



applied sciences



Special Issue Reprint

Biomechanics of Soft and Hard Tissues

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In recent years, the field of biomechanics has experienced significant growth, reflecting its importance across multiple disciplines. Mechanical stimuli play crucial roles at every biological scale—from molecules to organs—governing processes such as tissue development, growth, remodeling, regeneration, and disease progression. Understanding the mechanical behavior of biological tissues and biomaterials is therefore essential for applications including interactions with medical devices, evaluations of biocompatibility, and surgical tissue repair. Combining experimental investigations with computational modeling provides essential support for clinical trials and surgical planning, improving the precision and effectiveness of medical interventions. This research is further driven by the development of innovative biomaterials and advanced computational tools that complement experimental methods.

This Special Issue, “Biomechanics of Soft and Hard Tissues”, focuses on the mechanical responses and characterizations of biological tissues and biomaterials from both experimental and modeling perspectives, including studies on soft tissue testing, constitutive modeling, and additive manufacturing for biomedical applications. The articles in this Reprint reflect the breadth and interdisciplinary nature of current biomechanical research. Together, these contributions highlight the critical role of biomechanics in addressing challenges at the intersection of engineering, biology, and medicine. This collection serves as a reference for ongoing research and encourages future collaboration in the field of tissue biomechanics.



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