

DermaSpan™ Acellular Dermal Matrix

Surgical Technique



Circumferential Reinforcement of
Ruptured Achilles Tendon Repair

Posterior Reinforcement of
Ruptured Achilles Tendon Repair

Surgical Protocol by Charles Zelen, DPM, FACFAS

DermaSpan™ Acellular Dermal Matrix

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DermaSpan™ Acellular Dermal Matrix

Primary Repair of Ruptured Achilles Tendon

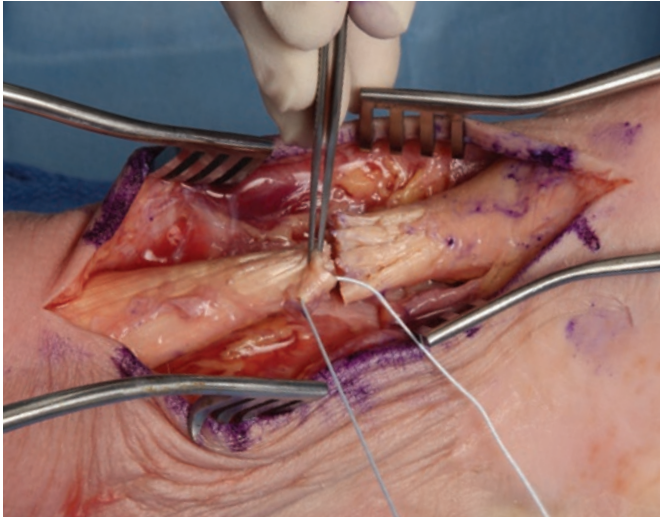


Figure 1

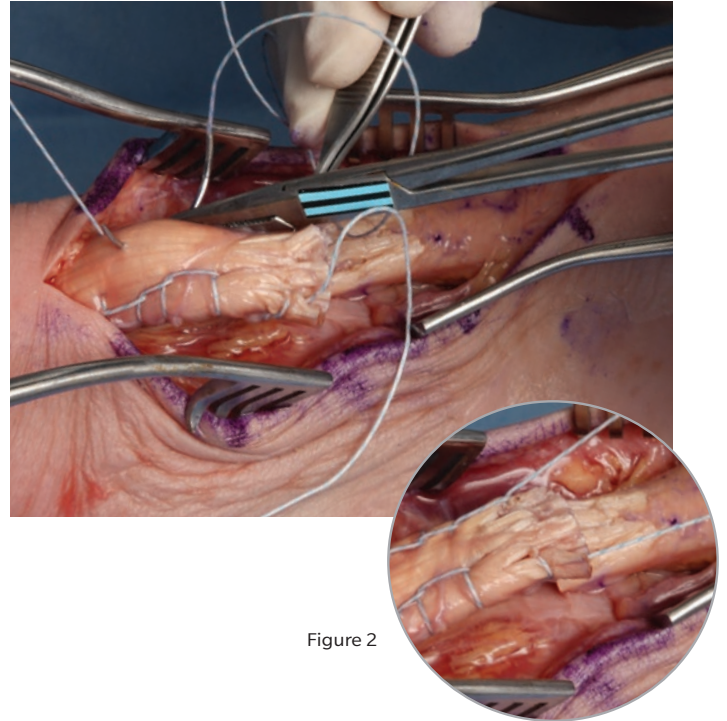


Figure 2

Primary Repair of Ruptured Tendon

Utilizing a #2 Maxbraid™ suture with a Krackow locking stitch technique, enter the distal medial aspect of the proximal portion of the Achilles tendon at a point of intact tendon. Run the suture through ensuring sufficient suture length is retained distal to the tendon (Figure 1).

Primary Repair of Proximal Tendon

Apply four Krackow locking stitches on the medial aspect of the proximal portion of the ruptured Achilles tendon. After completing the four Krackow locking stitches, run the suture laterally through the tendon. Then apply four Krackow locking stitches down along the lateral aspect of the proximal portion of the ruptured Achilles tendon (Figure 2).

These surgical techniques are utilized by Charles Zelen, DPM, FACFAS. Zimmer Biomet does not practice medicine. Each surgeon is responsible for determining the appropriate device and technique to utilize on each individual patient.

DermaSpan™ Acellular Dermal Matrix

Primary Repair of Ruptured Achilles Tendon

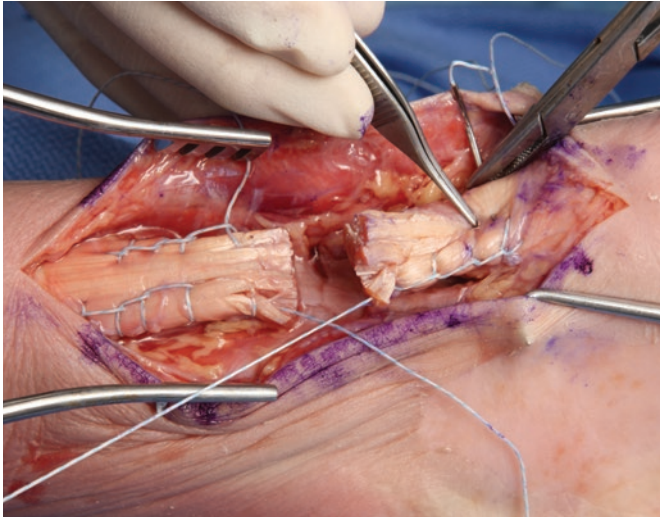


Figure 3

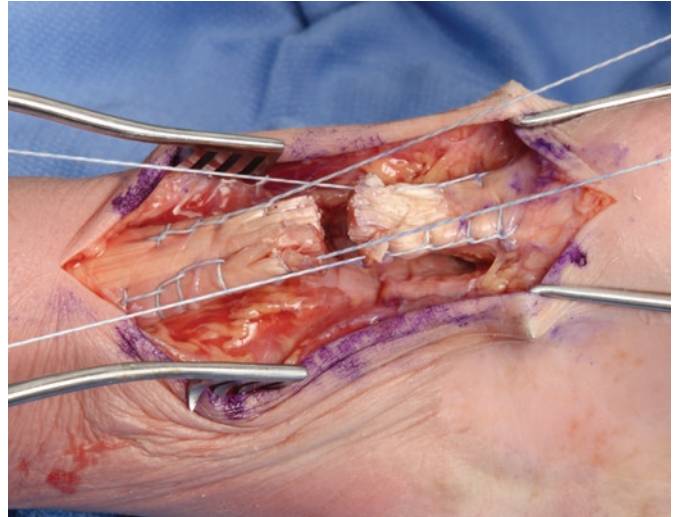


Figure 4

Primary Repair of Distal Tendon

Utilizing a #2 MaxBraid suture, run the suture through ensuring sufficient suture length is retained distally to the tendon. Apply four Krackow locking stitches to the medial aspect of the distal portion of the ruptured Achilles tendon in a similar fashion to the proximal portion of the ruptured Achilles tendon (Figure 3).

After completing the four medial Krackow locking stitches, run the suture laterally and apply four Krackow locking stitches to the lateral aspect of the distal portion of the ruptured Achilles tendon. Once the final four Krackow locking stitches have been made there should be four free ends of the sutures, two on each portion of the ruptured Achilles tendon (Figure 4).

DermaSpan™ Acellular Dermal Matrix

Primary Repair of Ruptured Achilles Tendon

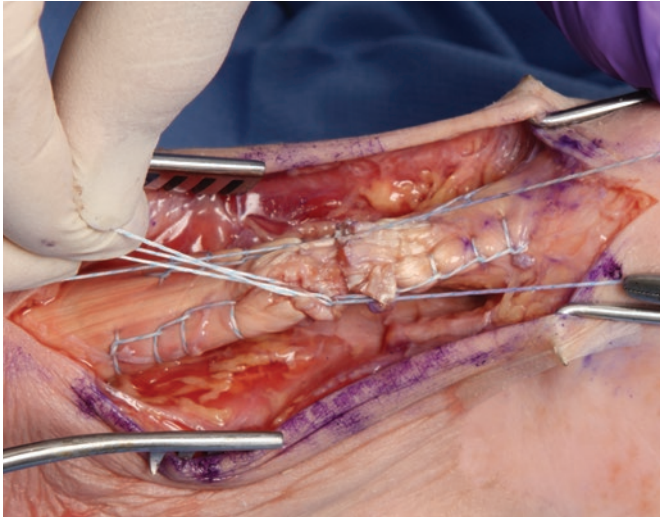


Figure 5

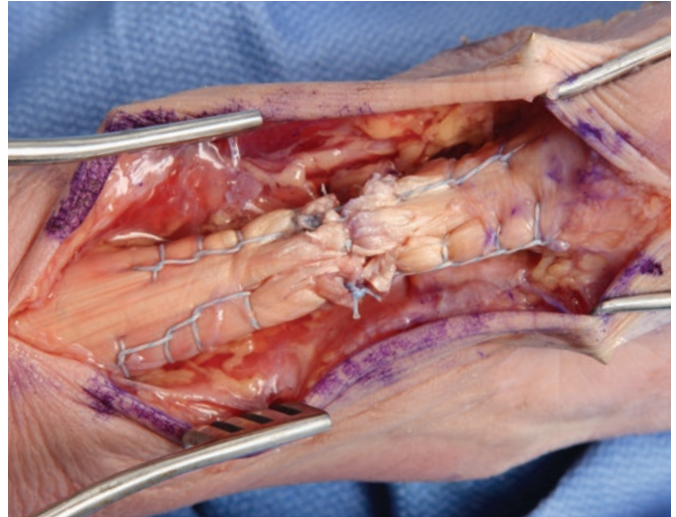


Figure 6

Tie Krackow Stitches

Pull the proximal and distal free ends of the sutures together to reduce the rupture. Tie off the proximal/medial and the distal/medial free suture ends to hold the reduction in place. Subsequently, tie off the proximal/lateral and the distal/lateral free suture ends to hold the reduction in place (Figure 5).

Completion of Primary Repair

Cut the residual free suture (Figure 6). Primary repair completed.

To complete the repair with a circumferential reinforcement, see pages 5-7. To complete the repair with a posterior reinforcement, see pages 8 and 9.

DermaSpan™ Acellular Dermal Matrix

Circumferential Reinforcement of Ruptured Achilles Tendon



Figure 7

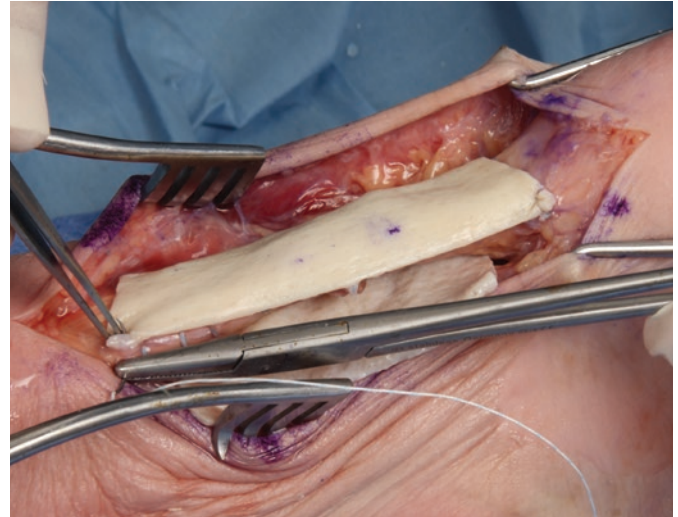


Figure 8

Initial Placement of Circumferential Wrap

Rehydrate an appropriate sized DermaSpan Acellular Dermal Matrix per the rehydration instruction in the Instructions for Use. Place the DermaSpan ACD anterior to the repaired Achilles tendon ensuring that the dermal side of the graft is contacting the tendon and the basement side is away from the tendon. Note this is critical to allow for appropriate tissue integration of the graft during the healing process.

Align the DermaSpan ACD so that it evenly covers the proximal and distal portions of the Achilles tendon around the rupture (Figure 7).

Completion of Circumferential Wrap

Roll the medial overhanging portion of the DermaSpan ACD over the posterior aspect of the Achilles tendon so that both the anterior and posterior sides of the tendon are covered. Apply a tack suture with 2-0 MaxBraid suture on each corner of the rolled DermaSpan ACD (superior and inferior). The DermaSpan ACD, which was pulled over the Achilles posteriorly, is now firmly tacked down to the Achilles tendon (Figure 8).

DermaSpan™ Acellular Dermal Matrix

Circumferential Reinforcement of Ruptured Achilles Tendon

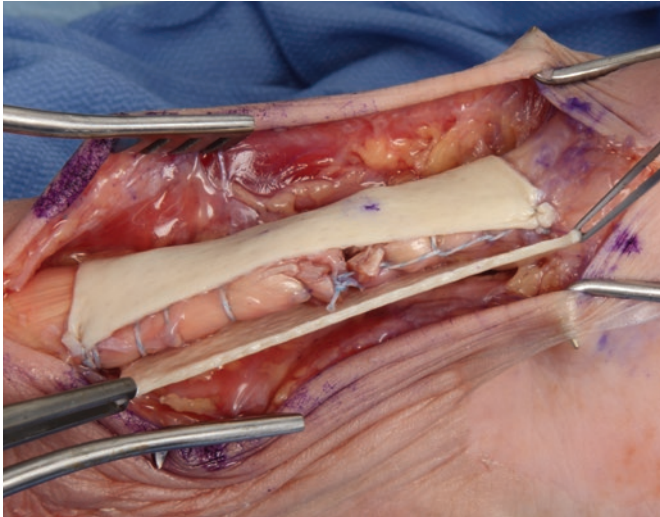


Figure 9



Figure 10

Completion of Circumferential Wrap (cont.)

Take the rest of the lateral overhanging portion of the DermaSpan ACD and gently remove the excess. Make note the remaining portion of the ACD will touch but not overlap the medial portion which is already tacked down to the Achilles tendon (Figure 9).

Apply two, 2-0 MaxBraid suture tacks to both free ends of the DermaSpan ACD, causing the suture to go through both ends of the DermaSpan ACD and a portion of the Achilles tendon. This will secure the patch in place. One additional stitch should be placed in the center so the patch does not move during the lateral trap (a.k.a. “burrito wrap”) suture technique (Figure 10).

DermaSpan™ Acellular Dermal Matrix

Circumferential Reinforcement of Ruptured Achilles Tendon

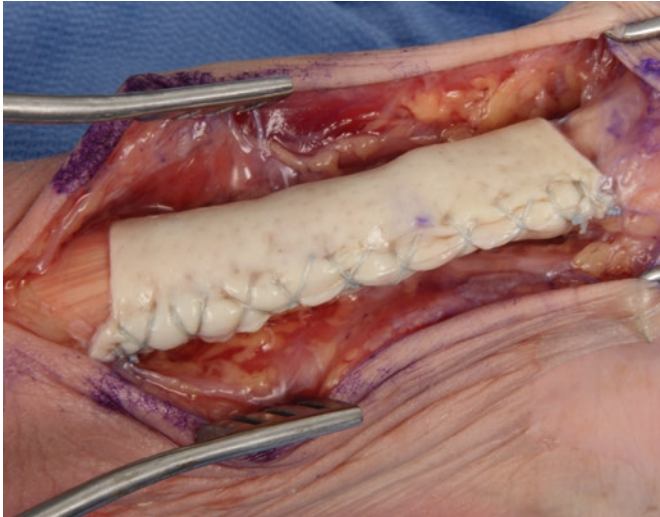


Figure 11

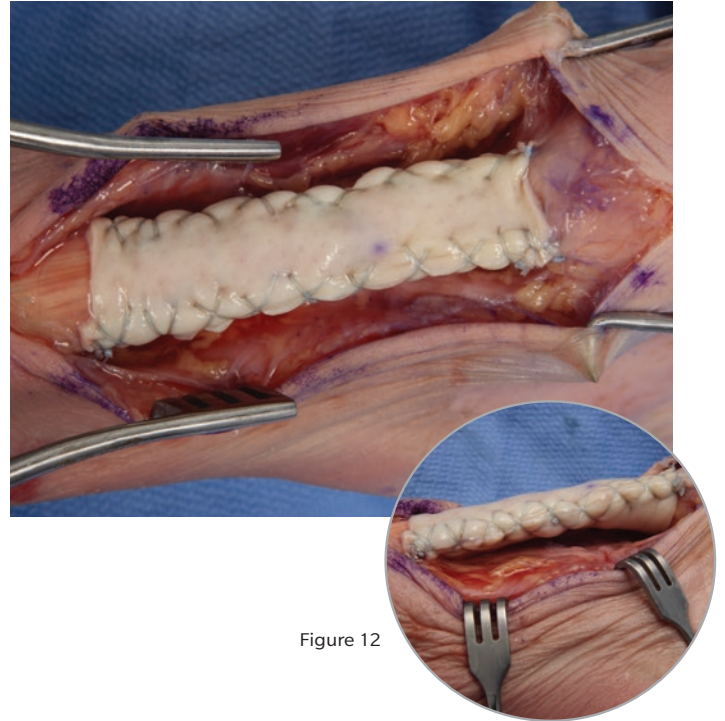


Figure 12

Lateral Trap Suture Technique

Utilizing 2-0 Maxbraid suture, apply nine lateral trap running sutures on the medial aspect of the repair. Ensure that the sutures run through the DermaSpan ACD and the Achilles tendon.

The lateral trap suture technique is a running, non-locking stitch from the bottom of the DermaSpan ACD and Achilles tendon up to the top. The same stitch is run back down the ACD with the needle entering the ACD and Achilles halfway between the prior suture loop, giving a crisscross effect (Figure 11).

An additional nine lateral trap sutures are placed in the lateral aspect of the tendon and ACD running up and back down halfway between the prior suture loop.

Completed Circumferential Wrap Technique

Both posterior and lateral views of the circumferential “burrito wrap” technique are shown above. (Figure 12).

DermaSpan™ Acellular Dermal Matrix

Posterior Reinforcement of Ruptured Achilles Tendon

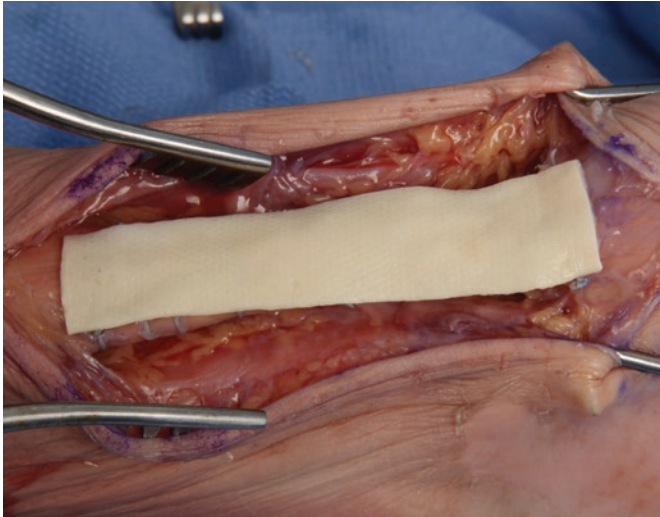


Figure 1

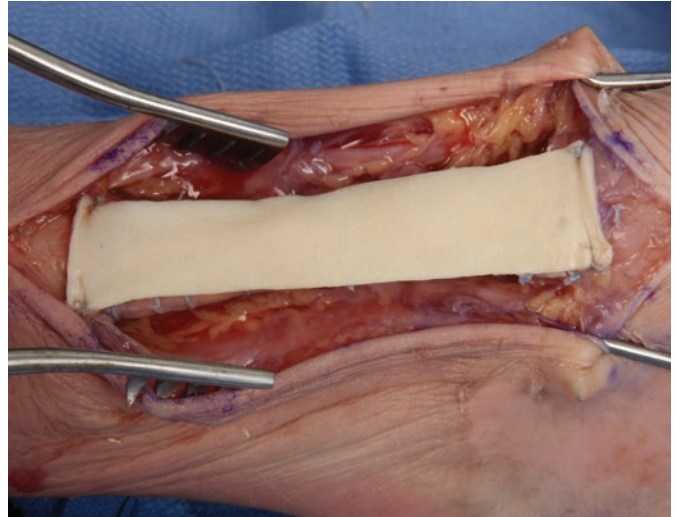


Figure 2

Primary Repair

To view a primary repair of a ruptured achilles tendon see pages 2-4.

Apply DermaSpan Acellular Dermal Matrix

Rehydrate an appropriate sized DermaSpan Acellular Dermal Matrix per the rehydration instruction in the Instructions for Use. Place the DermaSpan ACD on the posterior face of the repaired Achilles tendon ensuring that the dermal side of the graft is contacting the tendon and the basement side is away from the tendon (Figure 1). Note this is critical to allow for appropriate tissue integration of the graft during the healing process.

Align the DermaSpan ACD so that it evenly covers the proximal and distal portions of the Achilles tendon around the rupture.

Tack DermaSpan ACD in Place

Apply tack sutures with 2-0 MaxBraid suture on each corner of the DermaSpan ACD onto the proximal and distal portions of the repaired Achilles tendon (Figure 2).

DermaSpan™ Acellular Dermal Matrix

Posterior Reinforcement of Ruptured Achilles Tendon

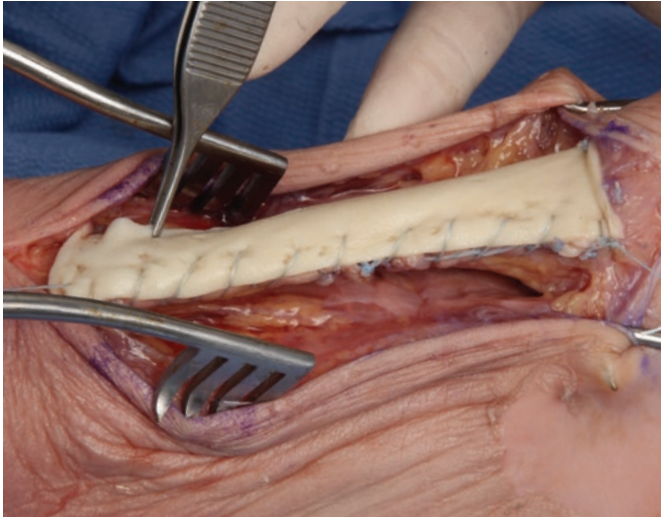


Figure 3

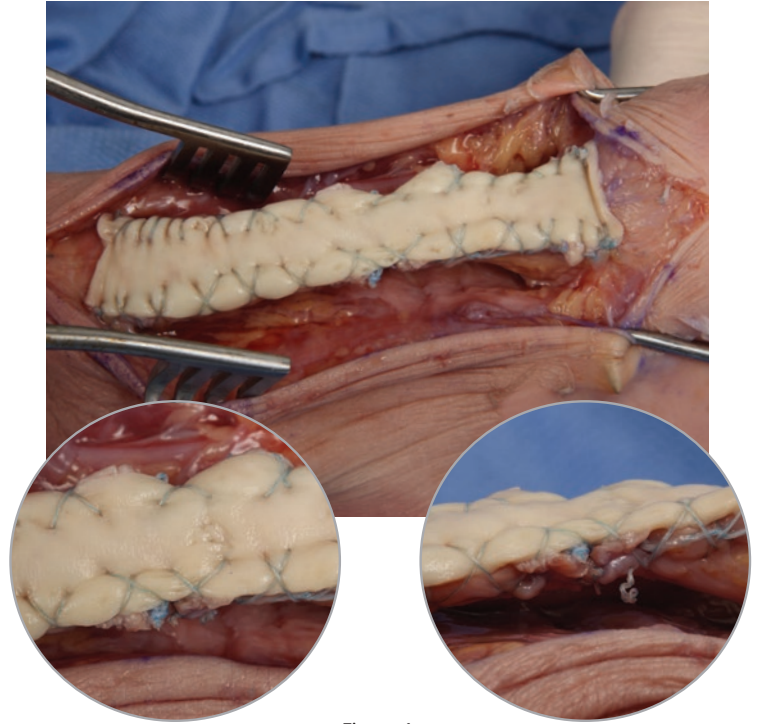


Figure 4

Augment Repair– Apply Running Sutures

Utilizing 2-0 MaxBraid suture, apply nine lateral trap running sutures on the medial aspect of the repair. Ensure that the sutures run through the DermaSpan ACD and the Achilles tendon (Figure 3).

The lateral trap suture technique is a running non-locking stitch from the bottom of the DermaSpan ACD and Achilles tendon to the top. The same stitch is run back down the ACD with the needle entering the ACD and Achilles halfway between the prior suture loop, giving a crisscross effect.

Next, apply nine lateral trap running sutures on the lateral aspect of the repair. Run the same stitch back down the DermaSpan ACD with the needle entering the ACD and Achilles halfway between the prior suture loop creating a crisscross effect. Ensure that the sutures run through the DermaSpan ACD and the Achilles tendon (Figure 4).

DermaSpan™ Acellular Dermal Matrix

Part Numbers

Non-mesh

| Part Number | Size | Thickness |
|-------------|---------------|------------------|
| 48-0700404 | 4 cm – 4 cm | 0.5 mm – 0.9 mm |
| 48-0700408 | 4 cm – 8 cm | 0.5 mm – 0.9 mm |
| 48-1100407 | 4 cm – 7 cm | 0.8 mm – 1.4 mm |
| 48-1100510 | 5 cm – 10 cm | 0.8 mm – 1.4 mm |
| 48-1100505 | 5 cm – 5 cm | 0.8 mm – 1.4 mm |
| 48-0900307 | 3 cm – 7 cm | 0.9 mm – 1.99 mm |
| 48-0900407 | 4 cm – 7 cm | 0.9 mm – 1.99 mm |
| 48-0900412 | 4 cm – 12 cm | 0.9 mm – 1.99 mm |
| 48-0900416 | 4 cm – 16 cm | 0.9 mm – 1.99 mm |
| 48-0900510 | 5 cm – 10 cm | 0.9 mm – 1.99 mm |
| 48-0900612 | 6 cm – 12 cm | 0.9 mm – 1.99 mm |
| 48-0900616 | 6 cm – 16 cm | 0.9 mm – 1.99 mm |
| 48-0900812 | 8 cm – 12 cm | 0.9 mm – 1.99 mm |
| 48-0900816 | 8 cm – 16 cm | 0.9 mm – 1.99 mm |
| 48-0901212 | 12 cm – 12 cm | 0.9 mm – 1.99 mm |
| 48-0901620 | 16 cm – 20 cm | 0.9 mm – 1.99 mm |
| 48-2000307 | 3 cm – 7 cm | 2.0 mm – 3.5 mm |
| 48-2000407 | 4 cm – 7 cm | 2.0 mm – 3.5 mm |
| 48-2000412 | 4 cm – 12 cm | 2.0 mm – 3.5 mm |
| 48-2000416 | 4 cm – 16 cm | 2.0 mm – 3.5 mm |
| 48-2000510 | 5 cm – 10 cm | 2.0 mm – 3.5 mm |
| 48-2000612 | 6 cm – 12 cm | 2.0 mm – 3.5 mm |
| 48-2000616 | 6 cm – 16 cm | 2.0 mm – 3.5 mm |
| 48-2000812 | 8 cm – 12 cm | 2.0 mm – 3.5 mm |
| 48-2000816 | 8 cm – 16 cm | 2.0 mm – 3.5 mm |
| 48-2001212 | 12 cm – 12 cm | 2.0 mm – 3.5 mm |
| 48-2001620 | 16 cm – 20 cm | 2.0 mm – 3.5 mm |

Mesh

| | | |
|-------------|-------------|-----------------|
| 48-0400404M | 4 cm – 4 cm | 0.4 mm – 0.8 mm |
| 48-0400408M | 4 cm – 8 cm | 0.4 mm – 0.8 mm |

Indications for Use

DermaSpan ACD is to be used for the repair or replacement of damaged or inadequate integumental tissue or for other homologous uses of human integument. DermaSpan Meshed ACD is to be used as a covering for skin wounds (e.g. burns, ulcers) and should not be used in load-bearing applications. The standard allograft (non-meshed) may also be used for supplemental support, protection, reinforcement or covering of tendon or ligament, but is not intended to bear the load. Each package of DermaSpan ACD is intended for use in one patient on a single occasion by a licensed physician, surgeon, dentist or podiatrist.

Contraindications

Use of DermaSpan ACD in patients exhibiting autoimmune connective tissue disease is not recommended. DermaSpan should not be used in patients with sensitivities to processing agents (see WARNINGS).

WARNINGS

Potential adverse effects that may result from placement of DermaSpan ACD include, but are not limited to wound or systemic infection; seroma; dehiscence; hypersensitivity; allergic or other immune response; sloughing or failure of the graft; and disease transmission.

- Trace amounts of processing agents include, but are not limited to, Triton X-100 and gentamicin.
- Do not re-sterilize or reuse once opened

Extensive medical screening procedures have been used in the selection of all tissue donors (see Donor Screening and Testing). Due to limitations in testing technology, testing and donor screening cannot totally eliminate the risk that human source material may transmit infectious agents or diseases.

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For indications, contraindications, warnings, precautions, potential adverse effects and patient counselling information, see the package insert or contact your local representative; visit www.zimmerbiomet.com for additional product information.

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