

IN VITRO FIBROBLASTS' RESPONSE TO THE TWO COLLAGEN MEMBRANES OF DIFFERENT ORIGIN

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Collagen-based biomaterials are largely used in tissue engineering and regenerative medicine. The sources of collagen for the design of those biomaterials are numerous. Although most collagens are highly biocompatible, the origin can influence the physicochemical and biological properties and guide the final outcome after implantation *in vivo*. A large number of collagen membranes are used in oral and maxillofacial surgery as barrier membranes to cover tissue defects in order to prevent connective tissue infiltration, and that is why it is crucial to examine their interaction with fibroblasts. In this study, we examined the fibroblasts' response to the two commercially available collagen membranes of different origins: porcine vs. equine, in cell culture *in vitro*. The effect of collagen membranes on the proliferation of L929 fibroblasts was examined in a direct cell culture system. Cells were seeded on the collagen membranes and incubated for seven days. The proliferation rate was assessed by the MTT test. There was a significant decrease in cell proliferation rate in the presence of both membranes with a pronounced anti-proliferative effect of the tested porcine membrane. This result speaks in favor of the application of both examined membranes as barrier membranes. Differences in examined collagen membranes may be due to the different origins of collagen although different manufacturing processes may significantly influence cell behavior *in vitro* as well. Further studies with more collagen membranes of various origins should be conducted in order to make final conclusions about the effect of collagen origin on cell behavior *in vitro*.

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