

Abstract

The goal of this thesis was to find a suitable method for evaluating structural changes of scaffolds as influenced by external mechanical pressure and to verify the validity of hypothesis which assumes a change of directionality of fibers and also thinning of fibers according to the stretching of a scaffold. Assumptions formulated in these three hypothesis were tested on a scaffold with a plasma surface treatment and without any plasma surface treatment.

To examine structural changes an electron microscope was used to observe the surface of scaffolds. Incurred photos were then processed with the help of automatic software picture analysis and observed data were statistically evaluated.

The result of this experiment is a description of used method which can be used in future for larger studies. It was found that by the effect of external mechanical pressure fibers of examined scaffolds turn in the direction of the pull. It has also been found that the average thickness of fibers didn't change.

Results of this work give insight into the evaluation of structural changes of scaffolds when pressured by an external mechanical power and open possibilities for deeper and more exact research in this field.

Key words: scaffold, picture analysis, fiber directionality, fiber thickness.