[Modern poro-elastic biomechanical model of bone tissue. I. Biomechanical function of fluids in bone].

[Article in Polish]

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Abstract
The modern biomechanical two-phase poroelastic model of bone tissue is presented. Bone tissue is treated in this model as a porous elastically deformed solid filled with a viscous newtonian fluid. Traditional one-phase biomechanical model of bone tissue, which is characterized by the Young modulus and the Poisson's coefficient, is still valid and it can be treated as an approximate model in comparison with the more realistic two-phase model of bone tissue. The biomechanical function of fluids in bone is considered. Bone biodynamics is presented in form of the scheme which illustrates the mechano-adaptive, the mechano-electric and the electrophysiologic properties of bone tissue. Essentials of the poroelastic model of bone tissue is the mechanical load induced flow of intraosseous fluid and the associated strain generated electric potentials SGPs.