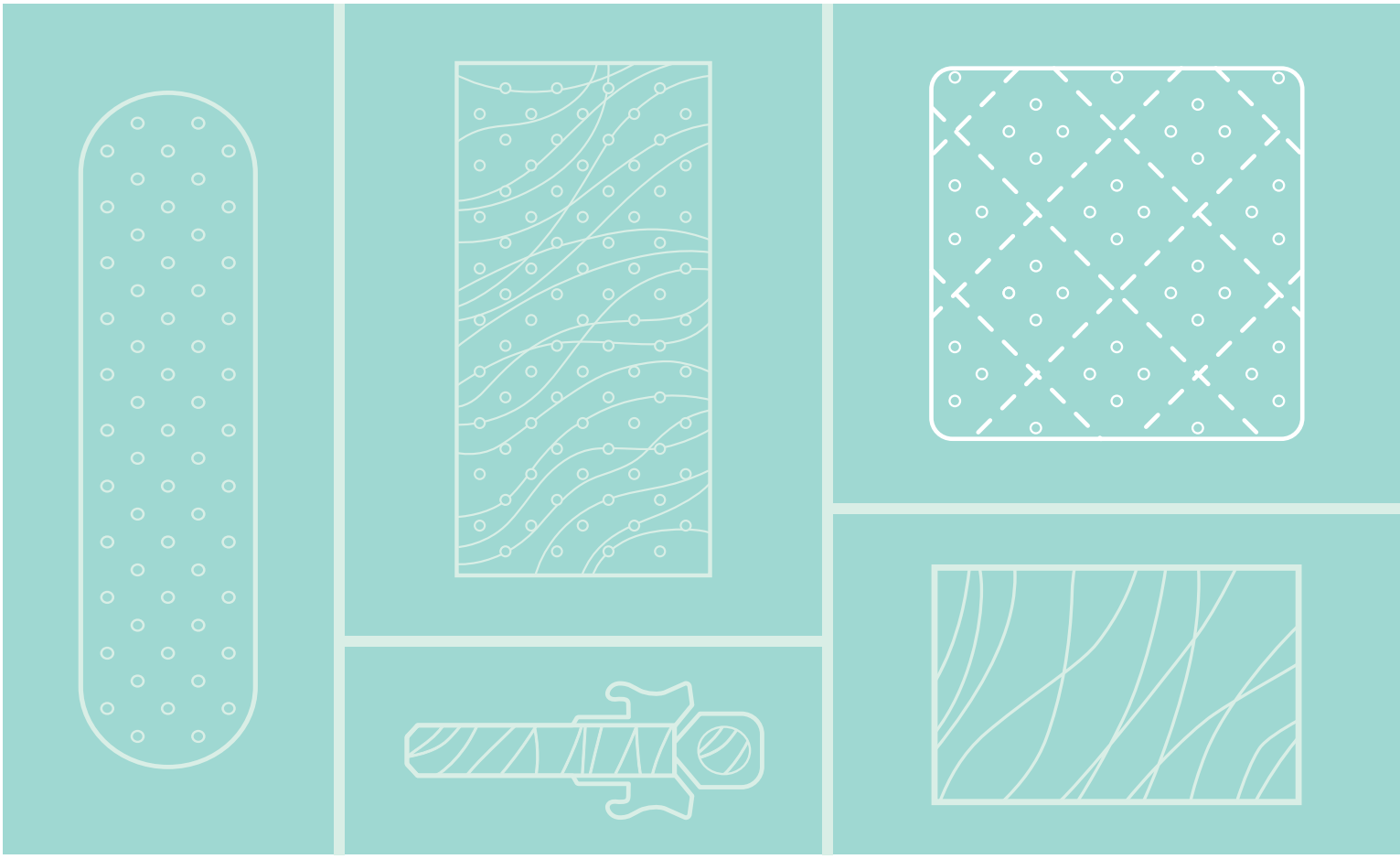
COOK MEDICAL

Biodesign™

SURGISIS® HERNIA GRAFT



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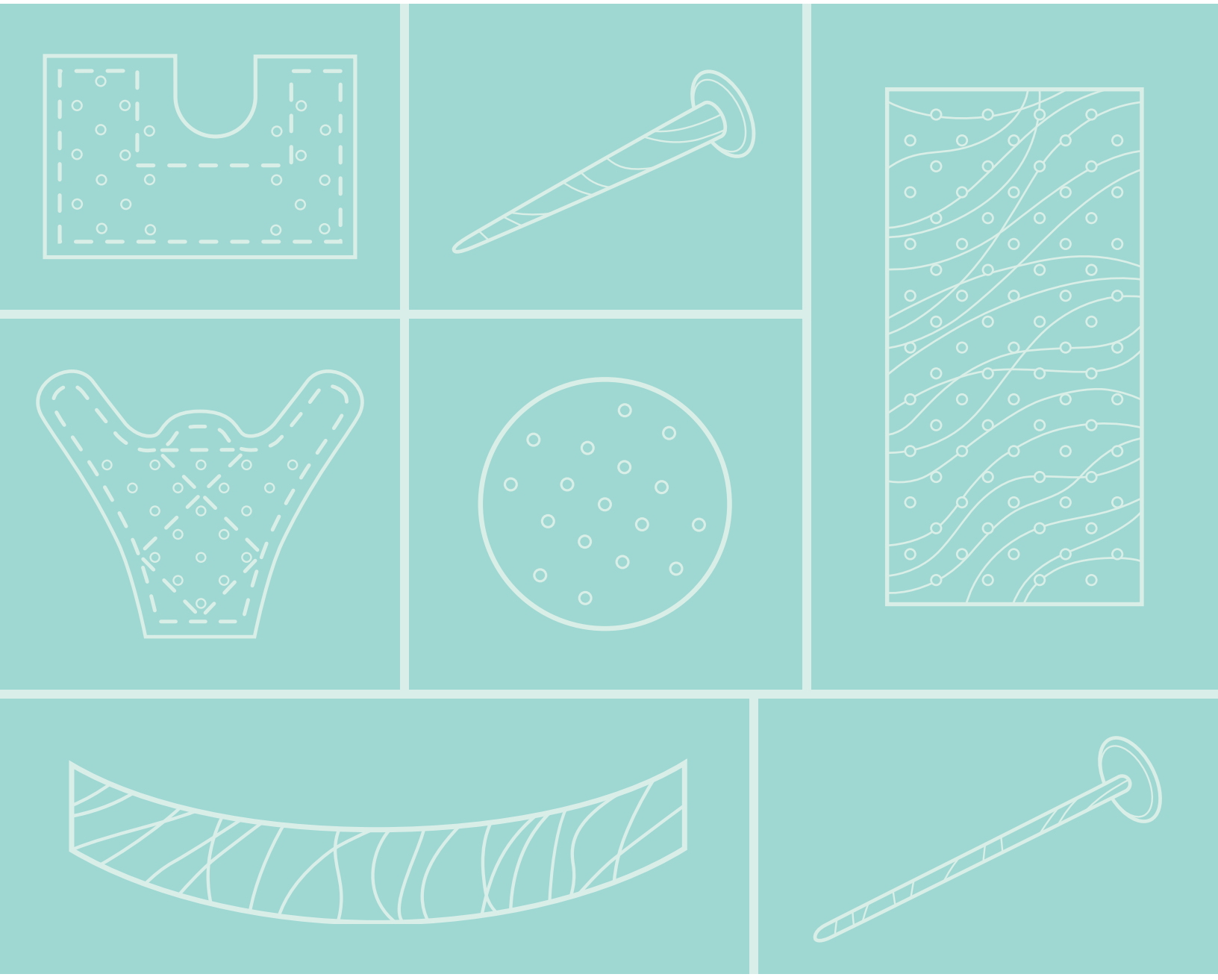
Ventral Hernia Repair – Best Outcomes

Procedural Guide



Achieve best outcomes using Biodesign for ventral hernia repair.

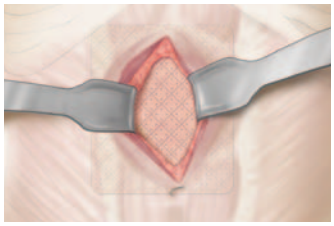
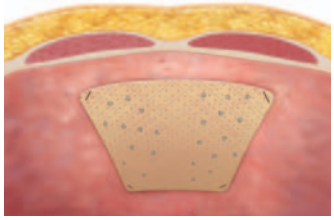
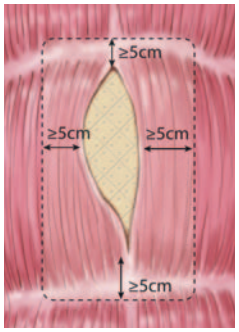
Achieving complete and permanent closure of the abdomen following ventral hernia repair is challenging to even the most accomplished surgeons. Despite the advent of prosthetics, recurrence rates of up to 40% have been reported[1-3] and are greatest in complicated fields. Choosing the proper graft and optimal surgical practices is important to achieving best outcomes.

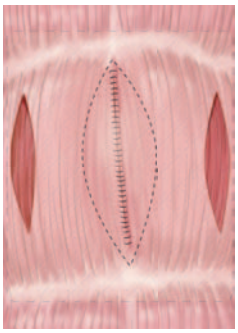
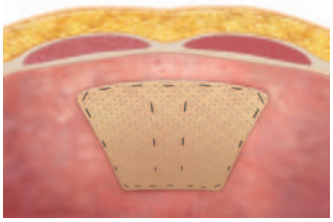
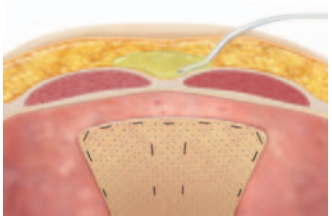
Biodesign is an advanced tissue repair graft that incorporates the best attributes of a biologic graft—complete remodeling and resistance to infection—with the added benefits of long-term strength, moderate price, ease of use and widespread availability. It provides strength in the abdominal wall while communicating with the body, signaling surrounding cells to grow across the scaffold and remodel host tissue.[4-6] Biodesign offers surgeons an advanced tissue repair graft for ventral hernia repair.

Recent trends in hernia repair have led to improved outcomes.[7-9] The following are suggested best surgical practices that may translate into the best clinical outcomes when Biodesign is used to repair ventral hernias in clean, clean-contaminated, contaminated and dirty–infected surgical fields. These recommendations are for both open and laparoscopic approaches.

Cook Medical—Keeping current on best practices.

Stages 1–3: Clean, Clean-Contaminated, Contaminated

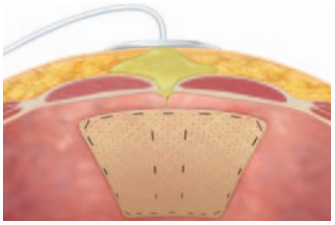
	Recommendation	Notes on Technique
1. Preoperative Device Hydration		
 Hydrate	**Open or Laparoscopic Procedure** Biodesign Hernia Graft	Hydrate < 1 minute in room temperature, sterile lactated Ringer's solution or sterile saline.
2. Mesh Placement – Tissue Plane		
 Open placement	**Open Procedure** Retrorectus or intraperitoneal	Ingrowth of strong, durable tissue requires intimate contact of Biodesign with the strong, vascular fascia. Preperitoneal/retrorectus (Rives and Stoppa technique) or intraperitoneal placement (underlay) is recommended for open procedures.
 Laparoscopic placement	**Laparoscopic Procedure** Intraperitoneal	Intraperitoneal placement (underlay) is recommended for a laparoscopic approach.
3. Overlap Distance		
 Overlap ≥ 5 cm	Extend ≥ 5 cm beyond fascial margins of defect.	Sufficient overlap of healthy tissue allows for mesh contraction, facilitates better tissue incorporation and reduces recurrence. Good tissue overlap is recommended for all Biodesign hernia grafts. When 5 cm of overlap is not attainable, overlapping as much tissue as possible is recommended.

	Recommendation	Notes on Technique
4. Bridging Distance		
	Bridging with graft alone is not recommended. To attain primary closure of defects, use relaxing incision or component separation. **If bridging is unavoidable, follow all other best practices described in this booklet.**	Judicious use of relaxing incisions or other techniques should be used to minimize bridging, especially in complicated cases. Minimizing the gap is thought to lead to improved outcomes. When using Biodesign in a large, contaminated defect, it is advisable to leave the skin open and cover the graft with wet, nonadherent dressings. Definitive resolution may require use of negative pressure wound therapy. Sharp, surgical debridement with dressing changes is not advised.
5. Suturing/Attachment		
 Sutures every 3 cm	Use permanent or long-term absorbable sutures according to surgeon preference. Use permanent or long-term absorbable tacks according to surgeon preference. Horizontal mattress suture technique is recommended. Leave ≤ 3 cm or ≤ 3 fingers between sutures with bite depth of 1 cm.	Tissue ingrowth into Biodesign is optimized through intimate tissue contact. Therefore, wide suture anchors at the mesh corners and at intervals of 3 cm or less around the circumference should be supplemented with closely spaced (≤ 1 cm) auxiliary attachment points using sutures, staples or tacks. Attaching sutures to graft prior to placement can reduce operating time and ease of use.
6. Post-op Wound Drains – Closed Spaces		
 Place drains	Place closed suction drains for 1-6 weeks. Remove when output is < 20 mL/24 hours for at least 2 consecutive days or until drain is dry.	Cook Medical advocates the use of closed suction drains placed in the subcutaneous position. This will reduce the subcutaneous dead space and accumulation of fluid. The number and size of drains will vary by defect size. The presence of small particles of graft in drainage fluid does not indicate graft failure and is often part of tissue regrowth.

Stage 4: Dirty–Infected Wounds

	Recommendation	Notes on Technique

Negative Pressure Vacuum-Assisted Devices – Open Abdomen



Negative pressure vacuum if open

If placed in a dirty-infected wound, it is recommended to **delay the closure** and treat the infection primarily.

Cover graft with a hydrogel or nonadherent dressing (e.g., Adaptic®, Mepitel®).

Cut appropriate foam to fit dimensions of wound and insert into abdominal space.

Place negative pressure vacuum-assisted devices according to product specifications.

Often negative pressure wound therapy can have settings < 100 mm Hg because of perforations and laminated layers.

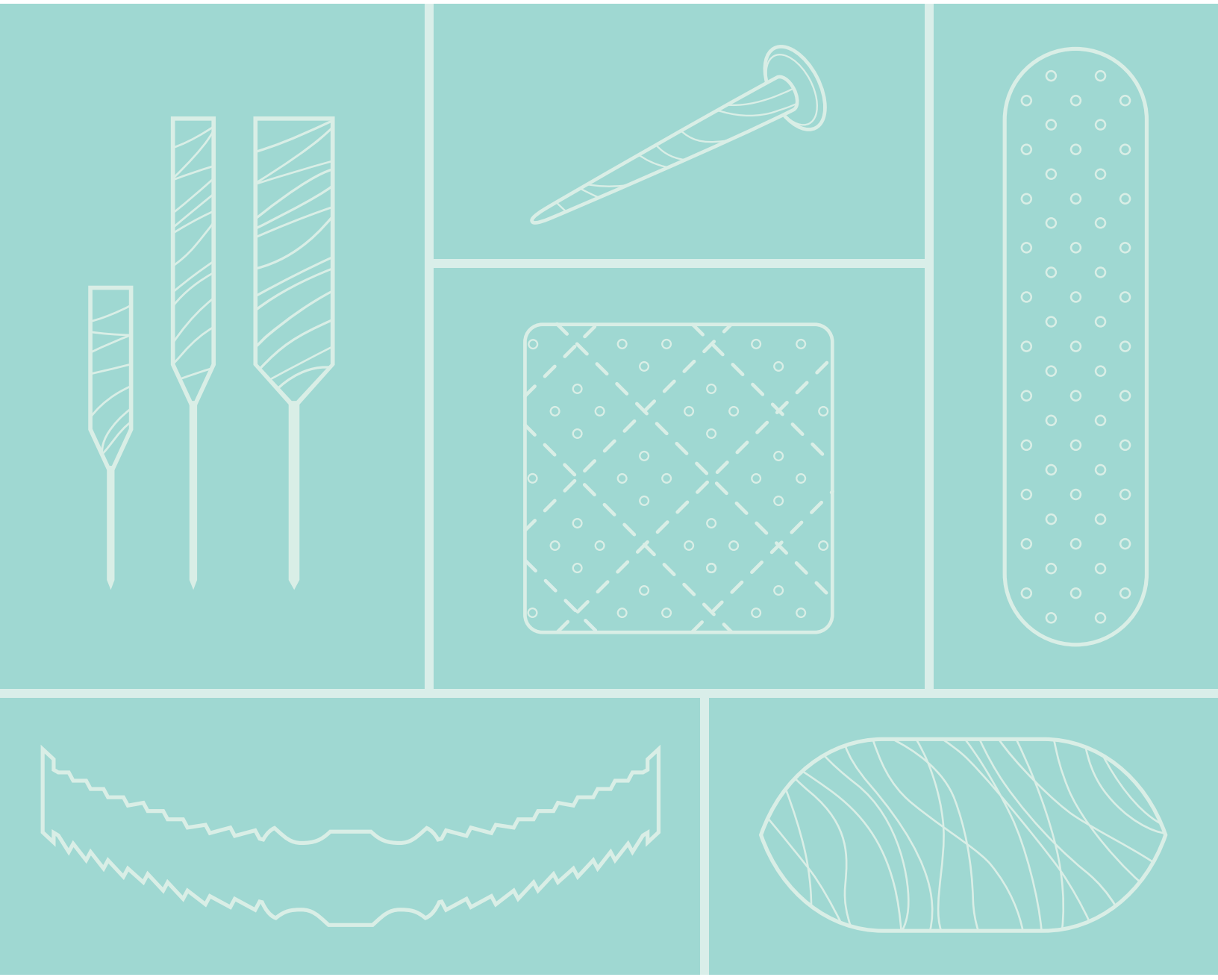
If V.A.C. WhiteFoam® is used, settings should be maintained at 125 mm Hg.

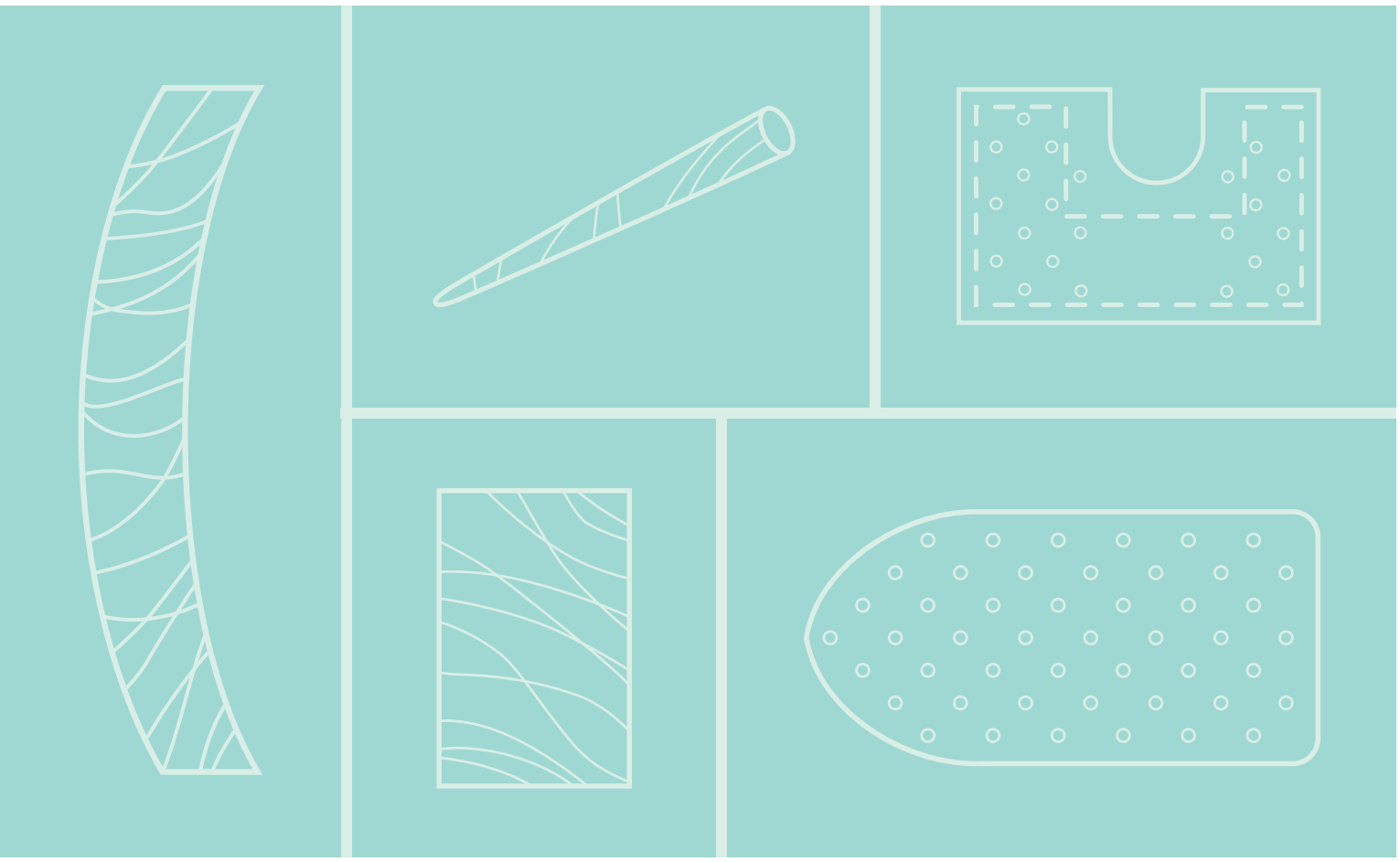
If during dressing change, delaminated, free-floating pieces of the graft are noted, gently debride to remove the nonincorporated pieces. Take care not to disturb deeper layers, where the remodeling process may be underway.[10] Average length of treatment is 4-6 weeks; however, some wounds may allow for earlier closure.

References

1. Jin J, Rosen MJ, Blatnik J, et al. Use of acellular dermal matrix for complicated ventral hernia repair: does technique affect outcomes? *J Am Coll Surg*. 2007;205(5):654-660.
2. Bellows CF, Albo D, Berger DH, et al. Abdominal wall repair using human acellular dermis. *Am J Surg*. 2007;194(2):192-198.
3. Tagaya N, Mikami H, Aoki H, et al. Long-term complications of laparoscopic ventral and incisional hernia repair. *Surg Laparosc Endosc Percutan Tech*. 2004;14(1):5-8.
4. Badylak SF. The extracellular matrix as a scaffold for tissue reconstruction. *Semin Cell Dev Biol*. 2002;13(5):377-383.
5. Hodde, J. Extracellular matrix as a bioactive material for soft tissue reconstruction. *ANZ J Surg*. 2006;76(12):1096-1100.
6. Hodde J, Janis A, Ernst D, et al. Effects of sterilization on an extracellular matrix scaffold: part I. Composition and matrix architecture. *J Mater Sci Mater Med*. 2007;18(4):537-543.
7. Cobb WS, Kercher KW, Heniford BT. Laparoscopic repair of incisional hernias. *Surg Clin North Am*. 2005;85(1):91-103, ix.
8. Burger JW, Luijendijk RW, Hop WC, et al. Long-term follow-up of a randomized controlled trial of suture versus mesh repair of incisional hernia. *Ann Surg*. 2004;240(4):578-585.
9. Heniford BT, Park A, Ramshaw BJ, et al. Laparoscopic repair of ventral hernias: nine years' experience with 850 consecutive hernias. *Ann Surg*. 2003;238(3):391-400.
10. Helton WS, Fisichella PM, Berger R, et al. Short-term outcomes with small intestinal submucosa for ventral abdominal hernia. *Arch Surg*. 2005;140(6):549-562.

Illustrations by Lisa Clark





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