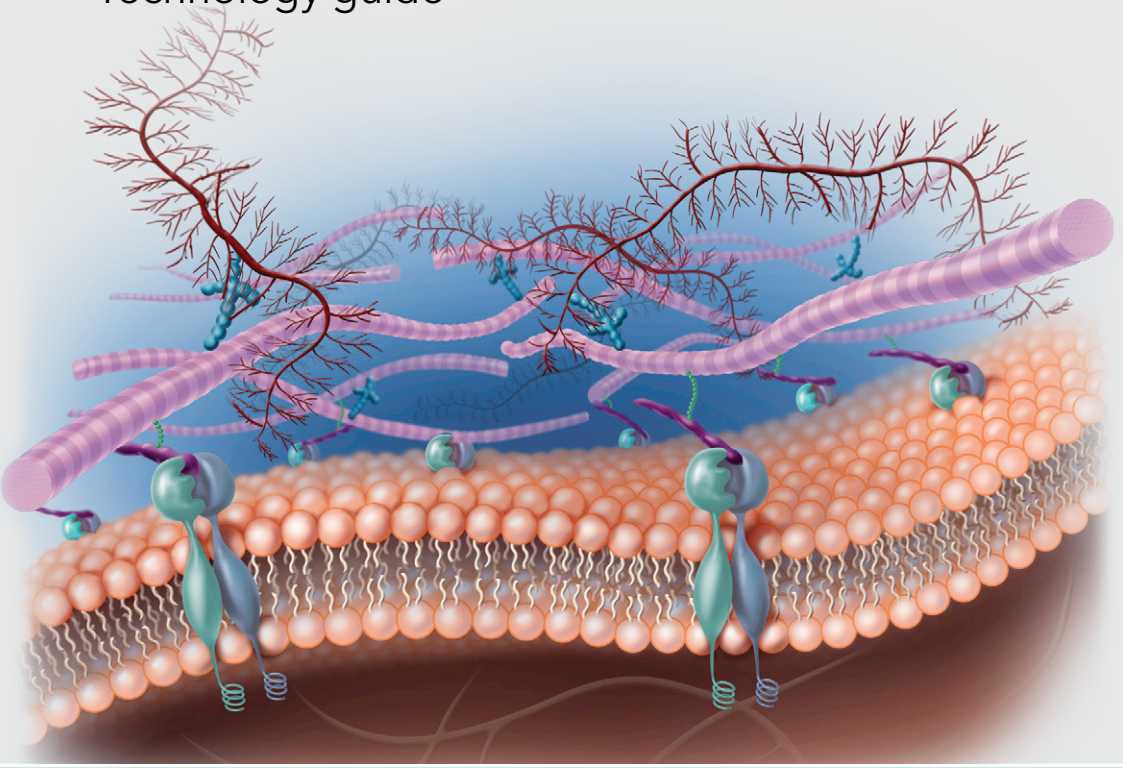
Move beyond to Biodesign.

Technology guide



Biodesign® allows the body to restore itself.
Created from porcine small intestinal submucosa, Biodesign acts as a scaffold for the body to regrow healthy, vascularized tissue.

COOK® MEDICAL

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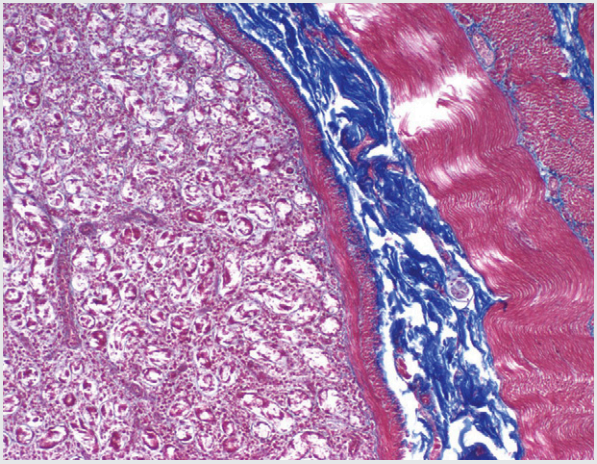
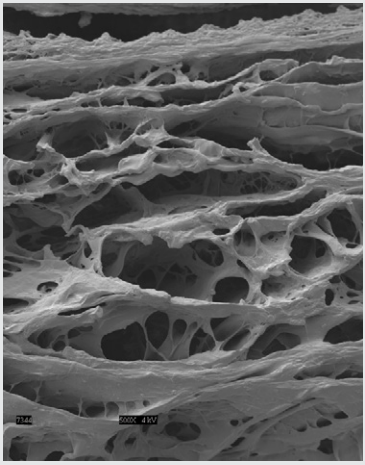
Move beyond
to intrinsic benefits.

The key to SIS-based technology

Porcine small intestinal submucosa is rich in collagen. Cook engineers isolated the raw submucosa and stripped all of its cells until only the collagen-rich extracellular matrix (ECM) remained. The body can recognize the ECM as a scaffold for tissue regrowth.



Porcine small intestinal submucosa is shown in blue

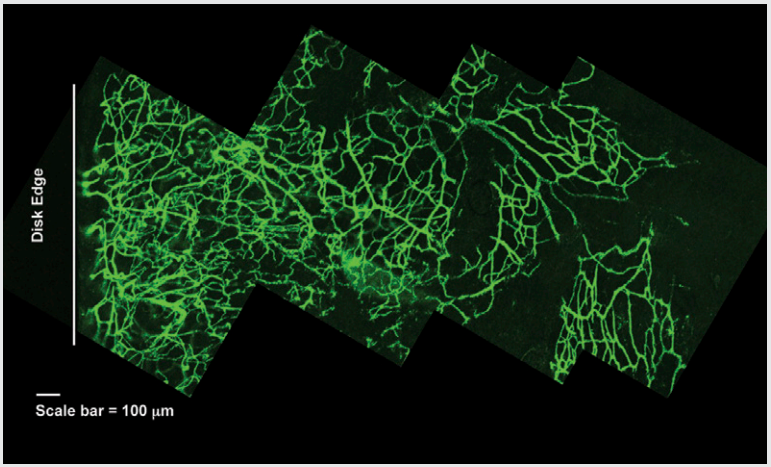


The extracellular matrix

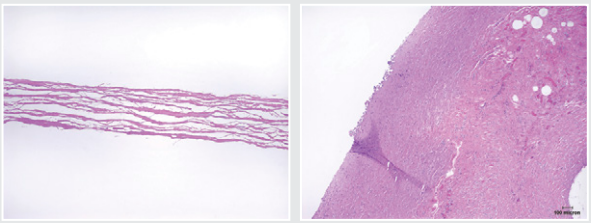
Biodesign retains the natural structure of the porcine small intestinal submucosa's ECM.

The impact of ECM

Because the ECM is open, the body can fill it with organized, vascularized tissue. The new blood vessels allow the body to reach and respond to infection in the area.



The Biodesign graft becomes vascularized following implantation in an animal model.



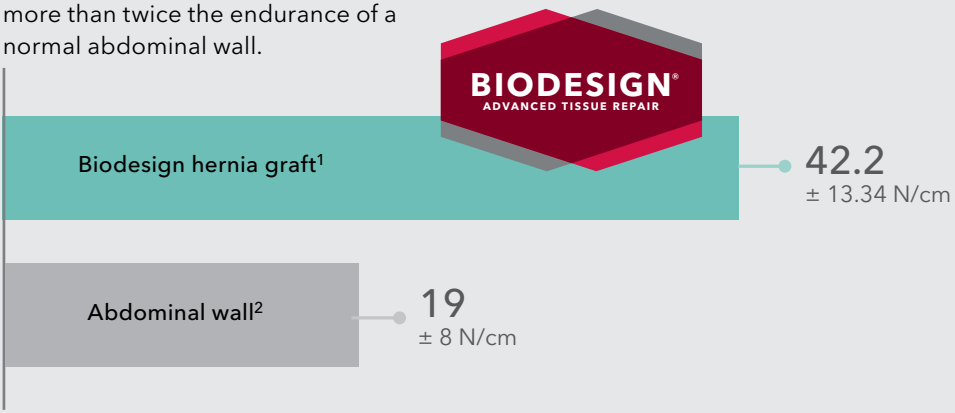
The Biodesign graft (left) allows for the substantial growth of organized tissue, as seen in this biopsy sample, taken eight months after implantation (right).

In the first week, the graft first implants (Day 0), and caramelizes (Day 7). While the Biodesign graft is caramelizing, the body sends cells to it. Eventually, new tissue granulates (week 8).

Move beyond
to stronger tissue.

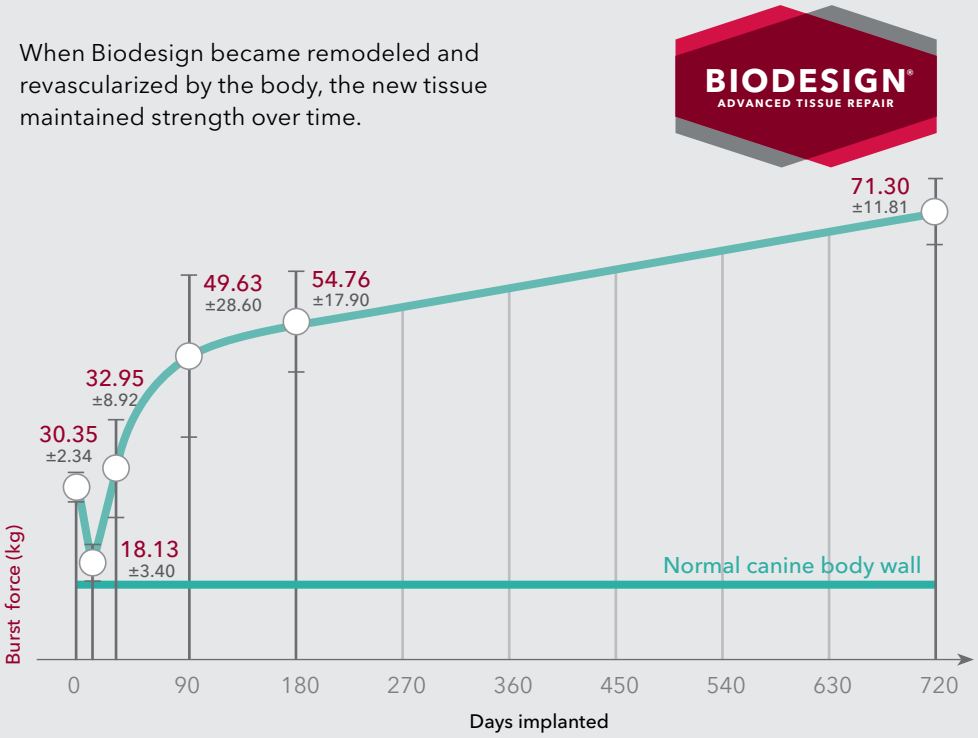
Tissue reinforced by Biodesign can become much stronger than the normal abdominal wall.

In a tensile strength test, an abdominal wall reinforced with Biodesign had more than twice the endurance of a normal abdominal wall.



1. Data on file at Cook Biotech.
2. Cobb WS, Burns JM, Kercher KW, et al. Normal intraabdominal pressure in healthy adults. *J Surg Res*. 2005;129(2):231-235.

When Biodesign became remodeled and revascularized by the body, the new tissue maintained strength over time.

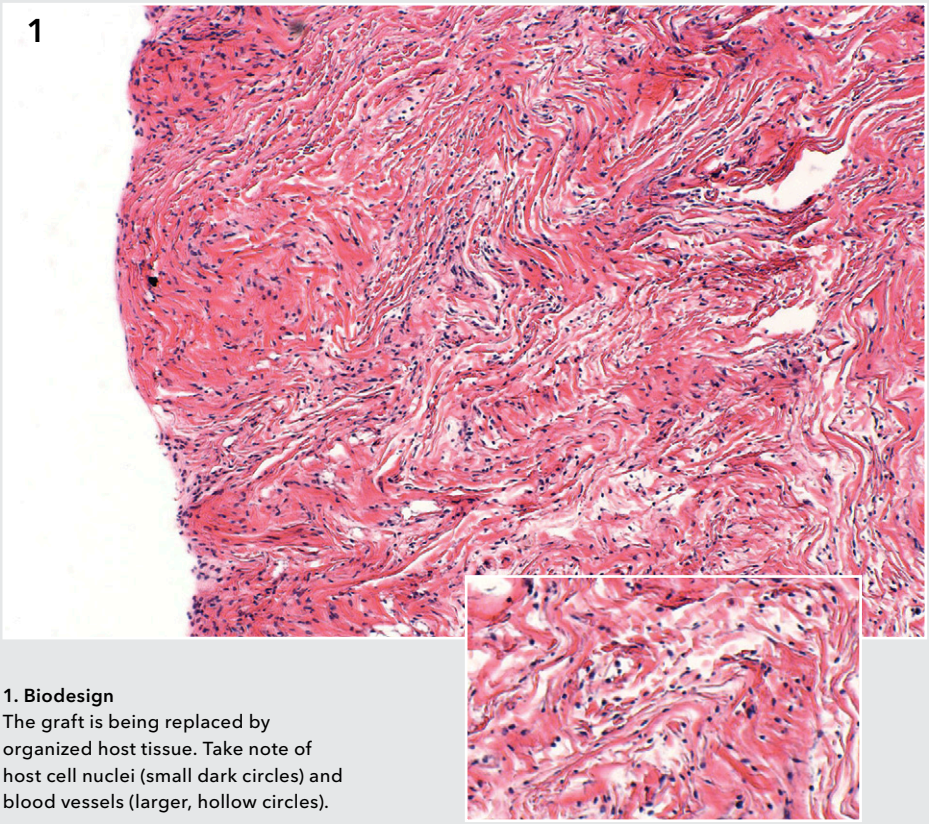


3. Badylak S, Kokini K, Tullius B, Whitson B. Strength over time of a resorbable bioscaffold for body wall repair in a dog model. *J Surg Res*. 2001;99(2):282-287.

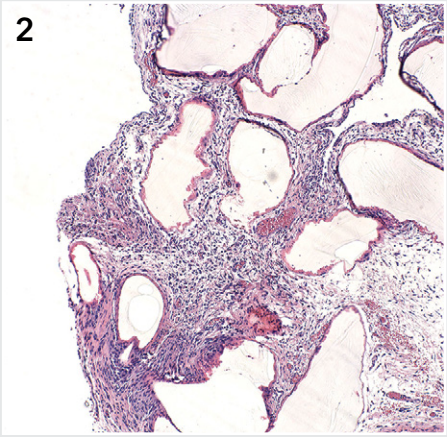
Move beyond
to revascularized tissue.

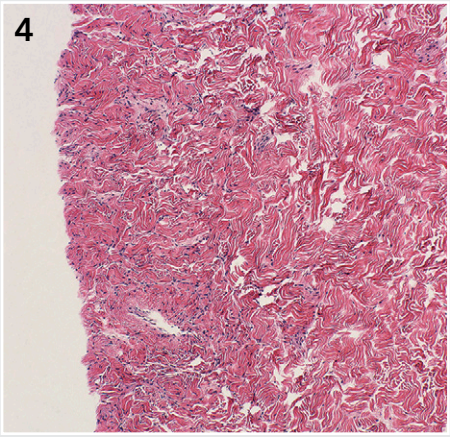
The comparison

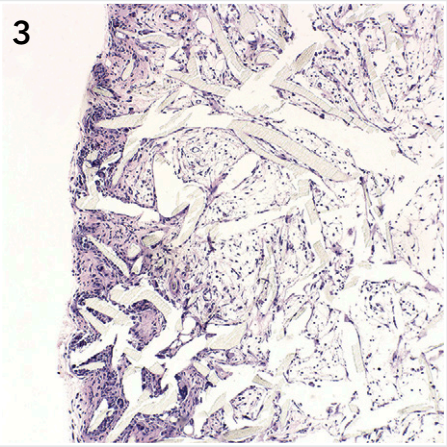
Compare the histology of Biodesign with the histologies of other grafts.

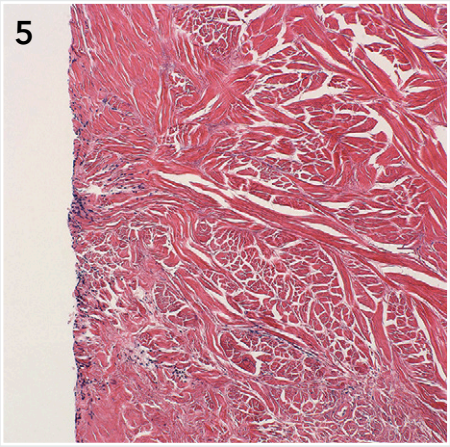


1. Biodesign
The graft is being replaced by organized host tissue. Take note of host cell nuclei (small dark circles) and blood vessels (larger, hollow circles).









2. Absorbable synthetic
(poly-4-hydroxybutyrate fibers)
The mesh causes an inflammatory response. The encapsulation is seen in the large white gaps.

3. Absorbable synthetic
(polyglycolic acid:trimethylene carbonate fibers)
An inflammatory response surrounds the structure of the absorbable material. The absorbable-crosshatch material is becoming encapsulated.

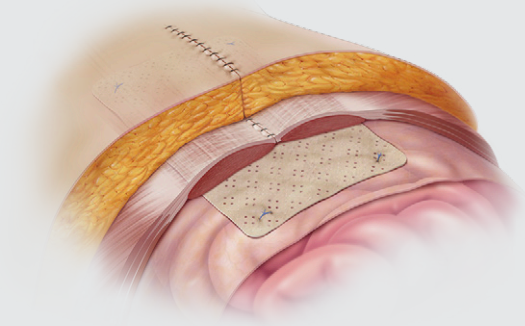
4. Dermis-based ECM
You can see modest tissue ingrowth on the ECM. The dense, pink stain on the top right of the frame shows the remnants of the graft. The ECM didn't remodel completely.

5. Cross-linked ECM
Along the disc edge, you can see simple tissue growth that has virtually no penetration into the graft material. This simple growth indicates delayed remodeling.

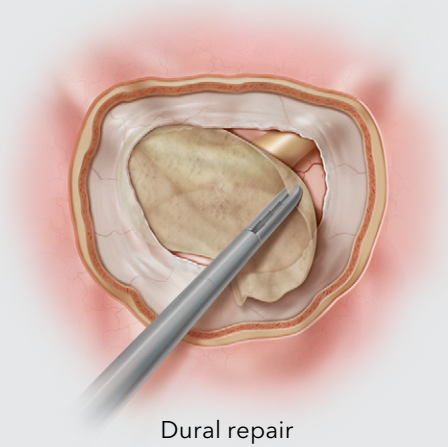
Move beyond
to reinforce a variety of locations in the body.

Biodesign in practice

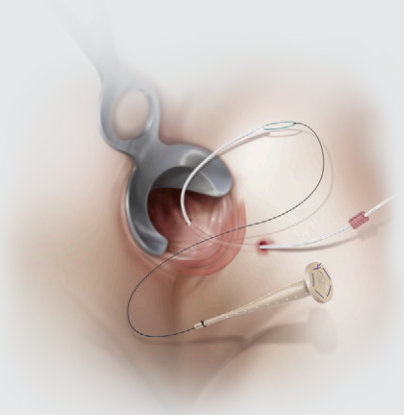
Biodesign can be used in a variety of soft-tissue-repair applications:*



Abdominal wall reconstruction and hernia repair

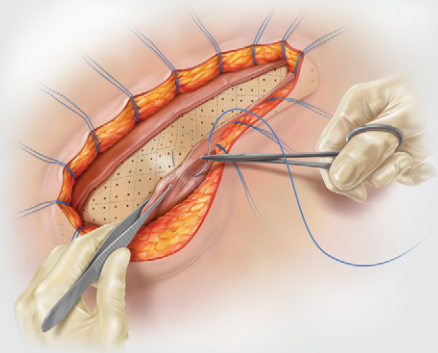


Dural repair

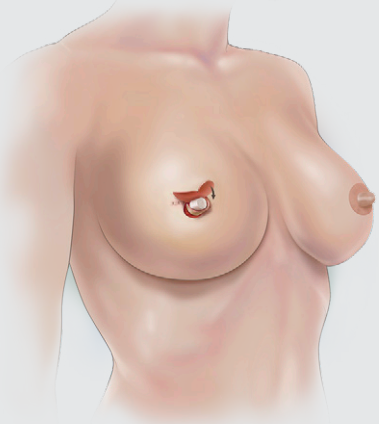


Fistula repair

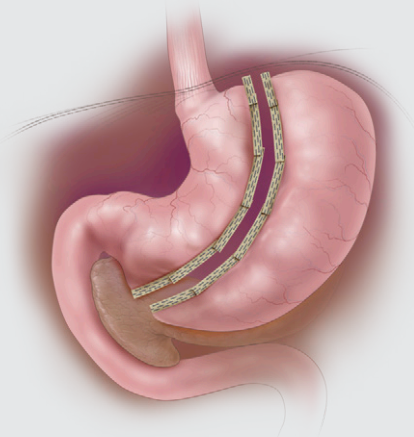
* Certain applications are not approved in certain countries.



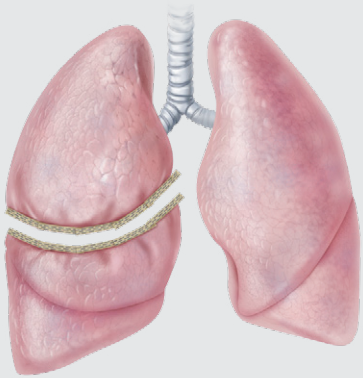
Incision reinforcement



Nipple reconstruction



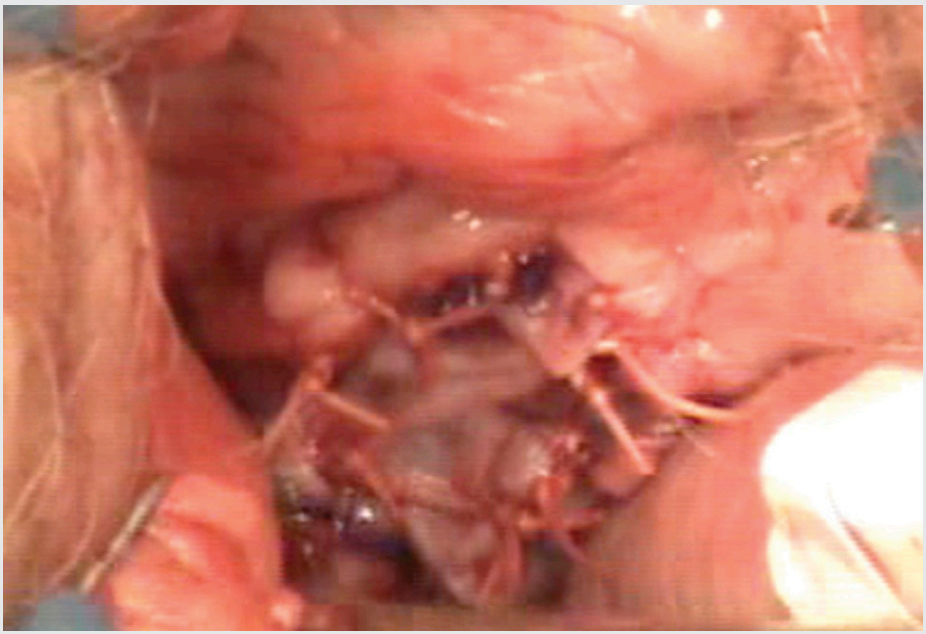
Staple line reinforcement - bariatric



Staple line reinforcement - thoracic

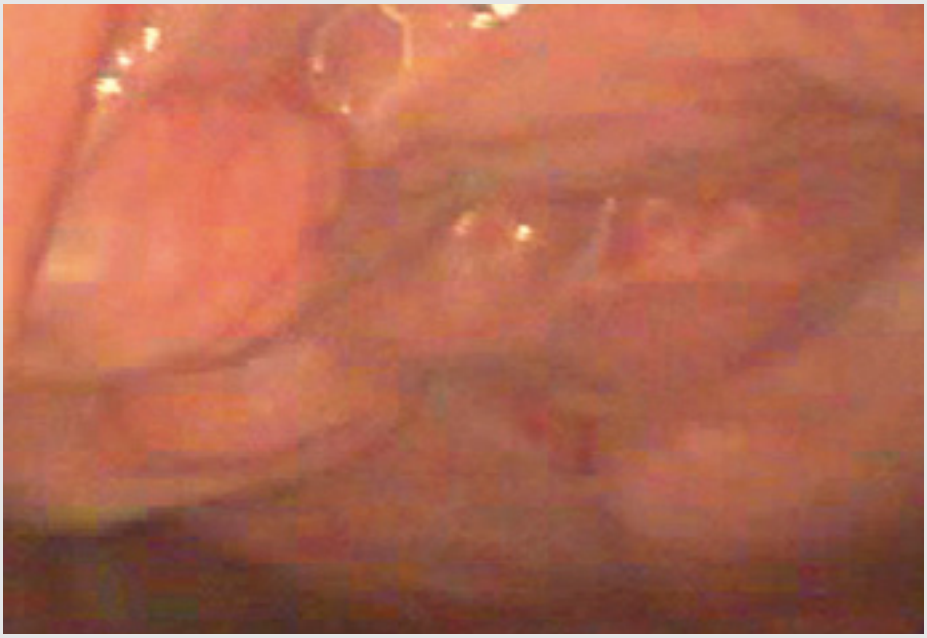
Move beyond
to new, vascularized tissue.

Postoperative



Biodesign sutured in place

Six weeks postoperative



Biodesign is remodeled into vaginal wall epithelium.

To learn more, visit www.cookbiodesign.com.
To contact us, visit www.cookmedical.com/contact.do.

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