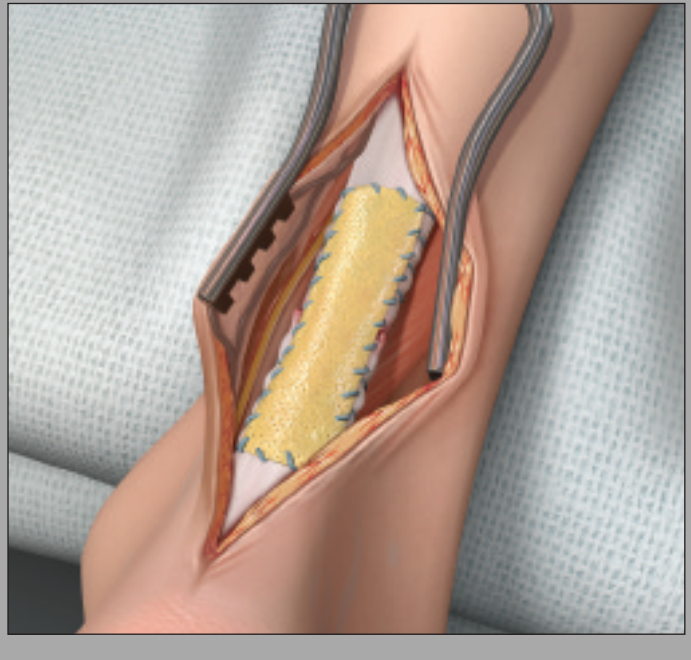
Arthrex®

Achilles Tendon Reinforcement

Achilles Tendon Reinforcement with ArthroFLEX®* Decellularized Dermis

Surgical Technique



Achilles Tendon Reinforcement with ArthroFLEX® Decellularized Dermis

The Achilles tendon is the strongest and thickest tendon in the human body. Rupture of the Achilles tendon is a serious injury and relatively common tendinous lesion.[1-3] Surgical repair of complete and chronic tears frequently involves working with degenerative, frayed tendon tissue, which may be retracted, unable to sustain the rigors of normal activities, and as with any repair, there is a possiblity of revision surgery. The use of ArthroFLEX may provide additional strength for the repair construction. Tendon augmentation can provide a more effective treatment of this chronic condition by creating a stronger repair construct. A stronger repair might allow for more aggressive rehabilitation decreasing postoperative stiffness, calf atrophy, and repair site gapping.[4]

ArthroFLEX® Acellular Bio-Implant for Soft Tissue Repair

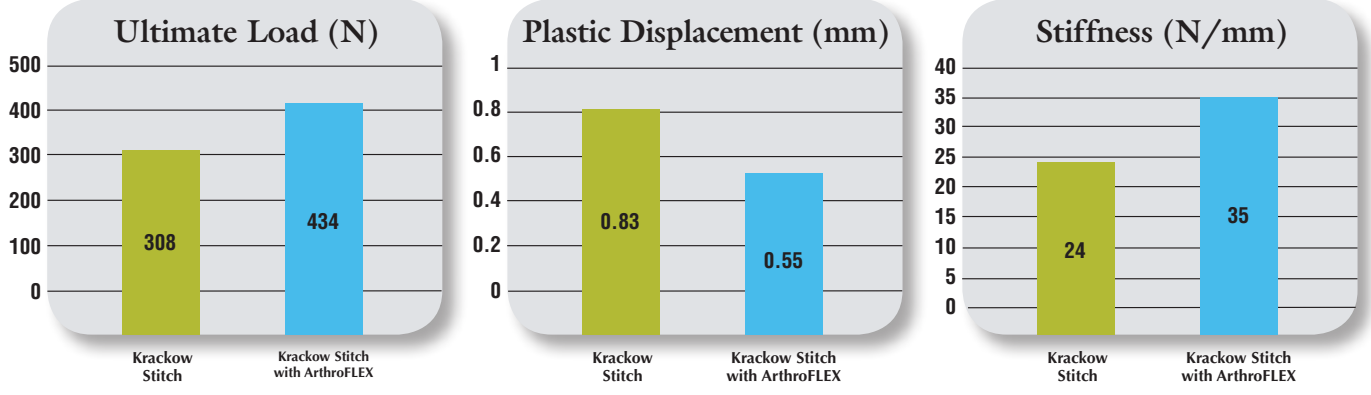
High Performance Extracellular Matrix

ArthroFLEX is an acellular dermal extracellular matrix intended for supplemental support and covering. Matracell®, a patented and validated process by LifeNet Health®, renders the ArthroFLEX allograft dermis acellular, without compromising biomechanical or biochemical properties. This process allows the matrix to retain its growth factors, native collagen scaffold, and elastin, which are required for healing. ArthroFLEX is treated with Preservon®, a proprietary and patented preservation technology that allows the graft to be fully hydrated at room temperature.

Features and Benefits

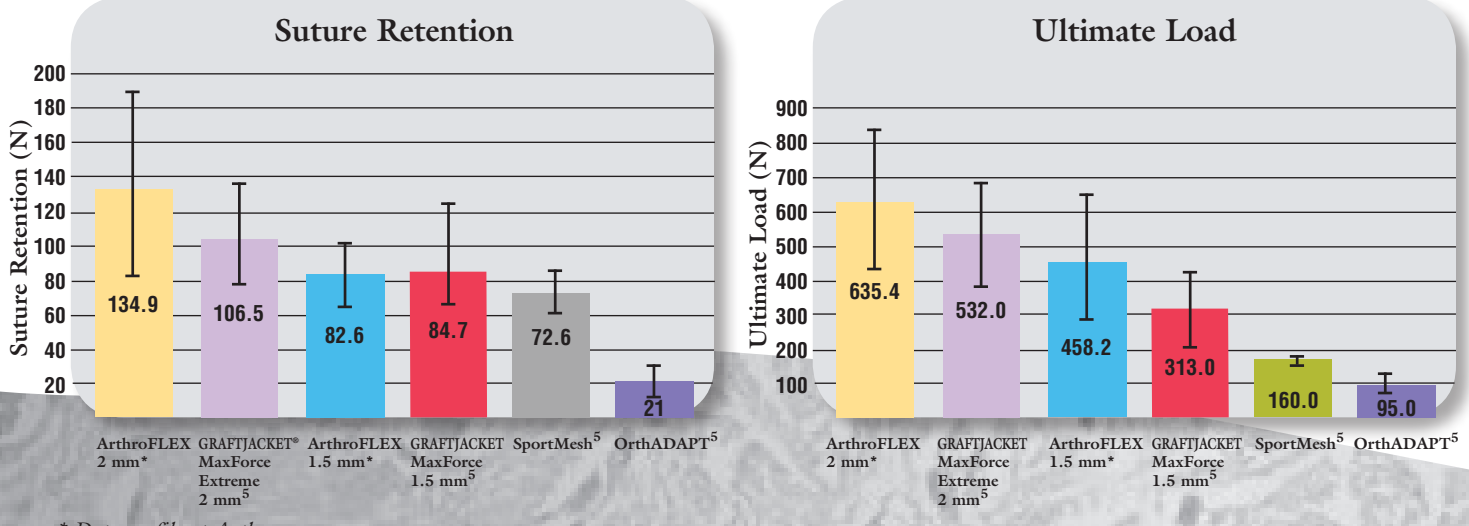
- Biocompatible: >97% DNA removed
- Sterile (10-6 Sterility Assurance Level)
- Room temperature storage
- Ready to use
- Retains growth factors, elastin, and natural collagen matrix
- Three year shelf life
- Excellent strength and suture retention properties

Achilles Tendon Analysis*

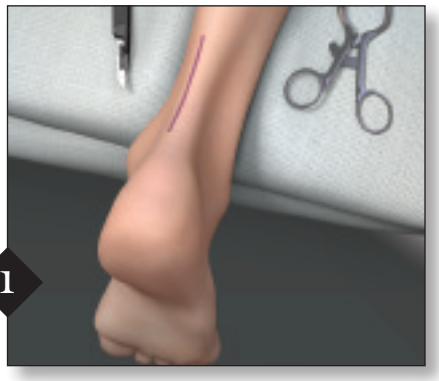


Strength

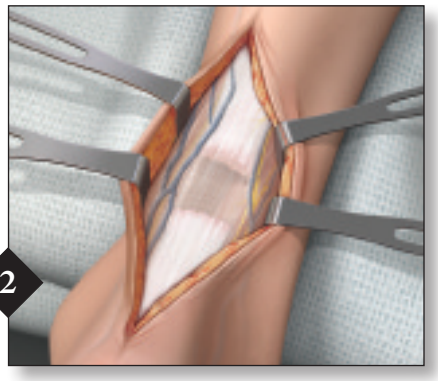
Elastin and collagen provide unparalleled strength for supplemental support and covering for soft tissue repair.



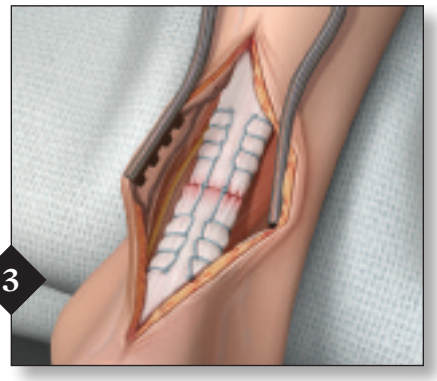
** Data on file at Arthrex*



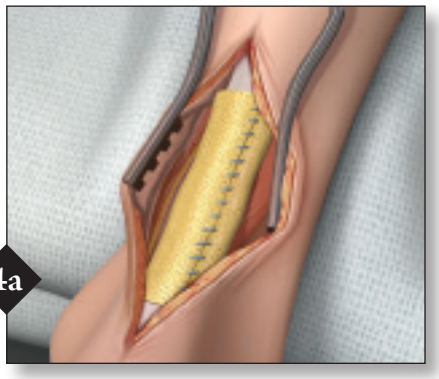
With the patient in a prone position, a posteromedial incision is made and a layered tissue dissection is performed down to the paratenon (deep crural fascia).



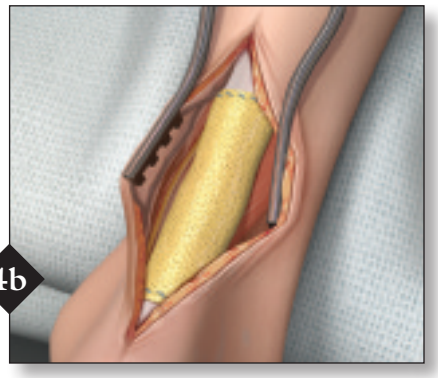
The paratenon is incised longitudinally and reflected to expose the Achilles tendon and rupture. Use caution to avoid injuring the sural nerve and the lesser saphenous venous plexus.



The hematoma is evacuated and the mopped tendon ends debrided. #2 FiberWire® is placed using the Krackow weave suturing technique as the primary repair. The knee is flexed and the foot is plantar flexed for suture tying.

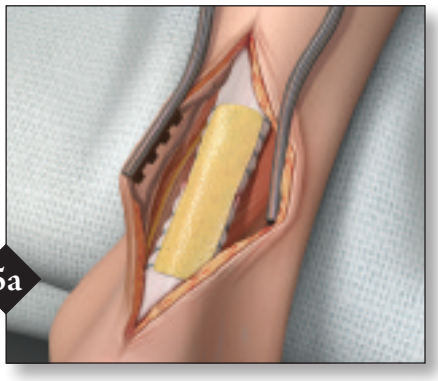


With the dermal (shiny) side of the ArthroFLEX placed against the Achilles tendon, wrap the ArthroFLEX around the Achilles and secure it with eight mattress sutures passed through both the ArthroFLEX and the body of the tendon using #2 FiberWire with a tapered needle. Place four mattress sutures proximal to the repaired tear and four mattress sutures distally.



Additional 2-0 absorbable sutures may be placed circumferentially on the proximal and distal aspects of the ArthroFLEX to ensure the graft is tight against the Achilles tendon.

ArthroFLEX® can be secured to the Achilles tendon as either an onlay augmentation or as a circumferential wrap augmentation. Steps 4-5 describe two techniques that may be used to firmly affix the ArthroFLEX Decellularized Dermis to the repaired Achilles tendon.



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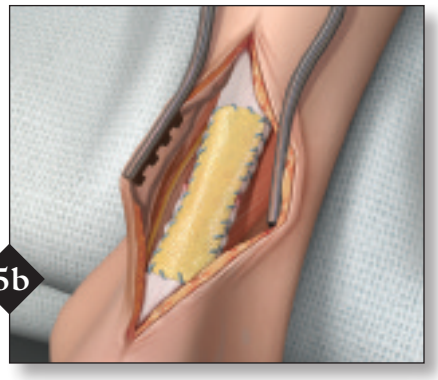
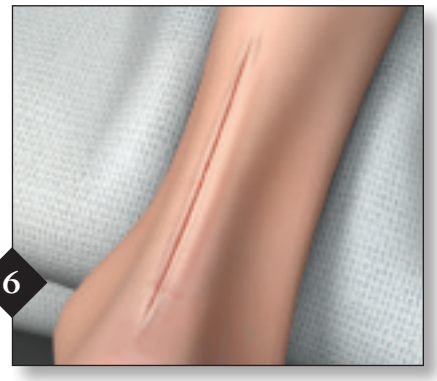


Secure the proximal end of the ArthroFLEX with 2-0 absorbable suture and tension distally. Under tension, place interrupted sutures at the distal end of the graft and medial and lateral aspects of the graft. Continue suturing the outer aspects of the ArthroFLEX in a proximal to distal pattern until the ArthroFLEX is tightly secured to the Achilles tendon. Ensure the graft is tight against the repair in order to minimize any delamination of the ArthroFLEX.



After the repair, the paratenon is reapproximated with an absorbable suture, especially over the tendon repair site. This is important for both healing and prevention of adhesions. The subcutaneous tissue is closed in layers.

Ordering Information

Product Description	Size
ArthroFLEX 0.5 mm (Thickness = 0.3 mm - 1.0 mm)	
Decellularized Dermis with Matracell 30 x 40 mm	AFLEX500
ArthroFLEX 1.0 mm (Thickness = 0.76 mm - 1.24 mm)	
Decellularized Dermis with Matracell 40 x 40 mm	AFLEX400
Decellularized Dermis with Matracell 40 x 70 mm	AFLEX401
ArthroFLEX 1.5 mm (Thickness = 1.26 mm - 1.74 mm)	
Decellularized Dermis with Matracell 40 x 70 mm	AFLEX101
Decellularized Dermis with Matracell 50 x 90 mm	AFLEX103
ArthroFLEX 2.0 mm (Thickness = 1.76 mm - 2.24 mm)	
Decellularized Dermis with Matracell 40 x 70 mm	AFLEX201

ArthroFLEX® should be ordered through LifeNet Health Customer Service at 888-847-7831

References

1. Tezeren G, Kuru I. *Augmentation vs Nonaugmentation Techniques for Open Repairs of Achilles Tendon Ruptures with Early Functional Treatment: A Prospective Randomized Study.* J Sports Sci Med. 2006; 5: 607-614.

2. Bhandari M, Guyatt GH, Siddique F, Morrow F, Busse J, Leighton LK, Sprague S, Schemitsch EH. *Treatment of acute Achilles tendon ruptures a systematic overview and metaanalysis.* Clin Orthopaedics Related Research. 2002; 400: 190-200.

3. Cetti R, Christensen SE, Ejsted R, Jensen NM, Jorgensen U. *Operative versus nonoperative treatment of Achilles tendon rupture. A prospective randomized study and review of the literature.* Am J Sports Med. 1993; 21: 791-799.

4. Barber FA, McGarry JE, Herbert MA, Anderson RB. *A Biomechanical Study of Achilles Tendon Repair Augmentation Using GraftJacket Matrix.* Foot Ankle Int. 29(3): 329 – 333, 2008.

5. Barber FA, Aziz-Jacobo J. *Biomechanical Testing of Commercially Available Soft-Tissue Augmentation Materials.* Arthroscopy 2009; 25: 1233-1239. Selected data was derived from Figure 3 (Suture Pull-out) and Table 1 (Ultimate Tensile Strength) of this reference. The two studies were performed at different points in time; however, the exact same methods, fixtures, material testing machine, and facility were used for both studies.

LifeNet Health®
Saving Lives. Restoring Health. Giving Hope.

LifeNet Health helps to save lives, restore health and give hope to thousands of patients each year. We are the world's most trusted provider of transplant solutions, from organ procurement to new innovations in bio-implant technologies and cellular therapies – a leader in the field of regenerative medicine, while always honoring the donors and health care professionals that allow the healing process.

This description of technique is provided as an educational tool and clinical aid to assist properly licensed medical professionals in the usage of specific Arthrex products. As part of this professional usage, the medical professional must use their professional judgment in making any final determinations in product usage and technique. In doing so, the medical professional should rely on their own training and experience and should conduct a thorough review of pertinent medical literature and the product's Directions For Use.