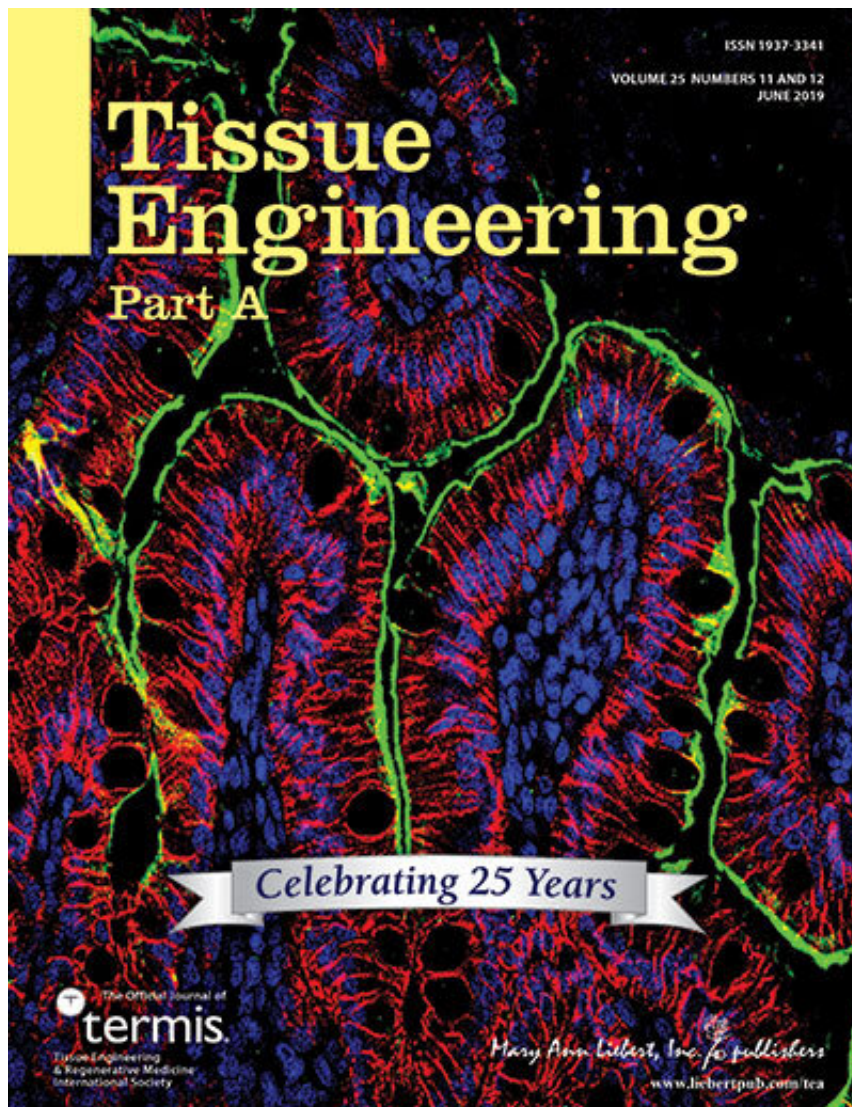


Promising esophageal reconstruction based on engineered constructs

June 18 2019



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The loss of complete segments of the esophagus often results from treatments for esophageal cancer or congenital abnormalities, and current methods to re-establish continuity are inadequate. Now, working with a rat model, researchers have developed a promising reconstruction method based on the use of 3-D-printed esophageal grafts. Their work is published in *Tissue Engineering*.

Eun-Jae Chung, MD, Ph.D., Seoul National University Hospital, Korea, Jung-Woog Shin, Ph.D., Inje University, Korea, and colleagues present their research in an article titled "Tissue-Engineered Esophagus via Bioreactor Cultivation for Circumferential Esophageal Reconstruction". The authors created a two-layered tubular scaffold with an electrospun nanofiber inner layer and 3-D-printed strands in the outer layer. After seeding human mesenchymal stem cells on the inner layer, constructs were cultured in a bioreactor, and a new surgical technique was used for implantation, including the placement of a thyroid gland flap over the scaffold. Efficacy was compared with omentum-cultured scaffolding technology, and successful implantation and esophageal reconstruction were achieved based on several metrics.

"Dr. Chung and colleagues from Korea present an exciting approach for esophageal repair using a combined 3-D printing and bioreactor cultivation strategy," says *Tissue Engineering* Co-Editor-in-Chief John P. Fisher, Ph.D., Fischell Family Distinguished Professor & Department Chair, and Director of the NIH Center for Engineering Complex Tissues at the University of Maryland. "Critically, their work shows integration of the engineered esophageal tissue with host [tissue](#), indicating a clinically viable strategy for circumferential esophageal [reconstruction](#)."

More information: In Gul Kim et al. Tissue-Engineered Esophagus via Bioreactor Cultivation for Circumferential Esophageal Reconstruction, *Tissue Engineering Part A* (2019). [DOI: 10.1089/ten.tea.2018.0277](#)

Provided by Mary Ann Liebert, Inc

Citation: Promising esophageal reconstruction based on engineered constructs (2019, June 18)
retrieved 31 January 2023 from <https://medicalxpress.com/news/2019-06-esophageal-reconstruction-based.html>

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