

58. THE ADVANTAGES AND BIOCOMPATIBILITY OF ZIRCONIUM IN UNIDENTAL PROSTHETIC CROWNS



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Introduction. Currently, prosthetic treatment with zirconium dental crowns has become increasingly popular due to its superior aesthetics. This material has great clinical success due to its mechanical and chemical properties, computer manufacturing technology. Aim of study. Assessment of the properties, advantages and biocompatibility of zirconium in the treatment with single crowns.

Aim of study. Key words: zirconium dental crown, advantages of zirconium, biocompatibility of zirconium.

Methods and materials. For this study, 15 publications were taken from the PubMed database, including clinical cases and specifications of the analysis of structure, biocompatibility and physical properties in order to study them and form a conclusion about the effectiveness of zirconium in prosthetic treatment. 114 adult patients with structural and aesthetic teeth defects were examined. These patients were examined at 3 months, 6 months, 12 months and 18 months, to highlight the properties and biocompatibility of the material over time.

Results. In this study at the follow-up examination were evaluated the gingival index, probing depth, marginal crown integrity and wear of abutment teeth, antagonist teeth, contralateral teeth in all cases. The results related to the marginal adaptation in all 114 patients were identified as perfect, due to digital fabrication techniques, CAD-CAM / 3D printing, resulting in a 100% excellence rate. 4 patients were identified with chipping of the zirconium dental crown as a result of bruxism. In 2 of all examined patients, it was identified the presence of cracks in the enamel of the teeth opposing the zirconium dental crown.

Conclusion. Zirconium for fixed unidental prosthetic treatment indicates a good success rate with minimal complications thanks to its aesthetics, physical, mechanical and chemical properties. This material is superb, due to its resistance to compression and cracking, to physical action, this material has only presented faults in patients where the masticatory function overloads the material of the crown, resulting in chipping. None of the patients presented any adverse effects following the prosthetic treatment with zirconium dental crowns, which demonstrates the biocompatibility of this material in patients with perfect general health and in patients with systemic diseases. In vivo and in vitro laboratory research has been carried out that demonstrates maximum biocompatibility with human biological structures.