

**COMPARATIVE EVALUATION OF ORTHOPEDIC TREATMENT OF EDENTIA
USING DIGITAL TECHNOLOGIES**

**Safarov M. T., Musayeva K. A., Tashpulatova K. M., Safarova N.T., Normurodova R.Z.,
Buribayeva M. G., Ruzimbetov H. B., Ahmadjonov M. A., Kushbekov B.K.,
Abdunazarov D.E., Xalilov I.Sh.**

Department of Hospital Orthopedic Dentistry, Tashkent State Dental Institute
khayotruzimbetov@gmail.com

Abstract: Planning and conducting patient rehabilitation is a crucial and responsible stage of dental treatment. Various electronic medical documentation systems have been implemented for successful integration into clinical practice [Martianov I.N. et al.,]. Digital technologies are frequently employed for virtual smile modelling and face design [Aprèsyan et al., 2021; Ryakhovsky et al., 2021; Soas-Ishap et al., 2017; Trunin et al., 2022; Zolotarev et al., 2021]. The authors of the cited works include Ryakhovskiy A.N. et al. (2021), SoasIshap S. et al. (2017), and Oshag B. et al. (2018). According to Bulycheva E., digital analysis allows for a thorough examination of the nature and location of occlusal contacts, which cannot be adequately studied through the use of articulation paper or wax occlusograms.

Key words: Orthodontics, Electronic axiography, rheumatoid arthritis, direct joint trauma, morphology.

INTRODUCTION The use of digital technologies in orthopedic dentistry allows for working with photographs, X-rays, analyzing occlusal records, virtually moving teeth to demonstrate treatment results, and more. There is a lack of scientific publications comparing the effectiveness of orthopedic constructions made using traditional technologies, 3D printers, and milling tools, despite the widespread implementation of digital technologies in clinical practice. The conflicting opinions on the accuracy of measurements for prosthetics obtained through digital and traditional technologies require further clarification. Specifically, more information is needed on the marginal and internal fit of non-removable prosthetics manufactured using both technologies, the degree of restoration of occlusal relationships, and the impact on the gingival margin and pocket microflora. Aim of the study. Study of the advantages of digital technologies in eliminating partial dental defects and the comparative effectiveness of orthopedic treatment. Objectives of the study. 1. Conducting a comparative analysis of internal and marginal compatibility of artificial bridge-like coverings prepared using traditional and digital technologies. 2. Clinical assessment of the index of loss of occlusal contacts and the effectiveness of correction and use of tooth occlusion in artificial bridge-like coverings prepared using traditional and digital technologies. 3. Analyzing the results of electromyographic and oral cavity microbiological research in the patients of research groups and studying the condition of the subprosthetic mucous membrane using infrared thermometry. 4. Economic justification of the use of orthopedic structures obtained using traditional and digital technologies. 5. Conducting a comparative analysis of the effectiveness of digital technologies in the production of non-removable prostheses.

METHODS A comprehensive study was conducted on 150 patients aged 18-75 years with partial removable bridge prostheses, including clinical, functional, and microbiological examinations. Furthermore, a control group of 30 individuals with intact teeth was also

examined. The study participants were divided into three groups, with the first group: comprising of 90 patients with artificial bridge coverings prepared using CAD-CAM technology. The main group was further divided into two subgroups. In subgroup 1, 45 patients were provided with non-removable bridges made of full zirconia that were prepared using digital technologies. This approach was chosen due to its proven effectiveness and reliability. Subgroup 2 will include 45 patients who were placed with non-removable bridges with zirconiumbased porcelain veneers prepared using digital technology. The second, comparison group consists of 60 patients who were placed with non-removable bridgelike veneers made in the traditional way. In turn, the comparison group is divided into two subgroups. In subgroup 1, 30 patients were placed with crushed non-removable bridges; Subgroup 2 will include 30 patients with cast-based non-removable bridges. In the third: control group, 30 people with intact teeth will be recruited. The study's findings and their analysis. A comparative assessment was conducted to evaluate the internal and edge compatibility of artificial bridge-like coverings prepared by different methods. The occlusal contact points' relation and efficiency were then evaluated based on clinical-functional studies of the treatment with artificial bridge-like coverings prepared in different ways.

Research results: Completing the collection of material for the dissertation - filling out questionnaires (n:180), studying the dental condition. Making tables for generalization, statistical processing, analysis and description. Development of computer software for mathematical modeling and prediction. Submission of research applications and certification for computer software. Publication of 2 methodological manuals, articles in 4 national and foreign magazines, participation in conferences. Abstract. The obtained results will help not only in the treatment of partial toothlessness with nonremovable bridge prostheses, but also in the testing and treatment of prostheses manufactured using all digital technologies, as well as in the development of additional recommendations for their prediction and treatment in the conditions of implant installation.

Conclusions: The method of echosteometry more accurately reflects changes in bone density in periodontitis, since they occur primarily in the spongy bone tissue of the alveolar bone. This is due to the physical characteristics of the ultrasonic vibrations used in echosteometry, namely, their wavelength and, accordingly, the depth of penetration into bone tissue.

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