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DESCRIPTION

The Journal of the Mechanical Behavior of Biomedical Materials is concerned with the mechanical deformation, damage and failure under applied forces, of biological material (at the tissue, cellular and molecular levels) and of biomaterials, i.e. those materials which are designed to mimic or replace biological materials.

The primary focus of the journal is the synthesis of materials science, biology, and medical and dental science. Reports of fundamental scientific investigations are welcome, as are articles concerned with the practical application of materials in medical devices. Both experimental and theoretical work is of interest; theoretical papers will normally include comparison of predictions with experimental data, though we recognize that this may not always be appropriate. The journal also publishes technical notes concerned with emerging experimental or theoretical techniques, letters to the editor and, by invitation, review articles and papers describing existing techniques for the benefit of an interdisciplinary readership.

The journal offers online submission, a short time to publication, the opportunity for ample space to develop an argument in full, and the services of referees with expertise in mechanical behaviour and an understanding of the special nature of biomedical materials.

Examples of relevant subjects include: Stress/strain/time relationships for biological materials (natural and engineered ones)Fracture mechanics of hard tissues (such as bone, teeth, and other mineralized tissues, ceramics and metals and various biomedically relevant alloys)Tribological properties of joint materials and their replacements, including coatings and surface modifications Mechanical characterisation of tissue engineering materials and scaffolds, and the investigation of mechanical cues in the context of biological processesThe mechanical behaviour of cells, including adhesion and failureMechanical properties of biological molecules such as proteins, DNA, and other biomoleculesLong-term fatigue, creep and wear properties of biomaterials used in implants and similar biomedical materials The behaviour of the human tissues under impact loading and other extreme conditionsAdditive manufacturing methods of all kinds, for metals, ceramics, polymers, composites, and other biomaterials (in medical, dental, bio-inspired and related fields)Mechanical performance of materials in plants and animals in all natural and engineered ecosystemsNew techniques for the measurement of mechanical properties in biomedical materials, in both laboratory and clinical practiceComputer simulations of material behavior at all time- and length-scales (from molecular to tissue scales), as well as the introduction of new computing techniques (such as machine learning and artificial intelligence) in the modeling and analysis of the mechanical properties of biomedical
materials Clinical case histories related to material performanceMechanobiology, focusing especially on the response of cells and tissues to biophysical stimuli at varied length- and time-scales

The journal publishes papers from the proceedings of the International Conference on the Mechanics of Biomaterials and Tissues; special issues devoted to particular subjects or events will also be considered.

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