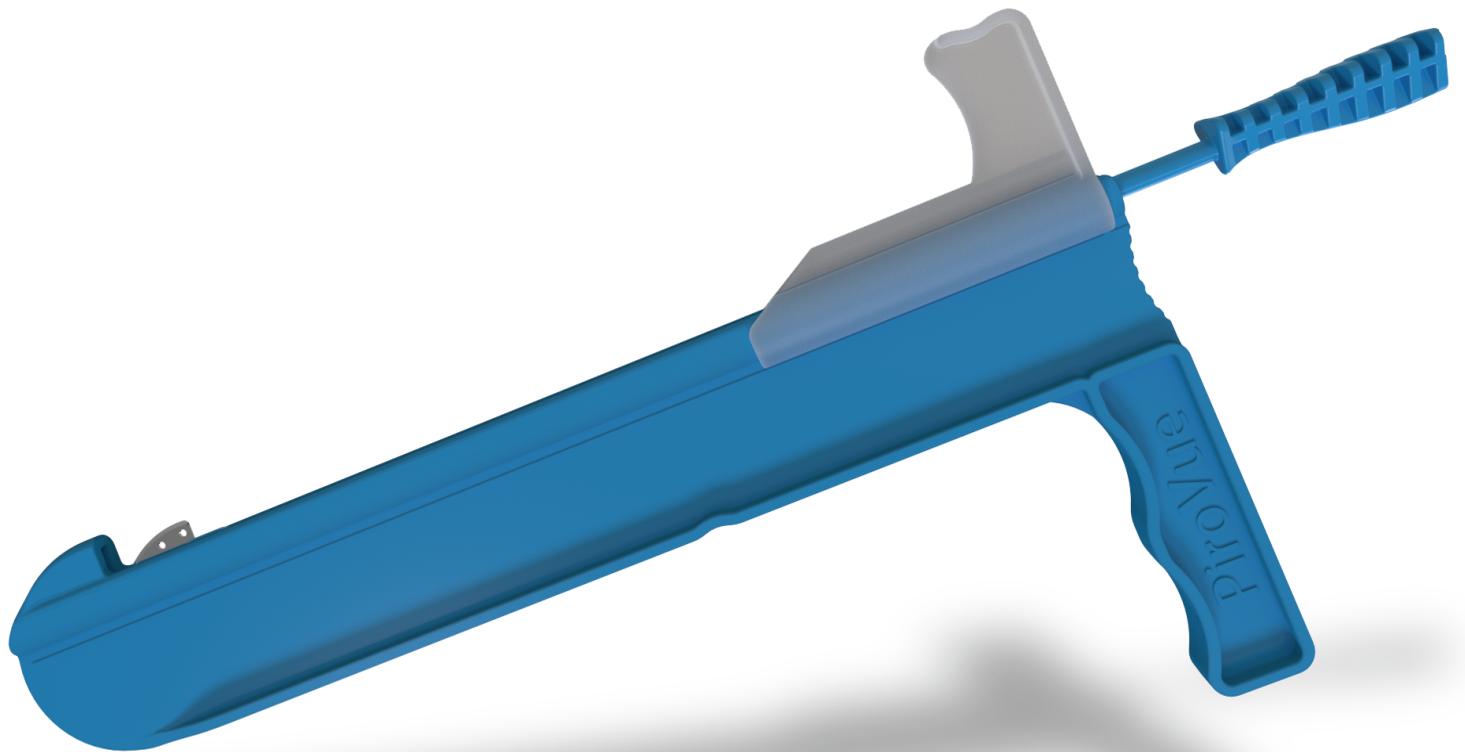


# PiroVue<sup>®</sup> Gastrocnemius Recession System

Surgical Technique



# PiroVue®

## Gastrocnemius Recession System

Equinus deformity has been associated with over 96% of biomechanically related foot and ankle pathologies.<sup>1</sup>

### Gastrocnemius Aponeurosis Intra-Muscular Recession

- Medial Mini-Open Incision (2.5cm - 3cm)
- Gastroc intra-muscular recession cadaveric study (using alternative recession instrumentation) showed dorsiflexion improvement.<sup>2</sup>
- Proximal intramuscular approach avoids the sural nerve<sup>3</sup>

### Controlled and Guided Release

### Versatile

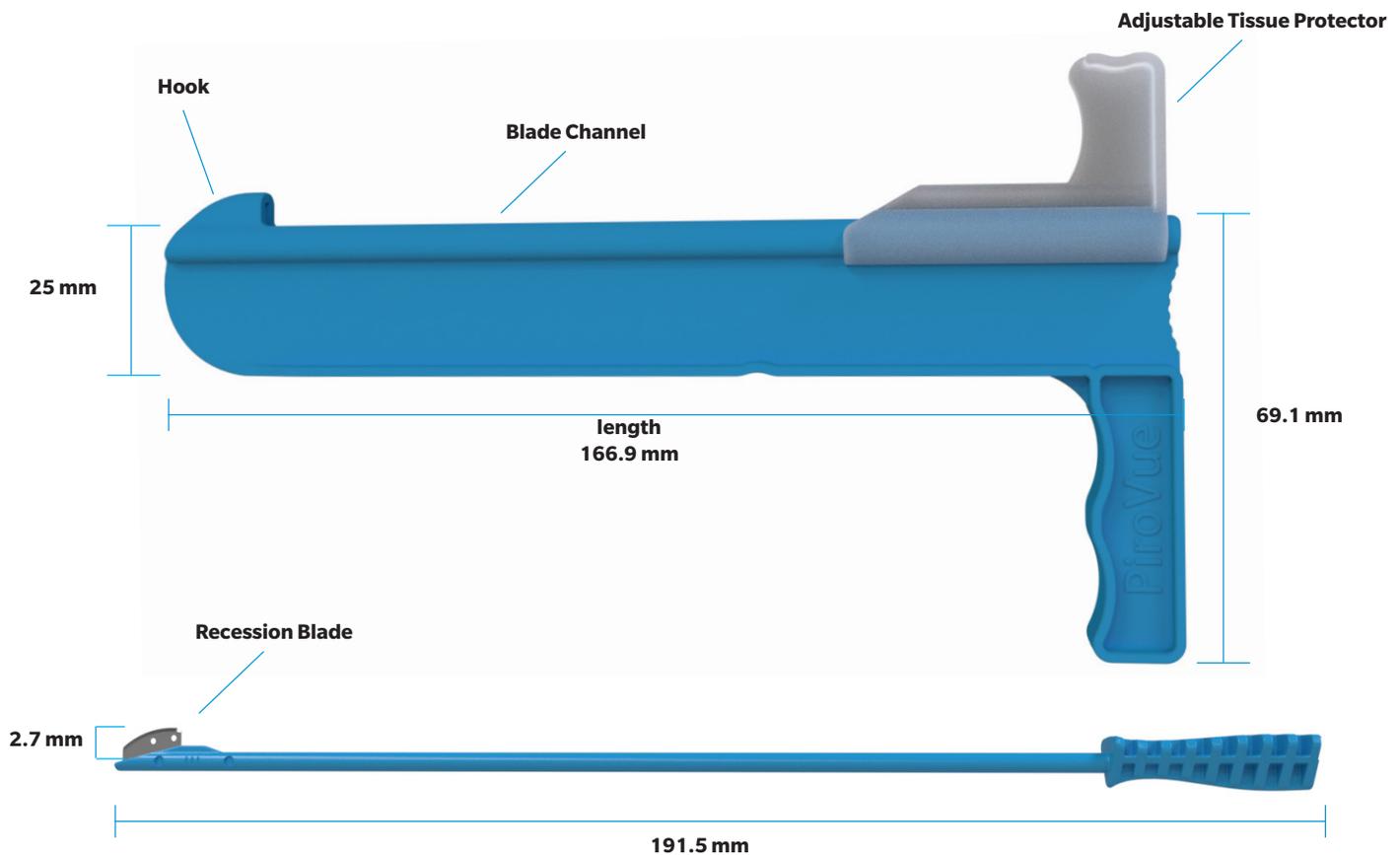
- Recession can be done on both gastrocnemius and soleus muscles as identified by Silfverskiold test<sup>2</sup>

### Visualization of an Open Procedure

- Improved visualization compared to endoscopic

### Convenience of Sterile Pack Kit

- No endoscopic equipment required
- No ancillary draping time or associated costs

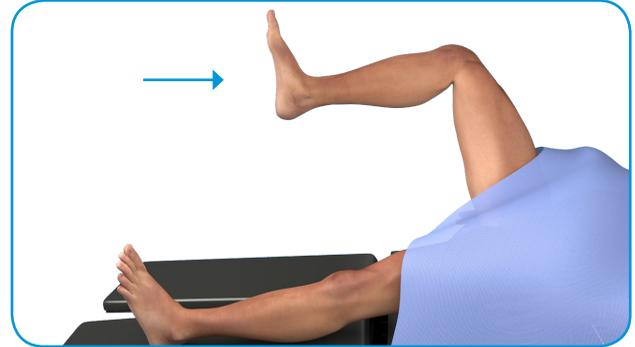


# Silfverskiold Test

1. Patient is placed in supine position
2. The subtalar joint is held in the neutral position
3. The patient's ankle dorsiflexion is measured with the knee in extension and flexion.

If ankle equinus ( $<10^\circ$  dorsiflexion) is observed only with knee extension then gastrocnemius equinus is present. Isolated lengthening of the gastrocnemius should resolve the contracture.

If ankle equinus is observed both with knee extension and flexion then gastrosoleal equinus is present. Lengthening of the gastrocnemius and soleus fascia is required to resolve the contracture.



# Surgical Technique

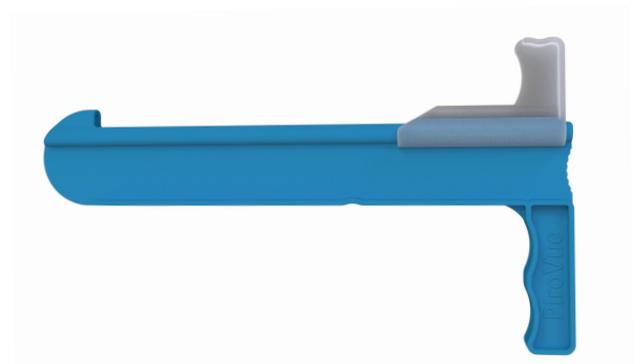
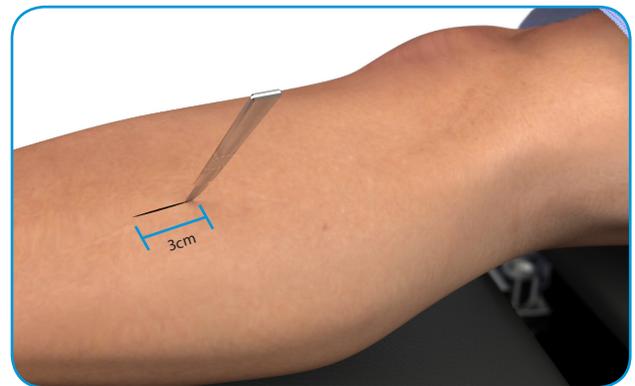
1. After the diagnosis of equinus via the Silfverskiold test, use the intramuscular mini-open Baumann procedure. This procedure is done with the patient in the supine position, with the leg slightly bent and externally rotated.



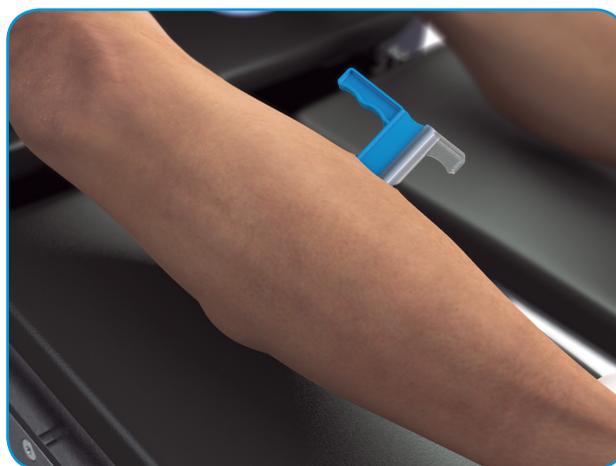
2. Use a scalpel to make a mini (3cm) medial, longitudinal incision approximately two finger widths below posterior aspect of the tibia at the mid-calf. Blunt dissection is performed to the posterior fascia. A similar longitudinal incision is made in the fascia at the level of the gastro-soleus interval. Continue blunt finger dissection between gastrocnemius and soleus muscle bellies.

*NOTE: Incision should be proximal to the gastroc run-out; especially in patients with thin muscle.*

3. Carefully remove the recession guide from the packaging. **Do not** engage the recession blade with the guide at this stage.



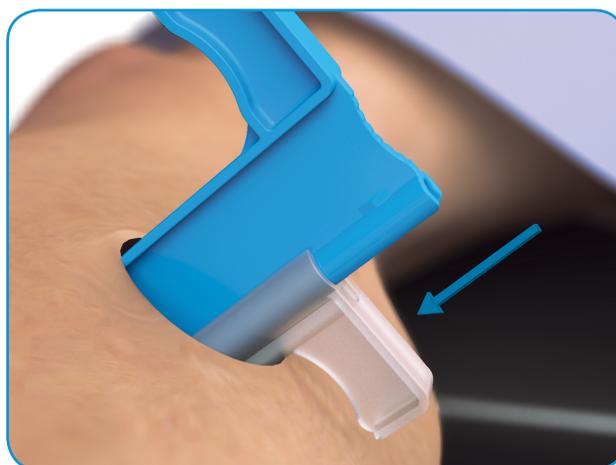
- 4.** Use index finger to open the intramuscular location between the gastrocnemius and soleus muscles. Remember to check for the plantaris tendon on the back of the soleus muscle belly. If located, transect the tendon. Insert the recession guide between the gastrocnemius and soleus muscles until it can be palpated at the lateral side of the leg.



- 5. a.** Twist the recession guide 90 degrees so that the blade channel is facing the gastrocnemius (the guide handle will point away from the muscle fascia being cut). The white fascia of the gastrocnemius and soleus muscles should be visualized.
- b.** Hook the most distal end of the recession guide to the lateral muscle belly for stabilization.



- 6.** Advance the tissue protector on the guide to the medial border of the gastrocnemius muscle belly. This is designed to protect the surrounding skin and soft tissue from the blade.



7. With knee fully extended, **maximally dorsiflex** the foot to tension the gastrocnemius muscle and stabilize the recession guide in the gastro-soleus muscle gap. Insert the recession blade into the blade channel.

Slowly push the blade forward in a pulsatile manner to allow the aponeurosis fibers at the leading edge time to become tense as the cut fibers relax. Constant pressure on the bottom of the forefoot should be placed during knife movement to keep the remaining gastrocnemius aponeurosis fibers under tension until transected. Continue until blade reaches distal channel stop.

**Caution:** Ensure fingers are clear of the blade channel.

**Note:**

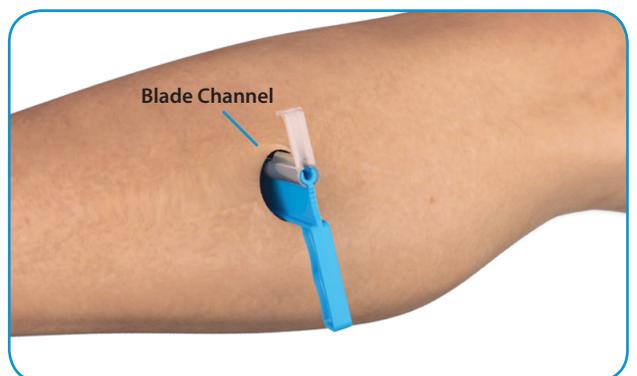
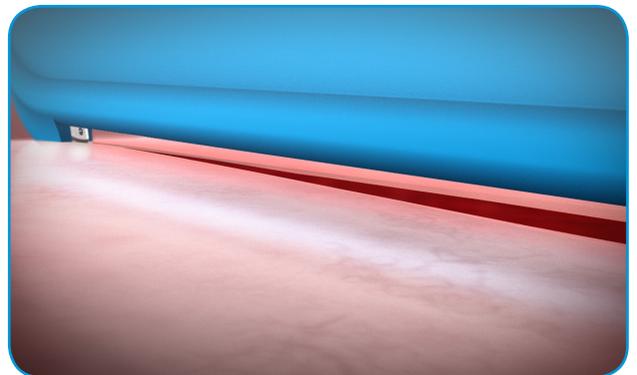
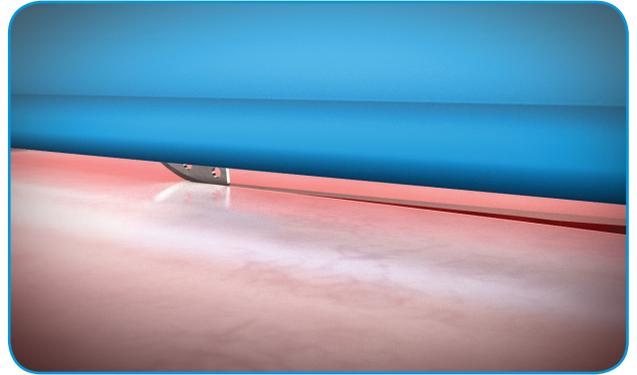
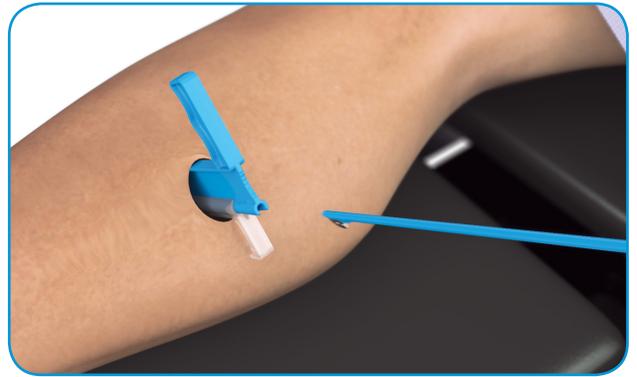
1. Although one push cycle of the recession blade is recommended, digital palpation should be done to confirm complete recession of the aponeurosis. Any remaining fibers can be released by a partial second pass of the blade under tension.
2. For difficult lateral fibers, it may be helpful to slightly lift the guide and/or cup hand under the gastrocnemius to increase contact between muscle fascia and guide to increase lateral pressure against the gastrocnemius.
3. Once guide is inserted laterally and rotated to "hook" the lateral muscle, take caution to not pull back on the guide, which could wrinkle the muscle.
4. Depending on surgeon preference and patient specifics, if desired dorsiflexion is achieved before blade is fully advanced, it is acceptable to stop recession. Twist recession guide 90 degrees, advance blade to the end of the guide and remove the complete assembly.

8. Once the recession blade is at dead stop and embedded into the lateral end of the guide, twist guide 90 degrees and remove from the intramuscular location.

9. Close in preferred manner. Dispose of guide/blade assembly in sharps container.

## Optional Soleus Recession

If Silfverskiold test indicates gastrosoleal equinus and gastrocnemius recession alone did not provide the desired dorsiflexion, remove blade from guide. Repeat steps 1-9 with blade channel facing the soleus.

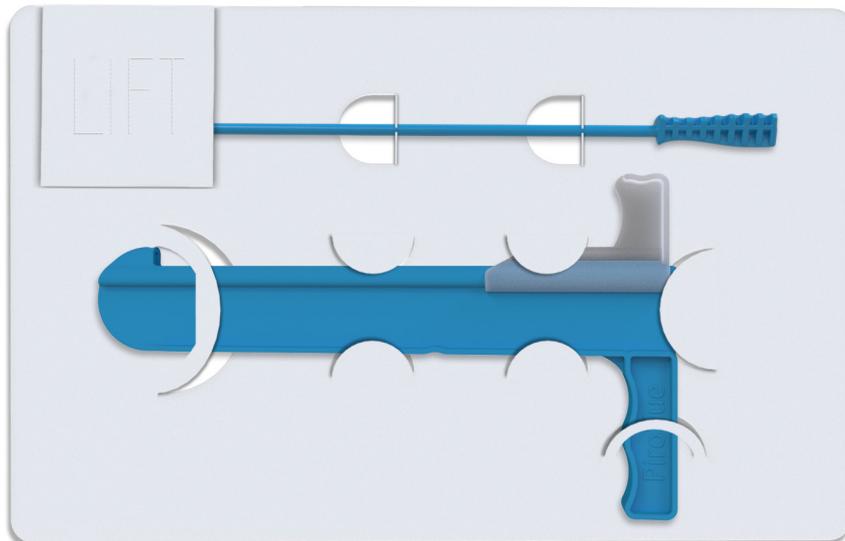


# PiroVue®

## Gastrocnemius Recession System

### Gastrocnemius Recession System Sterile Procedure Kit

- Sterile, OR-ready instrument
- Designed for reproducible outcomes
- Single use



The Nextremity Solutions, Inc. PiroVue™ Gastroc Recession System is a single-use, sterile-packed instrument set. This instrument set provides the surgeon the needed tools to successfully lengthen and address gastrocnemius equinus through a soft tissue recession, primarily of the gastrocnemius and soleus fascia.

#### CONTRAINDICATIONS

- Blood supply limitations and previous or active infections that may inhibit healing.
- Surgical procedures other than for the described use.
- Patients with conditions that limit their ability or willingness to follow postoperative care instructions.

*Bench, animal, and cadaveric studies are not necessarily indicative of clinical performance.*

#### References

1. Russel S. Hill. "Ankle equinus. Prevalence and linkage to common foot pathology." *Journal of the American Podiatric Medical Association*. Jun;85(6):295-300. 1995.
2. John E. Herzenberg, MD; Bradley M. Lamm, DPM; Chris Corwin, DPM; John Sekel, DPM. "Isolated Recession of the Gastrocnemius Muscle: The Baumann Procedure." *Foot & Ankle International*. Vol. 28, No. 11. November 2007.
3. Neal M. Blitz, DPM and Shannon M. Rush, DPM. "The Gastrocnemius Intramuscular Aponeurotic Recession: A Simplified Method of Gastrocnemius Recession." *The Journal of Foot & Ankle Surgery*. Vol. 46 Number 2 March/April 2007.

### ORDERING INFORMATION

Part No.	Description
PV-2527-01	<b>PiroVue Gastroc Recession System Sterile Kit</b> Recession Guide 25mm Ht., Blade 2.7mm, 1 Count

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