



INVESTMENTS IN EDUCATION DEVELOPMENT

Monitoring of orthotics applications

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There are produced a lot of types orthoses for correction, stabilization or other function on human body. Children and adolescent age is a season for effective treatment by corrective orthoses. Usually there is a problem with a discipline of using orthoses by children. All data of treatment have been given only by patients as non-provable information, sometimes as subjective or intentional. Some monitoring systems have been developed. After applications it is possible to read data of treatment season usually in 15' steps. It is accurately enough. During some years we could have more objective information of orthotics applications to compare therapeutic effect to real time of application. It will be possible to determine more optimal regimes of therapy.

Uniaxial tensile test of perivascular adipose tissue

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Biomechanics of elastic arteries is widely studied at present time. In contrast to the constitutive modeling of the aortic wall, little attention has been paid to mechanical properties of surrounding tissue. To fill this gap, uniaxial tensile tests with adipose tissue surrounding human abdominal aorta were conducted. Strongly nonlinear stress-strain relationship was observed. It was found that highly compliant response characterized with the initial elastic modulus about 2.16 kPa is exhibited approximately to engineering strain of 0.03. Initial linear response is followed by gradual stiffening. Tangential elastic modulus of about 500 kPa was observed at engineering strain of 0.11.

Single cells compression testing

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Mechanical properties of a cytoskeleton or a cell itself are considered to be a quantitative parameter for cell diversification or disease. A nanoindenter or an atomic force microscope is usually used for the assessment of the mechanical properties of a single cell. Appropriate testing probes as well as mechanical models must be chosen, in order to correctly interpret the