

New guide for using mechanical stimulation to improve tissue-engineered cartilage

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Tissue-engineered articular cartilage (AC) for repairing cartilage damaged by trauma or disease can be made to more closely mimic natural AC if mechanical stimulation of particular magnitude and duration is applied during the development process. A detailed review of the different stimulation techniques used and how to determine optimal loading parameters for improving the mechanical, structural, and cellular properties of AC is published in *Tissue Engineering, Part B (Reviews)*.

In "A Guide for Using Mechanical Stimulation to Enhance Tissue-Engineered Articular Cartilage Properties," coauthors Evelia Salinas, Jerry Hu, Ph.D., and Kyriacos Athanasiou, Ph.D., University of California, Irvine, provide a comprehensive overview of the significant progress that has been made in the optimization of loading parameters in AC constructs. The researchers have developed a guide to the qualitative and quantitative effects that can be achieved when various loading parameters are used in tissue-engineered AC, including direct compression, hydrostatic pressure, shear, and tensile loading.

"The translation of tissue-engineered products into clinical reality is a main goal for the field. Improvement of existing protocols and SOP development with focus on achieving full implant functionality, as well as validation and GLP/GMP conformity, are key aspects," says *Tissue Engineering Part B* Editor Katja Schenke-Layland, MSc, Ph.D., Eberhard Karls University, Tübingen. "This [review](#) is an important guide for derivation of functional in vitro-engineered articular [cartilage](#)."

More information: Evelia Y. Salinas et al, A Guide for Using Mechanical Stimulation to Enhance Tissue-Engineered Articular Cartilage Properties, *Tissue Engineering Part B: Reviews* (2018). [DOI: 10.1089/ten.teb.2018.0006](https://doi.org/10.1089/ten.teb.2018.0006)

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