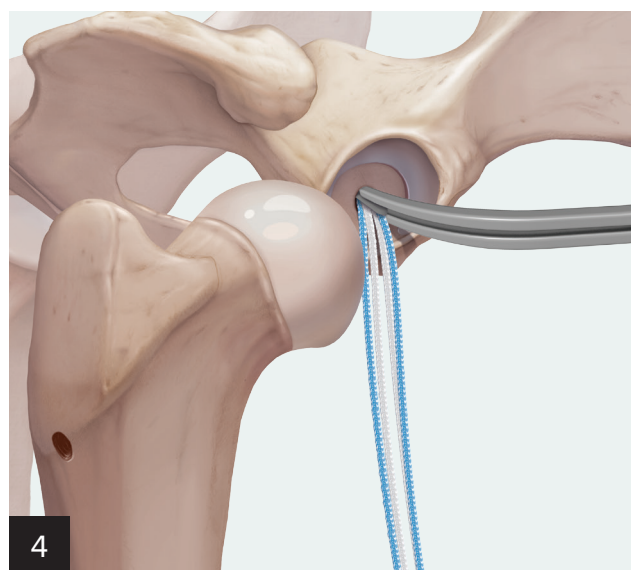


Insert the appropriate-sized cannulated drill bit over the guidewire and advance through the femoral bone. Gently ream back and forth or oscillate to ensure all bone is removed from the tunnel. Refer to the chart for the appropriate drill bit size.

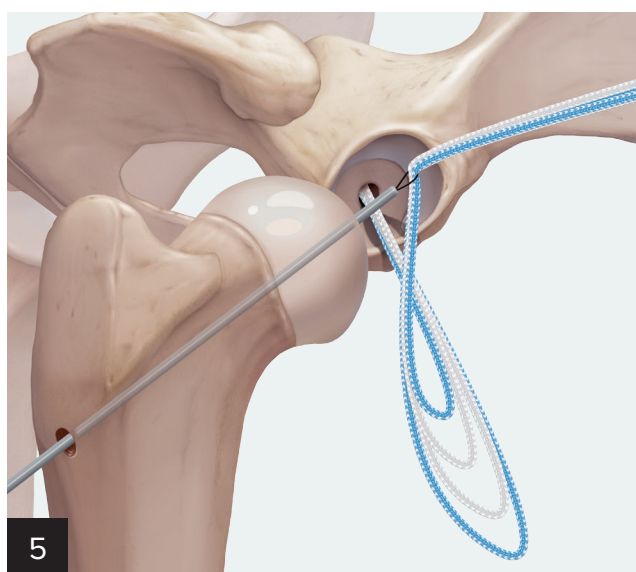
Reverse Technique



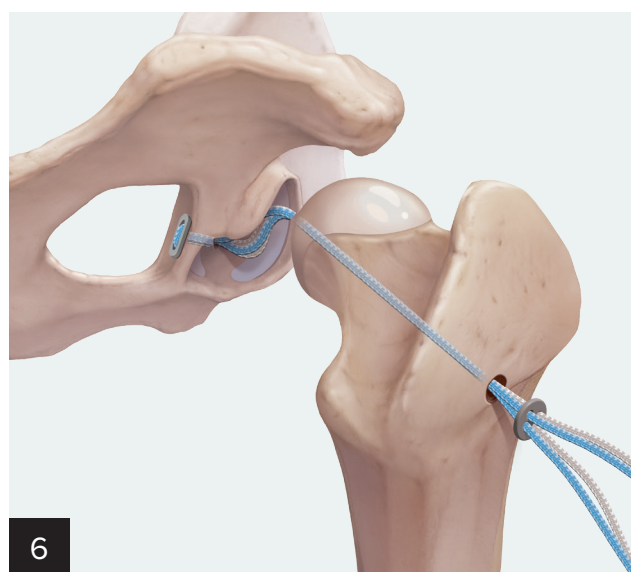
Use the cannulated drill bit to create a hole in the acetabulum at the acetabular fossa. Use caution when drilling to ensure you stop advancing the drill as soon as the medial acetabular wall has been penetrated.



For the TightRope® implant, grasp the toggle button with a curved hemostat and advance it into the acetabular hole. Push the toggle completely through the hole and pull on the suture strands. This will allow the toggle button to flip and seat firmly on the medial wall of the acetabulum.

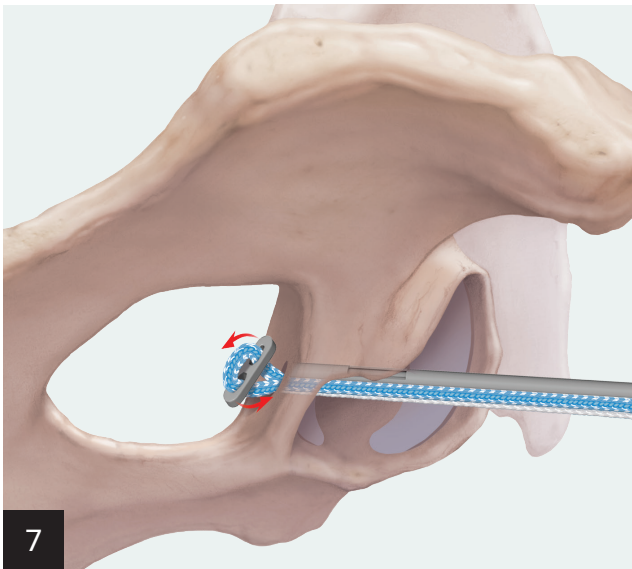


Insert the blunt end of the Nitinol loop through the femoral tunnel from the fovea capitis exiting laterally at the level of the third trochanter. On the Tightrope implant, untie the knot from the suture material. Remove the 4-hole button. Then place the free ends of the suture material through the Nitinol loop.

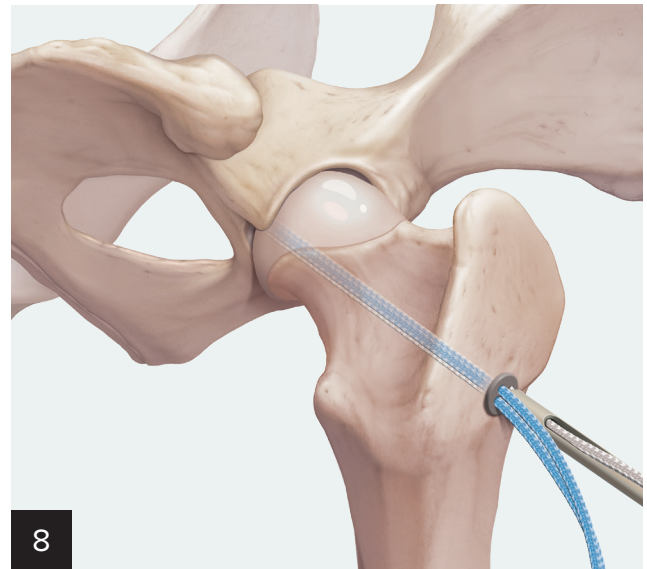


Pull the suture through the femoral tunnel. Remove the suture from the Nitinol loop. Insert the free ends through the 4-hole button and tie the suture material.

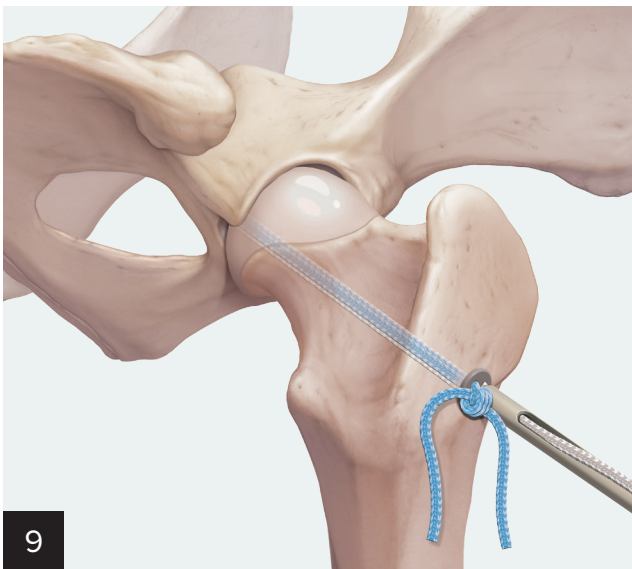
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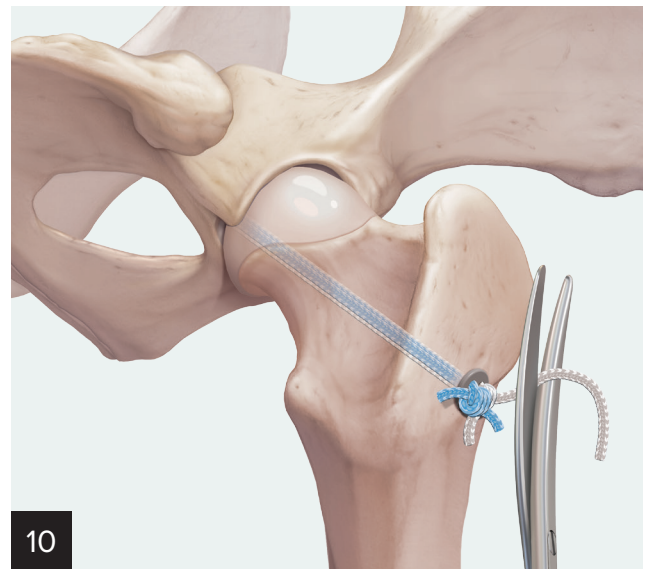
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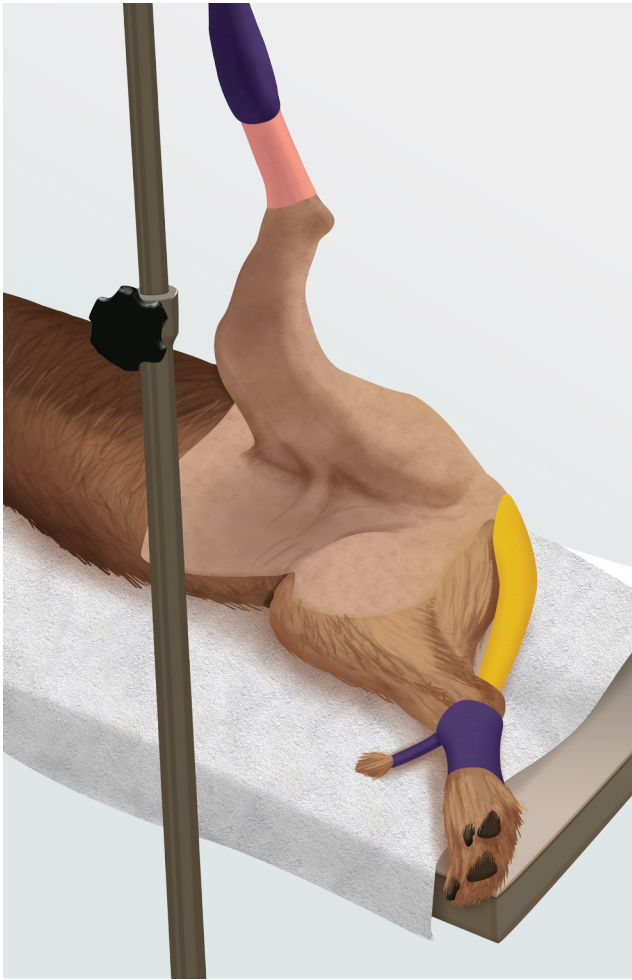


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Reduced Technique

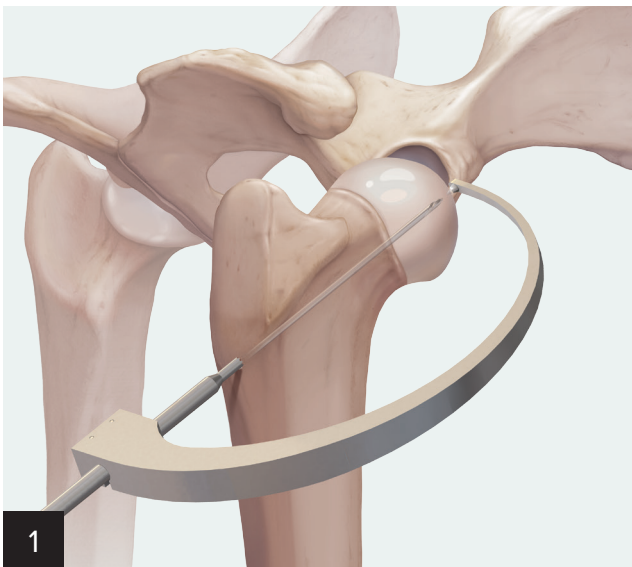


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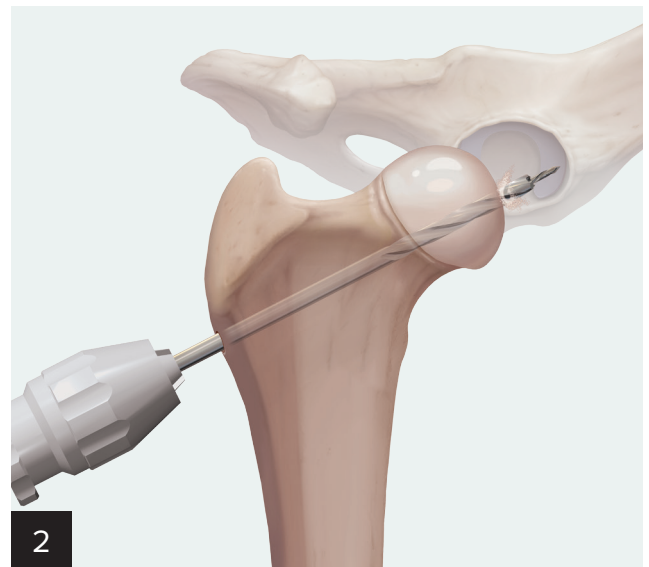
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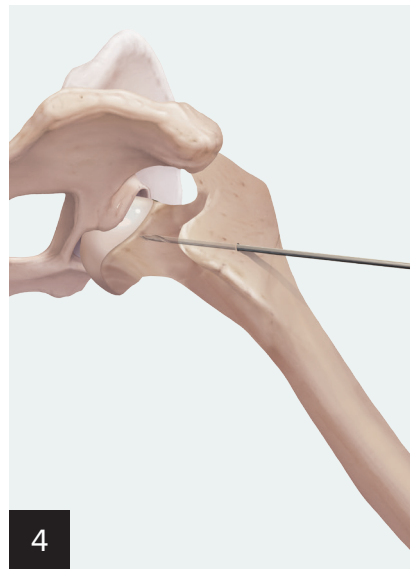


Insert the appropriate-sized cannulated drill bit over the guidewire and advance through the femoral bone. Gently ream back and forth or oscillate to ensure all bone is removed from the tunnel. Refer to the chart for the appropriate drill bit size.

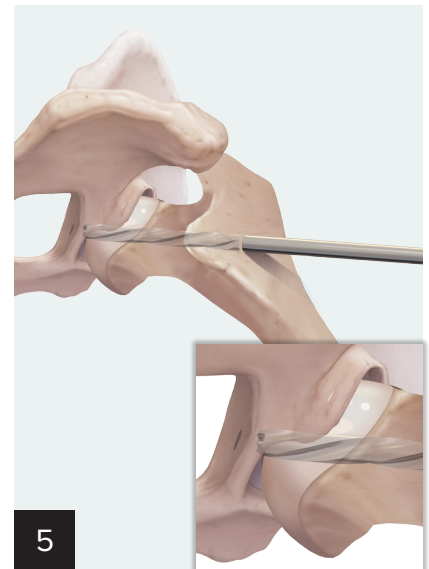
Reduced Technique



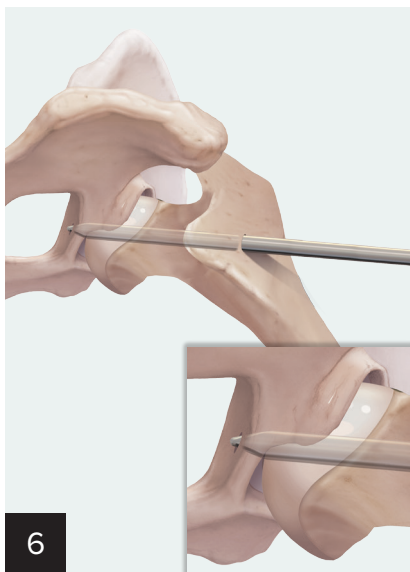
3 Determine the proper angle of the acetabular drill hole. The angle of abduction is approximately 15°-25°. Femoral neck internal rotation is approximately 10°.



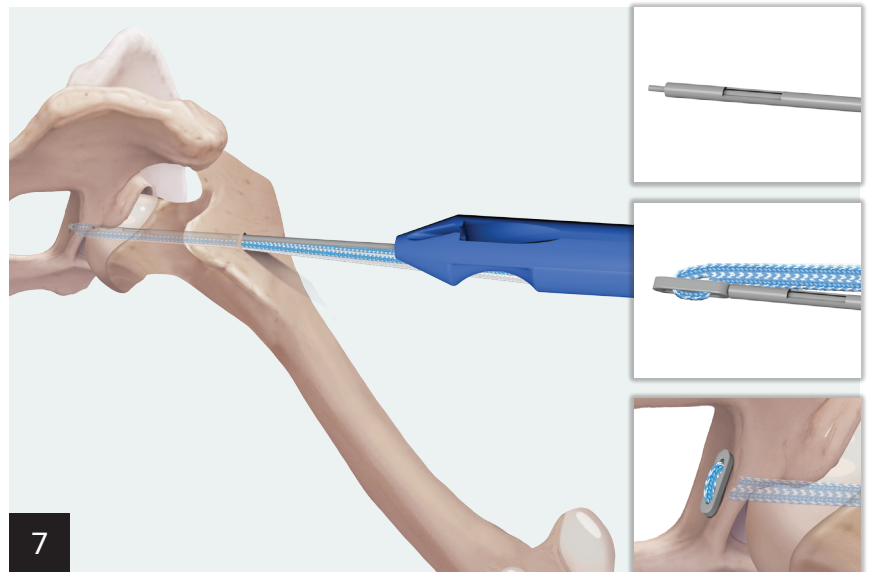
4 Angle the bone tunnel perpendicular to the acetabular fossa. Palpate the fossa with the Gemini switching stick to ensure proper location.



5 Use the appropriate-sized drill bit to drill the acetabular fossa bone hole through the femoral bone tunnel. Take care when penetrating the acetabular fossa to avoid penetrating the colon.

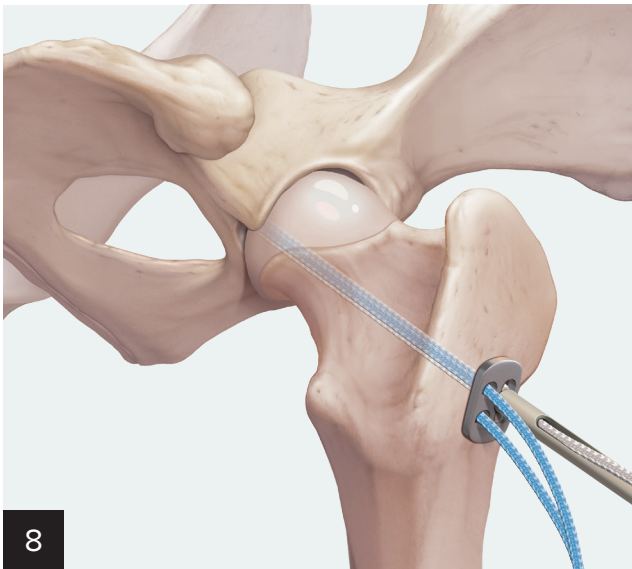


6 Maintain alignment by placing the Gemini switching stick through the femoral bone tunnel and acetabular fossa hole. Take care when placing the Gemini switching stick to avoid penetration of the colon.

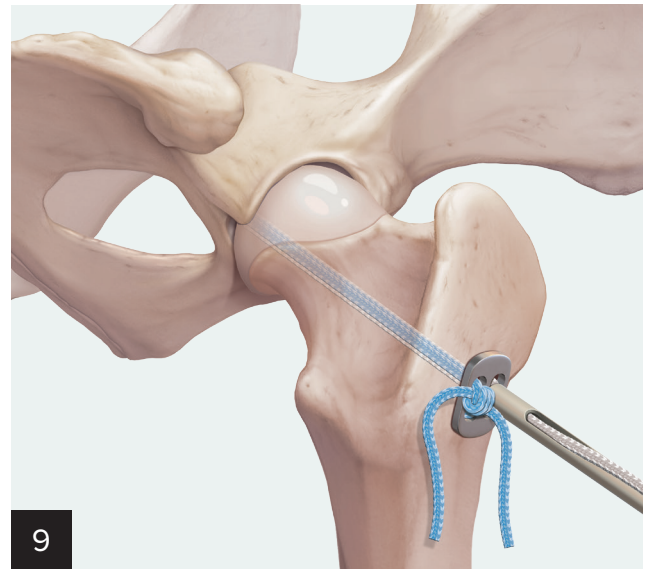


7 Once alignment is obtained, remove Gemini switching stick. Hold tension on the suture limbs and insert the tip of the button inserter into the end of the toggle button. Maintain tension on the sutures and insert the button through the femoral tunnel and medial acetabular fossa drill hole. Pull back on the inserter's lever to release the button.

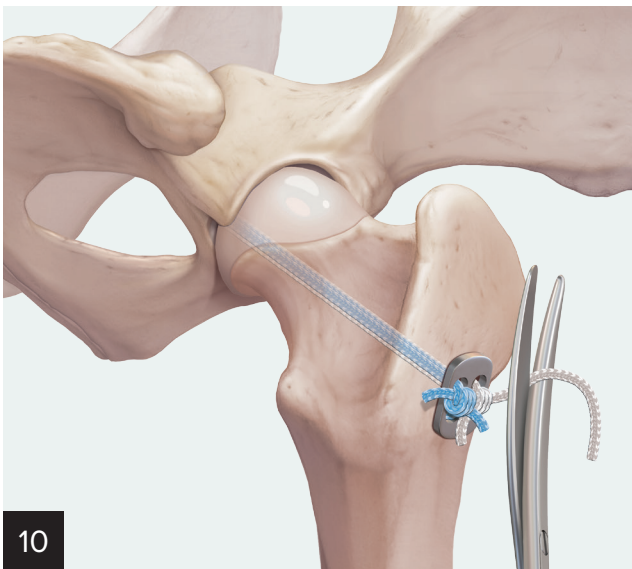
Reduced Technique



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Ordering Information

Implants

Product Description	Item Number
TightRope® Implant	VAR-2800
Mini TightRope Implant	VAR-2801

Instruments

Product Description	Item Number
Tensioner w/ Tensiometer	VAR-1529
Femoral Aiming Guide	VAR-2810
Switching Stick, 2.6 mm × 305 mm	AR-6572S
FiberWire® Scissors	VAR-11796
FiberWire Scissors, small	VAR-11797

Disposables/Limited Reusables

Product Description	Item Number
Button Inserter	VAR-2262
Cannulated Drill Bit, 3.5 mm (use with VAR-8920P)	VAR-8920DC
Cannulated Drill Bit, 2.7 mm (use with VAR-8920P)	VAR-8911DC
Cannulated Drill Bit, 2.0 mm (use with VAR-8933K or VAR-8920P)	VAR-8933-20C
Guidewire (K-wire), 0.049 in (1.2 mm)	VAR-8920P
Guidewire (K-wire), 0.045 in (1.1 mm)	VAR-8933K
Suture Passing Wire, Nitinol, 8 in	VAR-1255-08

Sets/Cases

Product Description	Item Number
Vet <i>InternalBrace</i> ™ Repair Tray	VAR-1679C
Vet <i>InternalBrace</i> Insert, TightRope System	VAR-1679C-01

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