

BIOMECHANICAL MODELS IN TISSUE ENGINEERING

Tissues engineering is one of the challenging features of biomedical engineering since it aims to provide connections and share common aspects with the emerging field of regenerative medicine. Indeed, in the field of regenerative medicine one of the most important aspect is related to the scaffolds used for the cell culture that may accelerate or induce specific/target cells the way they must interact each others in a cooperative fashion to reproduce a specific tissue. In this context the material used for tissue regeneration as well as the specific cell culture and cell medium plays an important role that however is not exclusive. Indeed the specific interactions among cells and the specific substrate represented by the scaffolds and the extracellular matrix are the main reason to induce cell signalling that in turns activate endocrine and paracrine signalling. Biomechanical aspects of tissue engineering represent an emerging and challenging field complementary to the well-known material engineering.

The section aims to offer a focus on biomechanical aspects of tissue engineering involving, but not exclusively, the following aspects:

- Mechanobiology of cell signalling
- Mechanics of Biomaterials
- Tissue regeneration
- 3D bioprinting of scaffolds
- 3D printed organs prototyping
- Biomechanical characterization of tissues

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