

Abstract

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Title: Changes of rheological properties during various degrees of knee flexion

Aim of the thesis: To find out if there is a difference in rheological properties in various degrees of flexion in the knee with meniscal tear and compare the results with measurement after physical activity. To compare changes of the rheological properties of patients who have undergone meniscectomy a few years ago with patients with recent meniscectomy.

Method: Experimental measurements were done by using the method of biorheometry which detects the passive resistance of the knee in movement from flexion to extension. Patients completed case history and a special questionnaire relevant to clinical changes connected to meniscal tear. Measuring data were evaluated and converted in the form of biorheogramme. We measured 6 persons. At first were done measurements in three different sequences for both lower extremities, the same measurement was repeated after the physical activity (50 squats).

Results: We found changes of rheological properties in higher degrees of knee flexion with typical rising followed by fall of biorheogramme around flexion of 80°. They were more remarkable after physical activity. Changes of rheological properties were more expressive in patients who have undergone meniscectomy a few years ago than changes in patients with recent meniscectomy.

Key words: meniscus, knee joint, biorheometry, rheology, meniscectomy