Uniaxial Tensile Test and Constitutive Modelling of Perivascular Adipose Tissue

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ABSTRACT

Uniaxial tensile tests of human perivascular adipose tissue surrounding the abdominal aorta were performed. Strongly nonlinear stress-strain relationship was observed [1]. One representative of experimental data was selected to be fitted by constitutive models. The theory of hyperelastic incompressible material at finite strains was adopted in the modelling of the experiment. Strain energy density functions suggested by Ogden [2], Gent [3] and Demiray [4] were used to find a suitable mechanical description. The obtained results are shown in the Figure 1. It was concluded that all applied elastic potentials give predictions which agree with the experiment.

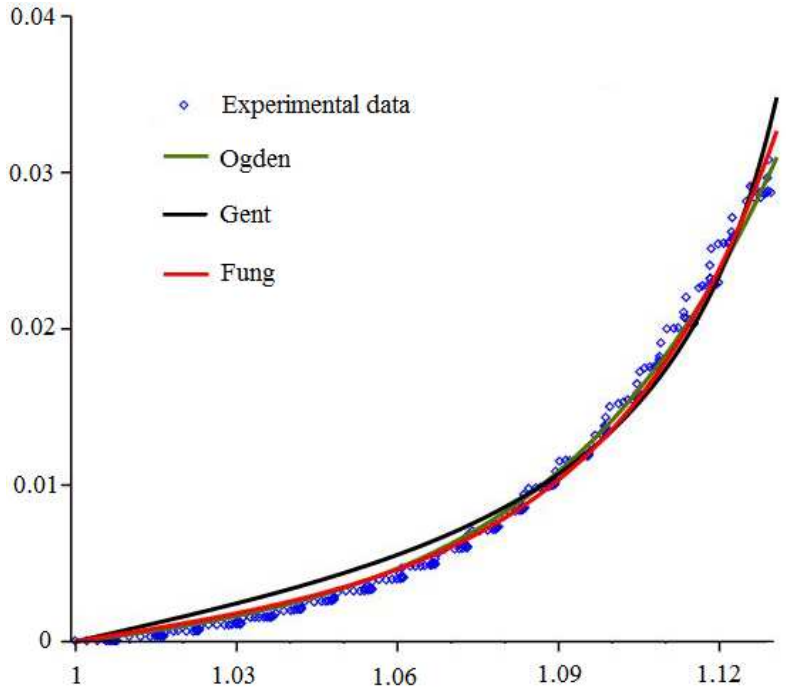

Figure 1 Results of the regression analysis.

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