



## Treatment of Dental-Jaw Anomalies and Deformities (Literary Review)

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**Abstract:** Methods of treatment in lactic occlusion. For the treatment of distal occlusion in the period of lactic occlusion, a set of therapeutic and preventive measures is used to eliminate the effects of etiological factors, as well as to regulate the growth of the jaws and their position. The devices are shown, the task of which is to stimulate the development of the mandible and restrain the development of the mandible. Since the treatment of dental anomalies and deformities in adults cannot be carried out only by orthodontic methods due to the already formed facial skeleton, surgical intervention should be considered as an integral part of the comprehensive treatment of distal occlusion.

**Key words:** Treatment methods, anomaly, deformity.

First of all, during the period of occlusion of baby teeth, factors affecting the normal growth and development of jaw bones are eliminated. Such factors include: improper feeding using a bottle with a large hole, bad sucking habits, mouth breathing, infantile type of swallowing, impaired posture.

There are preventive orthodontic devices that are designed to prevent the development of dental anomalies and normalize the development of the dental-maxillofacial region. The devices that have a preventive effect on the occurrence of distal malocclusion include vestibular shield, turntable, labial activator Dassa.

The vestibular shield is a plate with a ring, repeating the shape of the alveolar processes with notches in the region of the frenula's lips.

Vestibular shield and so on this plate is designed to train the circular muscles of the mouth in order to prevent oral breathing, as well as to eliminate the bad habit of sucking the lower lip, which leads to the risk of developing distal occlusion.

The turntable is an apparatus consisting of a handle with an axis on which an impeller is wrapped, which is moved by the air exhaled by the child. Indications for use are: impaired lip closure function and training of the circular muscles of the mouth to prevent oral breathing

The Dassa lip activator is an apparatus consisting of a wire expander with an annular spring, at the ends of which there are plastic pads for the lips. This device is used to train the circular muscles of the mouth in the treatment of distal occlusion and frontal dysocclusion.

During the period of lactic occlusion in the formation of distal occlusion, the use of preorthodontic trainers double-jawed functionally functioning orthodontic devices is shown. Indications for use are: oral breathing, bad sucking habits, parafunction of the tongue, anomalies of eruption of the front teeth, as well as narrowing of the dentition.

The following devices are used for the treatment of distal occlusion in the lactic occlusion: Katz bite plate; device with tongue flap; Andresen-Goyle activator; open Klammt activator; Frenkel function



regulator type I and II; Balters, Janson, Khoroshilkina-Tokarevich bionators; Bimler bite shapers; Persin apparatus for the treatment of dystococclusion.

The Katz bite plate is a removable functional orthodontic device, which is a plate with folding with clamps and a bite plane. The device has an effect in the sagittal direction, moving the lower jaw and teeth mesially, as well as in the vertical direction: dental-alveolar elongation of the lateral group of teeth and dental-alveolar shortening of the frontal group of teeth on both jaws.

The tongue flap device is a removable functionally guiding orthodontic device used to eliminate the bad habit of laying the tongue between the incisors, as well as to eliminate the pressure of the tongue on the frontal group of teeth, which leads to their protrusion. Examples of such an apparatus are: the Kraus vestibulo-oral plate and the Rudolph loop plate.

The Andresen-Goyle activator is a removable functionally functioning double-jaw apparatus consisting of base plates modeled together on the upper and lower jaw. It contains the following mechanically active elements: a retraction arc to eliminate the protrusion of the incisors and a screw to eliminate the narrowing of the jaws. It also contains elements of a functional guiding action for the introduction of lower incisors in deep bite.

The open Klammt activator the device is a monoblock of bases for the upper and lower jaw with an open front the area of the palate and the crowns of the anterior group of teeth, which allows them to be used around the clock, thanks to the increased space for the tongue. It is used in the treatment of distal occlusion with protrusion of the frontal group of teeth of the upper jaw, with a sagittal gap of up to 5 mm.

Type I and type II Frenkel function regulators are frame devices used for the treatment of distal occlusion. The design of the device includes: vestibular shields, labial pelotes, lingual and vestibular arches, as well as a palatal clasp connecting the vestibular shields. The type I Frenkel function regulator is used in the treatment of distal occlusion in combination with protrusion of the anterior upper teeth. The growth of the lower jaw is stimulated by changing the myodynamic balance between the circular muscle of the mouth, pulled away from the lower incisors by the labial pelot, as well as the muscles of the tongue. The Frenkel type II function regulator is used in the treatment of distal occlusion in combination with the palatine tilt of the upper front teeth. Due to the additional element of the palatine protrusion arch, the movement of the anterior upper teeth occurs in the labial direction.

The Balters bionator is used to eliminate the narrowing of the dentition and protrusion of the upper incisors, as well as stimulates the closing of the lips and prevents the pressure of the cheeks on the lateral teeth.

The Janson bionator is used for mandibular retrognathia and its combination with maxillary macrognathia, promotes the extension of the lower jaw forward. The growth of the upper jaw is restrained by attaching the facial arch to the bionator during the patient's sleep using an extraoral thrust.

The Khoroshilkina-Tokarevich bionator is intended for the treatment of distal deep bite with protrusion of the incisors of the upper jaw, the presence of teeth between them without significant narrowing of the dentition.

Bimler bite shapers are used to eliminate dental anomalies combined with the presence of a gap between the teeth, a close arrangement of the front teeth, their rotation along the axis, narrowing of the dental arches, as well as with a deep or open bite with a distal ratio of dentition.

The Persin device is used in the distal position of the lower jaw and its micrognathies, stimulates its extension and growth, allows you to redistribute the functional load from one dentition to another, eliminates the protrusion of the upper incisors, and also increases the tone of the circular muscles of the mouth when closing the lips.



Hardware treatment should be used in conjunction with myohymnastics. Therapeutic gymnastics is used for the prevention and treatment of malformations and deformities of the jaw bones, helps to achieve proper lip closure, trains muscles, and helps to normalize all functions of the maxillary system. Therapeutic gymnastics should be prescribed 1-3 months before the beginning of orthodontic treatment, since the use of therapeutic stress on teeth, jaw bones and temporomandibular joint prepares children to perceive the power of orthodontic devices, and also leads to the closure of the lips without straining the muscles that extend the lower jaw. Sets of exercises are used to increase the tone of the circular muscles of the mouth; to increase the tone of the muscles pushing the lower jaw forward; to normalize nasal breathing.

Also, if necessary, for the treatment of distal occlusion, frenulum plasty is performed, the tubercles of individual teeth are sanded. Methods of treatment in a removable bite. Removable plate devices for the upper jaw with an inclined plane (especially for distal deep occlusion), as well as a preorthodontic trainer, are used in the treatment of prognathia.

In addition, in the treatment of distal occlusion at the dental alveolar level, especially with a combination of crowding of teeth and narrowing of the dentition, non-removable structures can also be used: the "2x4" device, the components of which are rings for the first molars and braces for the 4 upper incisors.

During the period of early replacement bite, a type I and type II Frenkle function regulator is used. It inhibits the growth of the upper jaw, promotes the extension of the lower jaw forward, as well as the growth of the apical base of the jaws in the anterior in the lower jaw due to the labial pelotes and in the lateral sections due to the buccal shields.

In later periods, various activators with screws are used in combination with the use of a facial arc with a rubber rod fixed on a head cap or neckband. An important possibility of such constructions is to restrain the growth of the upper jaw in the sagittal direction, which is shown in gnathic forms of distal occlusion accompanied by upper macronathy. Also, for the treatment of distal occlusion, the use of devices that promote the extension of the lower jaw is effective: the Persin, Bimler, Balters and Lehman apparatus.

For children with a removable bite and a tendency to form distal occlusion, McNamara recommends that the upper jaw be expanded with a rapid palatal dilator. The subsequent use of a retention plate leads to the movement of the lower jaw to a more comfortable extended position for the patient and, thus, buccal crossbite is eliminated, and then occlusal relationships in the sagittal direction are improved.

With a distal bite with a combination of a deep incisor overlap blocking the lower jaw and inhibiting its development, the separation of the bite is used with the help of mouthguards fixed to the lateral groups of teeth, or the coating of the second milk molars with crowns with spikes along the Katz.

If the sizes of teeth and jaws do not match, sequential tooth extraction according to Hotz is recommended: at 7.5 – 9 years old, the milk canines of the upper jaw are removed, at 10-11 years old, permanent premolars are removed in order to create a place for permanent canines to erupt. Also if necessary during the period of a removable bite, plastic bridles, grinding of individual teeth and rehabilitation of ENT organs are used.

Also, the treatment of distal occlusion is used with the removal of the least valuable teeth in the upper jaw and the distalization of the teeth of the upper jaw with using a bracket system. However, after the eruption of the second molar in the upper jaw, distalization is much more difficult.

Patients with distal occlusion should be monitored at the dispensary until the formation of a permanent bite is complete.

The choice of treatment for distal occlusion in permanent occlusion depends on It depends on the shape of the anomaly, as well as on the degree of its severity, which is determined by the size of the



sagittal gap between the incisors of the upper and lower jaws. A sagittal incisor gap is formed due to a mismatch in the size and position of the upper and lower dentition. The larger the size of the sagittal incisor slit, the more pronounced the occlusion anomaly. If the patient has a dental alveolar form of distal occlusion, an edgewise technique (bracket system) is used. In the presence of diastema and three in the upper jaw, it is possible to carry out treatment on a bracket system without tooth extraction.

The elimination of crowding of the anterior group of teeth is possible due to the distalization of the second and then the first molars. This method may not be possible if the patient has already erupted third molars.

In such cases, symmetrical tooth extraction is indicated. Abolmasov N.G. and Abolmasov N.N. believe that in order to determine which teeth should be removed, it is important to take into account the following facts:

- the amount of space deficit – if, after alignment of the teeth, a residual tremor of no more than 2.0 mm is predicted, then the first premolar is removed, if more than 2.0 mm, then the second premolar is removed. This is due to the fact that during the closure of the gaps between the teeth, the tendency to retrusion of the incisors increases, and the removal of the second premolar has a lesser effect on the position of the incisors dental condition – it is preferable to remove teeth with destroyed crowns, endodontic treatment, changes in periapical tissues.

With a significant narrowing of the upper jaw in the area of premolars and molars, it is possible to use the Derichswiler apparatus a non-removable expanding apparatus that exerts a transversal effect on the teeth, alveolar process and palatine suture.

To accelerate hardware treatment for narrowing of the upper jaw and the need for distalization of teeth, a lattice compactostectomy is used. During this operation, muco-periosteal flaps are peeled off from the vestibular and palatine sides in the area from the lateral incisor to the second molar trapezoidal shape. Moving away from the necks of the teeth by 2-3 mm, a horizontal incision is made in the area of the hard palate. Next, boron in a compact layer of bone makes holes along the teeth holes at a distance of 3 mm in several rows in a staggered manner, then the flaps are put in place and stitches are applied. The orthodontic device is fixed 2-3 weeks after surgery. One of the goals of compactostectomy is the biological preparation of the bone for subsequent orthodontic intervention, since the response that has arisen in the bone is expressed in the resorption of damaged tissue and its replacement with a new bone, which enhances its plasticity and accelerates the processes of restructuring under the influence of the orthodontic apparatus.

In patients with a pronounced gnathic form of distal occlusion, osteotomy of the upper jaw may be used. To eliminate the upper macrognathia, segmental osteotomy is more often resorted to, moving the anterior fragment posteriorly, often with the preliminary removal of individual teeth. Segmental displacement is usually associated with the difficulty of moving the entire upper jaw backwards due to other bone structures.

In the gnathic form due to micrognathia of the mandible and its distal position, osteotomy of the mandible is performed. Dissection of the body or branches of the mandible is performed and subsequent movement forward to the normal position of the dentition.

Since the treatment of dental anomalies and deformities in adults cannot be carried out only by orthodontic methods due to the already formed facial skeleton, surgical intervention should be considered as an integral part of the comprehensive treatment of distal occlusion.

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