

OPTIMIZATION OF THE PROCESS OF TEETH RESTORATION IN THERAPEUTIC DENTISTRY CLINIC

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Abstract: Currently, more and more dentists understand that it is not enough to perform only artistic restoration of a tooth, even with the most modern composite materials. Objective information is needed not only about the morphology of the teeth, but also about the functional state of the dentoalveolar system.

We have developed a computer program for restoring the morphological characteristics of teeth, an algorithm of actions describing the method of restoring teeth with composite materials taking into account a modern computer program, reducing the time of modeling while increasing the efficiency and quality of aesthetic restoration. Restoration of teeth using the author's computer program can be carried out both by direct and indirect techniques.

Keywords: aesthetic dentistry, computer program, restoration.

Introduction. Informatization of society and the development of innovative technologies have led to significant changes in the field of education and medicine. The 21st century is the time of organizing work with the help of computer technologies. One of the main advantages of computer technologies is the ability to objectively assess the dentoalveolar system, view and demonstrate the results of the study, and draw up a treatment plan directly at the doctor's workplace. The use of computer technologies in dental practice facilitates documentation and makes treatment more effective, and reduces the number of cases of misunderstanding of the doctor by the patient

The aim of the study is to develop a computer program for the restoration of the crown parts of teeth taking into account the individual characteristics of the patient's dentoalveolar system.

To achieve this goal, we conducted an in-depth clinical and biometric examination of 22 individuals aged 18-25 years, Caucasian race, living in the city of Omsk. All examined were practically healthy, individuals with a history of otolaryngological pathology and epidemic parotitis were excluded from the observation groups. All those selected for an in-depth clinical and biometric examination had an orthognathic bite.

The examination of patients was carried out according to a special program with an in-depth study of anamnestic data, clinical features, facial anthropology, and odontology. A specially developed card was filled out for each examined person, and complete anatomical impressions were obtained from the upper and lower jaws. Based on the impressions, diagnostic models of jaws were made from super-gypsum for biometric studies.

In order to study the structure of the dental apparatus in caries-resistant individuals, anthropometric and biometric measurements were taken. Cephalometric studies of the face and some jaw parameters were determined directly during the examination of patients. Morphometric measurements and calculations were made using diagnostic models on

permanent teeth (incisors, canines, premolars, first and second molars) using classical methods described in the manual.

Materials and methods

Among the parameters determined in the "teeth" section were: crown height, mesiodistal crown size, vestibulolingual crown size, crown module, crown massiveness, crown index.

Interdental indices: interincisal index, premolar index, average module of a row of molars, step indices, indices of dental groups, indices of antagonists.

The sum of the mesiodistal dimensions of 12 permanent teeth for the upper and lower jaws (incisors, canines, premolars, first, second molars) was calculated; the sum of the mesiodistal dimensions of 4 teeth for the upper jaws (incisors, canines).

In the section "dentition" individual differences of intersegmental and intrasegmental arches according to Gerlach, the length of the anterior segment of the upper and lower dental arches according to Korkhaus, the width of the dental arch in the area of the first premolars and first molars of the upper and lower jaws according to Pont, the width of the interdental spaces according to the method of H.M. Shamsiyev, premolar and molar indices were determined.

Jaws: the depth of the palate according to the method of L.V. Ilyina-Markosyan, the width and length of the apical base of the upper and lower jaws.

Face: morphological height, face width at the level of the zygomatic arches, the angle of the lower jaw (right and left). The morphological index according to Garson was calculated.

Results and discussion. A total of 3687 measurements were made on 44 models. The obtained data were processed using the mathematical theory of correlation. As a result of processing the above-mentioned material, 6972 paired regression equations were obtained. The sums of the squares of the errors of these regression formulas were calculated and the significance of the coefficients of the regression formulas was checked using the Student's T-criterion. The most significant of the obtained ratios were used to restore the parameters of missing teeth. As a result of the work done, we have developed a modern computer program for restoring the morphological characteristics of the crown part of teeth. Having a number of known morphological parameters of the patient's teeth, the doctor enters these values into the database developed by us, where all available values before treatment are recorded, then computer processing of the entered parameters is carried out and by calculating based on the regression equations, individual parameters of the missing dental tissues become known.

Conclusion. Thus, the program we have developed for the restoration of the crown of the tooth using computer modeling will allow professionals, both dentists and dental technicians, to reconstruct hard dental tissues taking into account the individual dimensional characteristics of the patient's dentoalveolar system.

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