Special Issue

Musculoskeletal Research: Biomechanics and Biomaterials for the Treatment of Orthopedic Diseases

Message from the Guest Editors

Musculoskeletal research deals with the effects of orthopedic treatment of pathologies on the biomechanics of the affected areas and on the musculoskeletal system. Biomechanical measurement methods enable the quantitative determination of these influences and allow an assessment of their extent and size for the patient (in vivo). The range of examination methods is particularly wide in this field of musculoskeletal research. On one hand, in vitro examinations under laboratory conditions on simplified models, such as artificial bones or specimens from donors, will be implemented. With the help of these models, for example, new biomaterials or implants for the treatment of fractures are often examined for their primary stability or the influence of a joint replacement on the kinematics. In contrast to experimental in vitro studies, numerical methods will be increasingly applied to analyze a large number of implant configurations and loading scenarios.

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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