

Application of Biomechanics to Tissue Engineering
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Cellular biomechanics is an area of study that is receiving more attention as time progresses. The response of cells to biomechanical stimuli has far-reaching ramifications for the area of tissue engineering, especially for tissues designed to withstand mechanical loading: bone, cartilage, tendons and ligaments, and arteries.

The effects of mechanical stimuli on cells are only recently being examined, and the potential role of mechanical stimulus in tissue engineering is still one that is largely ignored by the tissue engineering community. This paper reviews the development of tissue engineering and why biomechanics has not played a major role, the current state of the art of cellular biomechanics applied to tissue engineering and then proceeds to develop an holistic view for tissue engineering and the substantial role that cellular biomechanics should play in it.

In order to fulfill that role, though, a nexus must be developed between the mechanical, chemical, electrical and biological studies of cellular behaviour, in the context of extremely complex systems.