

## USE OF TEMPLATES AT THE STAGES OF IMPLANTATION PLANNING FOR PROSTHETICS ON DENTAL IMPLANTS

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*Annotation. Dental implantation is one of the most progressive directions in modern dentistry. Thanks to the development of new implant systems and methods of reconstructive operations for atrophy of the alveolar bone tissue of the jaws, it became possible to use the method of dental implantation to replace dental defects of any localization with orthopedic structures. Prosthetics on implants helps to achieve the main goal - complete restoration of masticatory function in patients with partial or complete absence of teeth, improving the quality of life of the patient both in physiological and socio-psychological aspects.*

*Keywords: Dental implantation, occlusal relationships, interalveolar distance, formation of interdental contacts, biotype of the gingival mucosa, orthopedic templates*

**Introduction.** The success of treatment of patients using dental implants largely depends on careful planning of the implantation stages and competent choice of prosthetic design (Besyakov V. R., 2000; Gvetadze R. sh. et al., 2005; Ryakhovsky A. N., Mikhaskov S. V., 2007). Preliminary planning for the restoration of dental defects is carried out either on plaster models (biometric method), or based on the results of x-ray studies using computer systems for analyzing x-ray data, computed tomography (Besimo H., Rokhner G.-P., 2006; Vasiliev A. Yu. et al., 2007; Sm. Meloni et al., 2013).

Modern dental implantologists are trying to use more and more dynamic methods of treatment, the effectiveness of which depends on a number of different parameters: occlusal relationships, interalveolar distance, formation of interdental contacts, the biotype of the gingival mucosa, the position of the implant bed in accordance with the structure of the surrounding bone tissue (Edinger N., 2001; Kielhom J., 2009).

At the same time, the problem of building an optimal prosthetic structure based on dental implants is still relevant, since it is not uncommon to install implants in an arbitrary position, not in parallel, without meeting orthopedic requirements. This problem can be solved by using x-ray diagnostic templates at the stage of preoperative planning of dental implantation (Gvetadze R. sh., krasakov A. A., 2009; Ackermann K.-L. et al., 2010; Ganz S. D., 2011; Behneke A. et al., 2012; Bruno V. et al., 2013).

The use of templates for CT examination significantly simplifies the planning procedure, allowing you to determine the optimal number, position and direction of implant placement in exact accordance with the future design of the prosthesis, which reduces the risk of possible complications at the stages of orthopedic treatment and leads to an improvement in the quality of prosthetics based on dental implants (Ushakov R. V., 2008; Frisardi G. et al., 2011; Sethi A. et al., 2013; Verhamme L. M. et al., 2013).

Analysis of the literature data revealed insufficient coverage of the problems of prosthetics of patients using diagnostic templates at the planning stages of dental implantation. Thus, the use of diagnostic templates and the choice of structural materials for their manufacture need further development and research.

**Purpose of research:** Improve the effectiveness of orthopedic treatment based on dental implants in patients with various dental defects based on the use of diagnostic templates.

**Research problem:**

1. To develop a method of production of diagnostic orthopedic templates depending on the clinical conditions.

2. Evaluate the effectiveness of using various types of diagnostic templates when planning orthopedic treatment of patients with partial and complete absence of teeth.

3. Plan the direction and location of dental implants, taking into account the future prosthetic design, according to computer tomography and ZB modeling.

4. Select the optimal parameters and materials of the orthopedic structure based on implants based on mathematical modeling data.

5. Develop practical recommendations for the use of diagnostic templates in the comprehensive rehabilitation of patients with partial and complete absence of teeth.

**Scientific novelty**

1. For the first time, the choice of material for the production of diagnostic templates was justified, which made it possible to increase the information content of CBCT research at the stage of preoperative diagnosis.

2. For the first time, methods for manufacturing various types of diagnostic templates depending on clinical conditions were developed, which helped optimize the Protocol for planning prosthetics based on dental implants.

3. For the first time, the choice of a prosthetic design based on dental implants is justified using diagnostic orthopedic templates, which makes it possible to calculate the required number of implants capable of carrying a functional load.

4. For the first time, based on the analysis of the effectiveness of the use of templates in various clinical settings, allowing to justify the choice of the optimal prosthetic design for each patient, precise criteria for evaluating treatment results were developed.