

Study finds biomaterials repair human heart

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Clemson University biological sciences student Meghan Stelly and her father, Alabama cardiovascular surgeon Terry Stelly, investigated a biomedical application following a coronary artery bypass surgery and found that the application allowed the human body to regenerate its own tissue.

Their findings were published in the *Annals of Thoracic Surgery*.

The biomaterial extracellular matrix (ECM) is a naturally occurring substance that helps regulate cells and can be harvested and processed in such a way that removes all cells, leaving only the structural matrix, which is made of collagen. ECM can be molded into a "bioscaffold" for medical applications to enable a patient's cells to repopulate and repair damaged tissue.

The researchers were afforded the opportunity to clinically examine a bioscaffold that was implanted five years earlier to close the pericardium, a double-walled sac containing the human heart, following a [coronary artery bypass](#) surgery.

"Pathology results revealed that the bioscaffold had remodeled into viable, fully cellularized tissue similar to the native pericardium," said Meghan. "Essentially, the [human body](#) regrew its own tissue."

This research demonstrates the long-term effectiveness of this technology as an implant for pericardial closure and cardiac tissue repair.

"Anytime you can have the body regrow its own tissue instead of introducing a foreign object into it is a better outcome for the patient," she said.

Provided by Clemson University

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