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# The activity of dental membranes on the reduction of bacterial growth in the course of peri-implantitis

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**Statement of the Problem:** Peri-implantitis treatment is an important clinical challenge with a significant estimation for getting a local infection under control, preserving soft and bone tissue in the area around the implant and in result maintaining the aesthetics and stability of the implants. Microorganisms, including drug resistant *Staphylococcus aureus*, play a crucial part in the etiology of peri-implantitis. Depending on the treatment strategy, only 34 to 79% cases are treatable. Important methods of treatments are nonsurgical and surgical procedures, which are often unsatisfying for the physician, as well as the patient, therefore the constant search for alternative, effective methods matters. The important treatment process in peri-implantitis poses a use of membrane for oral soft tissue and bone regeneration guided regeneration.

**Aim:** The aim of this study was to establish the usefulness in laboratory conditions of a bioactive collagen membranes and titanium-reinforced membranes for reduction of microorganism growth in the active stages of peri-implantitis. The proposed solution is cost effective and painless in application and in addition could be a promising alternative as a vehicle for transferring antibiotics and other antibacterial substances directly to the tissues.

**Methodology & Theoretical Orientation:** Antibacterial activity of five different membranes was observed for the chosen bacterial strain *S. aureus*. In a spectrophotometric assay the incubation of bacteria with membranes in Luria broth on micro titrated plates on 24 hours at 37°C was being monitored.

**Results:** The results show that the growth of *S. aureus* was lower for: T-Gen®0-collagen membrane, Dyna®-extracellular membrane with glycoproteins and glycosaminoglycans, Cytoplast®-titanium reinforced membrane, and Mucograft®-collagen membrane.

**Conclusion & Significance:** This work supports that the bioactive membranes can be an effective antibacterial *in vitro*. The new challenge is the use of these membranes as precise drug carriers, in the treatment strategy used for peri-implantitis.

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