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## **ALLOPLASTIC MATERIALS - DEVELOPMENT OF A TISSUE CULTURE IN-VITRO TEST SYSTEM FOR THE EVALUATION OF BIOCOMPATIBILITY.**

### Hypothesis / aims of study

A major requirement for alloplastic materials, applied in surgical approaches for hernia/prolapse repair and incontinence treatment, is an optimized biocompatibility. Tissue ingrowth/adherence and formation of connective tissue seem to have important influence in mesh incorporation at the implant site. Aim of the study was to establish an in-vitro procedure testing the biocompatibility of alloplastic materials.

### Study design, materials and methods

Developing an in-vitro approach we randomly conducted the investigation of 7 different mesh types regarding their adherence performance. Within a tissue culture meshes were incubated with tissue representative for fibroblasts, muscle cells and endothelial cells originating from 10 different patients. Assessment of the meshes after 6 weeks was realized microscopically and a ranking of their adherence performance was established.

### Results

In 100% of the probes tissue culture was successful. We did not remark interindividual differences concerning the growth and adherence performance after incubation with the different meshes in the investigated 10 patients. The ranking was consistent in all patients. In this test system, PVDF (Dynamesh®) was the mesh demonstrating the best adherence score.

### Interpretation of results

The test system was feasible and reproducible. Pore size seems to be a predictor for adherence performance. The test system may be a helpful tool for further investigations and the predictive value should be assessed in further in-vitro and in-vivo investigations.

### Concluding message

The presented in-vitro test system allows investigation of alloplastic materials regarding biocompatibility shown by cell adhesion.

### Disclosures

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