



SELECTION AND PLACEMENT OF ARTIFICIAL TEETH

Ismailov Ilhomjon Khurboyevich

Senior teacher of the Department of Orthopedic Dentistry and
Orthodontics, Faculty of Dentistry, Andijan State Medical Institute

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ABSTRACT

In general, all patients with tooth and tooth row defects can be fitted with artificial teeth. From this, patients are restored with functional, that is, chewing, speech and, of course, aesthetic defects.

The process of implanting an artificial tooth in a patient is complex, in which a decision is made based on the results obtained on the basis of general and local examinations of the patient, in cooperation with the orthopedist - dentist and, if necessary, specialists from other areas of dentistry. After that, a procedure is carried out for the patient according to the type of artificial coating, the raw material and how long it will be placed.

The placement of artificial teeth in prosthetics with complete removable dentures occupies almost one of the most important places, because it is precisely this that ensures the stability of dentures during chewing function to the greatest extent.

When installing artificial teeth, the following requirements must be observed:

- The vertical axes of the lateral artificial teeth should coincide with the middle of the alveolar process of the model, the axes of the anterior teeth should be so that 2/3 of the teeth are in front of the midline, and 1/3 behind.
- The antagonist relationship must be anatomically correct.
- It must be remembered that artificial teeth should not interfere with the functional movements of the lower jaw, i.e. The buckle cusps of the upper jaw should overlap those of the same name in the lower jaw, but not be pronounced.
- Artificial teeth must fit tightly together

Method of setting teeth according to Zinoviev. He suggests starting the installation of artificial teeth from the lower jaw.

1. For setting the central incisors, the guideline is the middle line transferred from the upper jaw to the lower jaw, to which they touch with their medial angles. The cutting edge does not reach the prosthetic plane by 0.5 mm. The angle between the cutting edges is 170°. The vestibular surfaces of the incisors are in the same plane.



2. The axes of the crowns of the lateral incisors are parallel to the axes of the central incisors. The cutting edges of the lateral incisors touch the prosthetic plane with their distal edges.

3. The canines should not have pronounced tubercles, their axes parallel to the axes of the lateral incisors. There is an angle of 160° between the cutting edge of the canines and the lateral incisor. The canines touch the prosthetic plane with their tubercles.

4. The first premolars touch the prosthetic plane with the buccal cusp, and the lingual one does not reach by 0.5 mm, the longitudinal fissure projects onto the lingual slope of the alveolar process at an angle of $5-10^\circ$ to the vertical axis. The vestibular surfaces are in the same plane with the same surface of the canine.

5. The second premolar does not reach the prosthetic plane with its buccal cusp by 1 mm, and the lingual cusp by 1.5 mm. The longitudinal fissure projects as in the previous tooth.

6. The first molar does not reach the plane by 1.5 mm with its buccal cusps, and by 2 mm with its lingual cusps. Its fissure is located on the same line with the fissure of the premolars and projects there.

7. The second molar with its medial-buccal cusp does not reach the plane by 1 mm, with its distal-buccal cusp it touches it, the medial-lingual one does not reach it by 1.5 mm, and the distal-lingual one by 0.5 mm. All the latest indicators are the same.

8. The artificial dentition must have an appropriate shape (on the upper jaw - a semi-ellipse). on the bottom there is a parabola/. The left and right sides should be symmetrical with respect to the sagittal line.

Anatomical setting of teeth according to Vasiliev. The severity of occlusal curves is typical for each type of bite. When placing artificial teeth, the occlusal curve can be reproduced in the middle anatomical articulator by placing the artificial teeth in a certain order in relation to the prosthetic plane. In Russia, the placement of artificial teeth on glass, developed by M. E. Vasiliev, has become widespread.

The placement of teeth on glass, both in orthognathic and in other jaw relationships, begins with the upper jaw. To do this, glass is glued to the upper occlusal ridge, then part of the lower jaw ridge is cut off to a thickness of 2-3 mm, thin columns of softened wax are glued and the articulator is closed until the pin stops at the interalveolar height. The glass plate is glued with molten wax to the occlusal ridge of the lower jaw, determined from the upper ridge, and the setting of the teeth of the upper jaw begins.

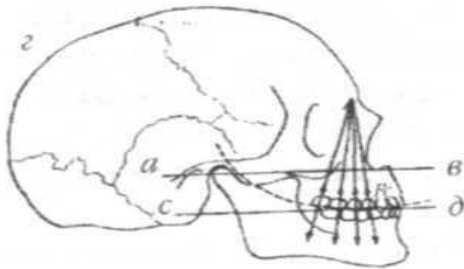
The upper incisors are placed on both sides of the midline so that their cutting edges touch the surface of the glass. In relation to the alveolar process, the incisors and canines are positioned so that $2/3$ of their thickness lies outward from the middle of the alveolar process. The lateral incisors are placed with a mesial inclination of the cutting edge towards the central incisor and a slight rotation of the mesial angle forward. Their cutting edge is 0.5 mm away from the plane of the glass. It is better to grind off the sharp cusps of the fangs, creating a facet here similar to that observed in the natural teeth of middle-aged and elderly people. The fang should touch the surface of the glass; it is also placed with a slight inclination of the cutting edge to the midline. The entire group of front teeth forms a semicircle.

The first premolar is installed so that it touches the glass surface only with the buccal cusp, the palatal cusp should be 1 mm away from it. The second premolar touches the glass

surface with both cusps. The first molar touches the glass surface only with the mesial palatal cusp, the mesial buccal cusp is 0.5 mm from the glass, and the distal palatal cusp is 1.5 mm away from the glass. The second molar is placed so that all its cusps do not touch the glass surface, and the mesial buccal cusp is at the level of the distal buccal cusp of the first molar. The remaining cusps of the tooth are placed 2.0–2.5 mm higher than the glass.

For the stability of dentures during their operation, a mandatory rule is to install the chewing teeth strictly in the middle of the ridge of the alveolar part. This rule is also followed when placing the lower front and lateral teeth. After the teeth of the upper jaw are placed, the teeth of the lower jaw are placed on them: first the second premolars, then the molars and premolars, and last the anterior teeth. As a result of this setting of the teeth, sagittal and transversal occlusal curves are formed. Having finished setting the teeth, their cusps are polished using lateral movements.

Spherical theory. A common requirement of numerous theories of articulation is to ensure multiple sliding contacts between artificial dentitions during the chewing phase. From the point of view of fulfilling this general requirement, the most correct should be the spherical theory of articulation, developed in 1918 by Monson and based on Spee's position on the sagittal curvature of the dentition. According to Monson's theory, the buccal cusps of all teeth are located within a spherical surface, and the lines drawn along the long axes of the lateral teeth are directed upward and converge at a certain point of the skull - in the crista galli area. The author designed a special articulator, with the help of which it was possible to place artificial teeth along the specified spherical surface .



Rice. Sagittal curvature of the dentition the spherical theory of articulation most fully reflects the spherical properties of the structure of the dent facial system and the entire skull, as well as the complex three-dimensional rotational movements of the lower jaw. Prosthetics on spherical surfaces provides: articulatory balance in the phase of chewing movements (Ghisi); freedom of movement (Hanau, Hyltebrandt); fixing the position of central occlusion while simultaneously obtaining a functional impression under chewing pressure (Gysi, Keller, Rumpel); the formation of a tubercle-free chewing surface, eliminating the formation of shedding moments that disrupt the fixation and stability of the dentures.

Therefore, prosthetics on spherical surfaces are rational for the prosthetics of toothless jaws, the use of partial dentures in the presence of natural single teeth, the production of splints for periodontitis, for the correction of the occlusal surface of natural teeth in order to create correct articulatory relationships with artificial teeth on the opposite jaw and targeted



treatment for joint diseases. Proponents of the spherical theory, first of all, note that it is easier to place artificial teeth on spherical surfaces.

As a result of clinical studies, it was established that surface contact between the bite ridges during various grinding movements of the lower jaw is possible if the occlusal surfaces of the ridges are given a spherical shape, and for each patient there is a number of ranges of spherical surfaces that provide contacts between the ridges. A spherical surface with a radius of 9 cm is defined as the average.

To design occlusal surfaces on wax rollers and determine the correct prosthetic spherical surface, a special device has been proposed, consisting of an extraoral face bow-ruler and intraoral removable forming plates, the front part of which is flat, and the distal parts have a spherical surface of various radii.

Due to the presence of a platform in the frontal section of the forming plate, it is possible to form rollers in accordance with the direction of the prosthetic plane.

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The use of bite templates with spherical occlusal surfaces allows you to check the contacts between the ridges at the stage of determining the central relationship of the jaws and use the adjusted curves to design artificial dentition that does not require correction .

Alignment of teeth using a spherical plate: a – a collapsible hinged spherical plate with arrows; b – installation of a collapsible hinged spherical plate in the articulator (the front part of the roller is preserved, and the sides are cut off)

To improve the quality of prosthetics for patients with complete absence of teeth, individual parameters of the masticatory apparatus and, above all, recording of the movements of the lower jaw are necessary, from which it is possible to design artificial rows with occlusal surfaces that correspond to the functional characteristics of the temporomandibular joints and muscles.

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