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# Abstrakt - DUGS-årsmøde

**Purpose:**

We aim to develop a safe mesh-based approach to pelvic organ prolapse (POP) using biodegradable meshes with growth factor and stem cells. With this study we wish to investigate the long-term outcome in aging tissue.

**Methods:**

In an abdominal repair model, electrospun meshes made from polycaprolactone (PLC) with connective tissue growth factor (CTGF) and stem cells were implanted in a group of elderly and heavier female rats. Averagely, the meshes were removed 53 weeks after implantation. Mesh areas were evaluated for collagen mRNA by qPCR, collagen protein by Western blotting, for the histological appearance, and for the biomechanical properties. Results were compared to results from a previous study on a group of younger rats having the same mesh implanted for 24 weeks.

**Results:**

The 53-week group differed from the 24-week group in: 1) a decrease in collagen III in the 53-week group, 2) a strong reduction in foreign body giant cells response in the 53-week group, and 3) altered histological appearance in the 53-week group. We found comparable biomechanical properties between the two groups, despite the mean tissue stiffness, which was higher, although not significantly, in the 53-week group. Lastly, we were still able to identify mesh components 53 weeks after implantation.

**Discussion:**

Our study shows that a mesh-based approach with CTGF-coated electrospun PCL meshes with stem cells exhibit sufficient support, no mesh-related complications and biocompatibility long-term in a rat abdominal repair model. However, our study groups were heterogenic and small. Moreover, the rat abdominal repair model is different from POP pathology in women, and the meshes was not fully degraded at the time of evaluation. Therefore, further evaluation in a larger animal with POP-like pathology over an even longer period is needed. Still, our use of older and heavier rats in this study try to mimic post-menopausal women, the major group to undergo pelvic floor repair. Altogether, the positive findings in our study might lead the way for safer mesh-based approaches for pelvic organ prolapse.