Surgical Technique Guide
Fasciotomy Closure - Extremity

- Utilizes Skin Anchors and a Tension Controller
- Maintains a Continuous Controlled Pulling Force Until Removed
- No Additional Tightening Required After Initial Application
- Calibrated Pulling Force is Maintained Until the Device is Removed
Product Description
DermaClose® RC is a continuous external tissue expander that facilitates rapid tissue movement to reduce or re-approximate wounds.

Indication for Use:
The DermaClose RC Continuous External Tissue Expander is indicated for use in reducing or assisting with the closure of full-thickness wounds of the skin.

Contraindications:
The DermaClose RC Continuous External Tissue Expander should not be used on ischemic or infected tissue. It should not be used on fragile tissue at the edges of a wound.

⚠️ Attention:
This technique guide is provided as educational tool for properly licensed medical professionals. The surgeon who performs any procedure must use professional judgment and is responsible for determining and using the appropriate technique for each patient.

*This guideline assumes the application of the DermaClose is on day 2 or 3 post compartment release during the first washout and debridement operative visit. The DermaClose may also been placed at the time of compartment release or at bedside under local anesthesia.

Caution:
Federal law restricts this device to sale by or on the order of a physician or a licensed practitioner.

Package Contents:
Tension Controller with
Nylon Loop       Skin Anchors (10)       Bridge Tubing      3M Vista Skin Stapler (6-7mm wide)

The enclosed 3M Skin Stapler has a two stage mechanism. The initial squeeze allows you to expose and position the staple and then push down and squeeze fully to apply the staple across the skin anchor and into the skin.

Tip: The bridge tubing allows for remote positioning of the tension controller for more convenient placement of the tension controller. Remove the shorter piece of tubing if using the longer bridge tubing.
1 Wound Preparation

Considerations Prior To Application

- Local, regional, or general anesthesia should be used as indicated.
- For fasciotomy closure DermaClose is often applied 2-3 days post compartment release.
- The DermaClose is typically left on fasciotomy wounds for 3-7 days

1. Utilize local, regional or general anesthesia as indicated.
2. Ensure that the wound bed has been thoroughly cleaned and debrided of all devitalized tissue prior to application.
3. The wound edges should be surgically undermined on the supra-fascial plane to mobilize the dermis.
4. Undermine the wound margins on the supra-fascial plane approximately half of the width of the wound when indicated. (If the wound is 8cm wide then undermine 4cm on each side.)
5. Once undermined, close as much of the distal and proximal wound as possible before applying skin anchors.

2 Applying the Skin Anchors

1. Before placing the skin anchors decide on their location. Pre-marking the skin with a skin marker may be useful in ensuring that the anchors are placed evenly along the opposing wound edges.
2. Starting at one end of the wound, the Skin Anchors barbs should be placed approximately 1.5cm from the wound edges (where the barbs insert, and 2cm–3cm apart from each other. The Tension Line Tab should be closest to the wound edge.
3. Press in the Skin Anchors firmly so that the barbs fully penetrate the skin.

Tip: More effective wound edge approximation can be achieved when each anchor has an opposing anchor on the opposite side of the wound.

Tip: Typically one DermaClose kit with one tension controller and ten anchor are used for a wound 10-12 cm long and 4-5cm wide. If the wound is wider than 4-5cm use the six anchor technique and multiple DermaClose kits.
2 Applying the Skin Anchors (continued)

4. Affix each Skin Anchor in place by firmly pushing stapler down on Anchor and placing a staple flush against the Anchor in each gap between the two Staple Guides. Additional skin staples may be used if deemed necessary.

**Tip:** It is recommended to use the 3M Vista Skin Stapler 35W included in the DermaClose kit.

5. Depending on the length and width of the wound additional DermaClose devices may be required.

**Tip:** The 3M Vista Skin Stapler is a dual action stapler. The initial action exposes the staple and allows for positioning the staple on the Skin Anchor. The secondary action engages the staple across the Skin Anchor and into the skin.

**Tip:** It may be helpful to insert 2-3 skin anchors at a time and then affix them with the skin staples.

3 Applying the Tension Controller

**Tip:** It may be helpful to review Step 6 Dressing the Wound prior to applying the tension controller.

1. Push the short interface tubing firmly under the tab of the ‘Home’ skin anchor (usually the middle anchor of a 6, 8 or 10 anchor technique).

2. The Tension Controller is shipped with all available line out. With the interface Tube locked firmly under the Line Tab of the “Home” Skin Anchor, use both hands to grab each strand of Tension Line where it exits the interface Tubing. Separate the two lines, and with slight tension on each line, lace each line through the Line Tab of the two opposing Skin Anchors following an inside-out direction. Form the letter V with the first motion, the letter M with the second motion, and the letter W with the final motion. See Shoelace Technique Guide package insert.

*If the desire is to place the Tension Controller away from the wound edge for patient comfort or convenience, remove the short Bridge Tube from the Tension Line and replace it with the longer Bridge Tubing.*

**Note 1:** The longer 15cm Bridge Tubing can be cut to any desired length.

**Note 2:** Adding a longer length tube will significantly reduce the length of Tension Line you will have to work with. The DermaClose XL, with a longer Tension Line, is an option for this application.

3. Hold the interface tubing with one hand and pull back on the tension controller to pull out the slack in the line. (Repeat if using multiple DermaClose devices.)
4 Lacing the Tension Controller

**Six Anchor Technique**

**Step 1**
- Seat tension controller tube under tab of home anchor (#5), loop line under anchor tab #1 and 3.

**Step 2**
- Loop line under anchor tab #4 and 6.

**Step 3**
- Loop remaining line under tab on anchor #2, turn blue control knob clockwise until audible clicking is heard (approx. 12 full rotations).

**Tip:** If the muscle is protruding covering it with layers of XeroFORM or Adaptic placed under the tension controller line will help reduce possible “cheese cutter” effect.

After the line is looped around the tab of all the skin anchors pulling back on the tension controller is a good way to snug the line before starting to wind the knob.

**Eight Anchor Technique**

**Step 1**
- Seat tension controller tube under tab of anchor #7 (#6 could also be used), loop line under anchor tab #2 and 4.

**Step 2**
- Loop line under anchor tab under #5 and 8.

**Step 3**
- With left hand loop line under anchor tab #1 while pausing at anchor #8 with right hand.

**Tip:** Pulling back on the tension controller will snug the line and get everything started and tight.
4 Lacing the Tension Controller (continued)

**Step 4**
With left hand loop line under anchor tab #6 while #8 (right hand) remains paused.

**Step 5**
Loop remaining line under tab on anchor #3, turn blue control knob until audible clicking is heard (approx. 12 full rotations).

**Ten Anchor Technique**

**Step 1**
Seat tension controller tube under tab of home anchor (#8), loop line under anchor tab #2 and 4.

**Step 2**
Loop line under anchor tab #6 and 10.

**Step 3**
Loop line under anchor tab #1 and 5.

**Step 4**
Loop line under anchor tab #7 and 9.

**Step 5**
To take up slack pull tension controller while allowing line to loop under anchor tab #3.

**Step 6**
To take up remaining slack turn tension controller clockwise and seat into home anchor #8.

**Tip:** Pulling back on the tension controller will snug the line and get everything started and tight.
5 Tightening the Tension Controller

1. Turn the blue knob clockwise until an audible clicking noise is heard. No additional tightening is required. (The device is spring motor driven. It requires approximately 12 full rotations.)
2. Suture loosely through the holes on the tension controller to secure the device to the skin.
3. Make sure the blue locking button is pressed in which will prevent accidental release of the tension force.

6 Dressing the Wound NPWT

1. The NPWT foam dressing can be placed either above or below the DermaClose Tension Line. (See package insert: NPWT Use with DermaClose RC Technique Guide)
2. For deeper wounds it may be desirable to put the NPWT foam in the wound bed below the Tension Line. When the foam is placed below the tension line, it is recommended that the Xeroform or Adaptic dressing be applied on top of the foam so that the Tension Line and tissue movement is not restricted.
3. For shallower wounds it may be desirable to put the NPWT foam on the wound bed above the Tension Line.

**Important guidelines when utilizing NPWT:**

In order to minimize the potential for the NPWT foam to impede tissue expansion, or potentially macerate the skin edges, cut the foam 50% smaller than the size of the wound bed.

Place a closed cell material similar to **DuoDERM between the Tension Controller and patients’ skin** to avoid skin blistering under the Controller. If utilizing the longer Bridge Tubing, place DuoDERM beneath the Tube also.

Once full tension has been applied to the Tension Line, **cover the Skin Anchors, Tension Line, Tension Controller, and NPWT foam with Adaptic**. This will ensure that the drape will not restrict the tension line, or disrupt the application of the Skin Anchors or Controller during dressing changes.

The NPWT drape can be placed over the entire area that is covered by Adaptic. This includes the Skin Anchors, Tension Controller, and Tension Line.

**Note:** The foam should not extend past the the edges of the wound and over the anchors or tissue maceration may occur.
7 Removal or Re-Application

Removing the DermaClose RC

- Remove the DermaClose RC device after the desired tissue expansion has occurred (Typically 3-7 days).
- Remove the sutures securing the Tension Controller.

Releasing Tension line:

- If not re-applying the Tension Controller you can cut the Tension Line.
- Pull out the Locking Button, press down on the Controller knob, and turn counter-clockwise or cut the Tension Line.

**Note:** with tension on the Tension Line, the Tension Control knob will automatically spin counter clockwise when depressed.

Remove the skin anchors:

- Remove the Tension Line from the Skin Anchors.
- Remove the staples from the skin.
- Remove each Skin Anchor and dispose of appropriately in a sharps container.

Re-applying the DermaClose RC

- Partial wound closure, and re-application at the time of dressing change is common when using DermaClose.

- If desired tissue expansion has not occurred, DermaClose RC can be re-applied. If re-applying, follow the same steps and techniques as the initial application.

- Note: there may also be a need for re-elevation of wound margins at this time. If so, follow the guidelines specified in Section 1.4; Wound Preparation.

- If scarring from skin anchors is a concern, it is recommended that the Skin Anchors are not left in place for longer than seven days. If re-applying DermaClose RC, repositioning of the Skin Anchors is recommended.

8 Post-Op Care

1. Dressings should be changed per standard of care. No additional tightening of the DermaClose RC tension controller is needed during the treatment period.

**Tip:** During the process of tissue expansion interstitial fluid is pressed out of the expanded tissue. Care should be taken to manage possible excess exudate.
9 Closing the Wound

- The DermaClose RC device will immediately begin to mobilize the tissue. It can be left in place until the desired tissue expansion has occurred. This can take anywhere from hours to days depending on wound location, size, and type of tissue.

- Definitive closure should be considered when the wound edges have re-approximated to within approximately 1cm.

- Re-elevation of the wound margins can aid in final closure. Wound edges can be freshened approximately 5mm prior to definitive closure.

- Definitive closure by suture and/or skin stapling is surgeon preference.

- If closure is still under high tension, DermaClose can be utilized to off-load the suture line tension. If using DermaClose to off load the suture line do not wind knob completely. Approximately six rotations of the blue knob should be sufficient to ensure tension is offloaded from the suture line.

- The DermaClose is typically left in place for 2-4 days for off-loading.

10 Application Time

- The most common application time for fasciotomy wounds is 3-7 days.

- Partial closure and re-application is common when using DermaClose.

- If the wound margins approximate to within 1cm closure can likely be accomplished.

*This Surgical Technique Guide was produced and written in conjunction with Craig H. Johnson M.D., Sheboygan, WI ©2014 All Rights Reserved. Wound Care Technologies, Inc.

www.dermaclose.com | 1721 Lake Drive West Chanhassen, MN 55317 | 1-800-896-0436