Abstract

Title: The effect of intensity of voluntary isometric contraction on rheological characteristics of skeletal muscle tissue in vivo, in situ

Objectives: The main aim of this study is to determine the effect of intensity of isometric voluntary contraction of skeletal muscle on its viscoelastic characteristics. The work also aims to contribute to the verification of myotonometer as an objective diagnostic instrument and compares it to known methods for evaluation of muscle tone, or its partial characteristics.

Methods: We used myotonometer – utility model 29456 for evaluation of changes of stiffness and viscous behavior of skeletal muscle in vivo, in situ in 20 healthy volunteers. The values were compared during 0%, 20%, 35% and 50% of maximal strength of isometric contraction of finger flexors, controlled by hand-held dynamometer.

Results: We concluded that both stiffness and viscous behavior of skeletal muscle increases with higher intensity of isometric voluntary contraction.

Keywords: myotonometer, skeletal muscle, viscous behavior, stiffness, muscle tone