

THE EFFECT OF ABNORMALITIES OF ARTICULATORY ORGANS ON SPEECH FUNCTION

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Abstract

This research article aims to review and analyse existing research in this area, identifying major trends and gaps in knowledge, and supports the importance of further research to optimise the diagnosis and correction of maxillofacial and myofunctional disorders in the context of ensuring the full development of speech in children.

Keywords: speech therapy, myofunctional disorders, articulation apparatus, correction, anomaly, deformation, parafunction, myotherapy.

INTRODUCTION

In the modern medical and pedagogical context, the issues of speech development and formation in children represent a significant area of research. Maxillofacial abnormalities such as jaw deformities, malocclusion, and myofunctional disorders are becoming the object of researchers and practitioners. In light of the importance of clear, correct articulation and normal speech development, the issue of the influence of maxillofacial abnormalities on this process becomes relevant and important.

The issue of the influence of anomalies and deformations of the maxillofacial region on speech function is addressed in the works of foreign specialists. The incorrect structure of the articulation apparatus is one of the most common reasons for the disadvantages of sound reproduction.

According to G.P. Sosnin and A.V. Kritsky (1988), anomalies and deformations of the maxillofacial region prevent the normal articulation of sounds, contribute to the consolidation of habits of incorrect articulation and complicate their speech therapy correction. The restriction of the mobility of the tongue as a result of an anomaly of its frenulum contributes to a violation of articulation.

It should be noted that one of the most common anomalies is malocclusion. The clinic may vary depending on the etiology and disorders of ontogenesis. In a number of literature types of abnormal occlusions are presented: mesial, distal, deep, cross and open (anterior and lateral). Malocclusion can be a consequence of genetic factors, bad habits, improper diet, improper lifestyle, etc.

At the same time, impaired sound reproduction or incorrect articulation, infantile type of swallowing, impaired tone of chewing and facial muscles are etiological factors in the development of anomalies and deformities of the maxillofacial region. Muscular dystonia,

which leads to a lack of muscle function, is often the cause of both posture disorders and pathology of the maxillofacial region.

With anomalies and deformations of the maxillofacial region, nasal breathing is often disrupted. During oral respiration, the upper jaw is formed with constant compression, which often leads to a narrowing of the dental arch. In addition, the function of the nasal resonator is impaired, which negatively affects speech activity, in particular, causes disorders of the timbre of the voice and makes it difficult to differentiate nasal and oral sounds in speech.

A number of experts associate the occurrence of oral respiration with the presence of infantile swallowing, a violation of lip closure. Oral respiration is often found in children who have been operated on for adenoids. Data have been obtained that the degree of nasal involvement in oral respiration is 25% +1.5%, and depends not only on the amount of nasal resistance and the presence of pathological changes in the nasal cavity and nasopharynx, but also on the position of the tongue, its root, soft palate, and the structure of the pharynx. Oral breathing leads to disruption of the activity of the muscles of the parotid region, tongue and soft palate. As a result of not closing the lips, the balance is disturbed not only of the radial and circular muscles, but also of the entire oral-facial complex. The tongue of a child breathing through the mouth sinks to the bottom of the oral cavity and does not participate in the development of the upper jaw. The pressure of the cheek muscles on the lateral parts of the upper jaw increases. Negative pressure is created in the nasal cavity. All this in combination leads to a narrowing of the upper jaw, an increase in the height of the palatine arch, which in turn leads to a curvature of the nasal septum and a decrease in the nasal cavity. As a result, a vicious circle is formed, leading to even greater difficulty in nasal breathing.

These anatomical abnormalities can complicate not only the articulation of speech sounds, but also the functions of chewing and swallowing, as well as in some cases, respiratory function. At the same time, with violations of the function of some mobile organs of articulation, deformities of the maxillofacial region are formed, which has a negative effect on the formation of the child's body.

The harmonious development of the maxillofacial region is influenced by the myofunctional state of the chewing and mimic muscles, the muscles of the tongue and neck. A violation of muscle activity, expressed in spontaneous movements of the lower jaw or clenching of teeth unrelated to chewing, speech, swallowing and other natural acts is called parafunction of the chewing muscles.

At the same time, with myofunctional (MFN) disorders of the function of some mobile organs of articulation, habitual pathological conditions may be observed (laying the tongue between the teeth at rest, as well as during the processes of chewing, swallowing and speech; violation of the tone of facial muscles, as a result of which there is not enough pressure on the teeth from the lips necessary for normal formation of dentition, etc.), which has a negative effect on the developing maxillofacial region of the child.

The question of the role of anatomical defects of articulatory organs in the formation of

speech function began to be considered in the specialized literature quite a long time ago and all pronunciation disorders caused by organic anomalies of the peripheral apparatus of speech were combined under the term "mechanical dyslalia". In the work of T.B. Filicheva and N.A. Cheveleva (1989), the opinion is expressed that the incorrect structure of the articulatory apparatus is one of the most common reasons for the disadvantages of sound reproduction. A shortened frenulum of the tongue, too large (macroglossia) or too small tongue (microglossia), defects in the structure of the jaws leading to malocclusion, an incorrect structure of teeth, dentition, an incorrect structure of the palate - too high (Gothic), thick lips, often with a drooping lower lip or a shortened, sedentary upper lip can lead to dyslalia.

F.Ya. Khoroshilkina (2004) notes that the restriction of the mobility of the tongue as a result of shortening its frenulum or attaching it close to its tip often leads to a deterioration in articulation, because in the process of speech, under the influence of such a mechanical obstacle, atypical movements of the tongue occur. Such a pathological development of the frenulum of the tongue is often the cause of malocclusion. In her works, a detailed description of five types of anomalies of the frenulum of the tongue is given according to their shape and density, as well as the peculiarities of connecting the fibers of the frenulum with the muscles of the tongue:

- 1) thin, almost transparent, normally attached to the tongue, but limiting its mobility due to its insignificant length;
- 2) thin translucent, attached close to the tip of the tongue, having a slight extension; when the tip of the tongue is raised, a groove forms in its center;
- 3) representing a dense short weight attached close to the tip of the tongue. As a result of the tension of the frenulum, the tip of the tongue turns inward, and the back swells. Licking the upper lip is difficult, and sometimes impossible. Palpation of such a frenulum reveals that the mobility of the tongue is due to the fixation of its tip with a connective tissue cord. Under it, which has the shape of a cord, there is a duplicate of the mucous membrane;
- 4) characterized by secreted weight, but fused with the muscles of the tongue;
- 5) with an inconspicuous weight, its fibers intertwine with the muscles of the tongue and limit its mobility.

Researchers pay special attention to congenital defects in the structure of the tongue: aglossia (complete absence of language), microglossia (a pathologically small tongue), macroglossia (pathological enlargement of the tongue due to muscular hypertrophy or as a result of a tumor). Such congenital anomalies are relatively rare, especially aglossia, and lead to a significant violation of the pronunciation of sounds.

The most complex speech disorders are detected in children with various manifestations of non-fusion of the hard and soft palate, alveolar processes and lips.

According to T.P. Sosnin and A.V. Kritsky (1984), deformations of the maxillofacial region prevent the normal articulation of sounds in the oral cavity, contribute to the consolidation of habits of incorrect articulation and complicate their speech therapy correction, which is

consistent with the data of foreign experts.

Thus, the analysis of scientific medical and pedagogical literature shows that there is a clear relationship between anomalies and deformations of occlusion and the functional state of the maxillofacial region. The issues of violation of sound reproduction in anomalies and deformations of the maxillofacial region are covered in sufficient detail.

In modern practice, there are many effective methods of correction and rehabilitation of various authors in the field of orthodontics, speech therapy and gnatology.

Corrective techniques are based on the following aspects: a combination of breathing and articulation exercises, the sequence of studying and correcting disturbed sounds, depending on the characteristics of the articulation pattern. The techniques of facial musculature massage aimed at overcoming facial mimicry and passive gymnastics of the articulation organs, which is carried out with the connection of probes and spatulas and mandatory visual control, are proposed. In correction, special exercises are used to develop the chewing and facial muscles of the face.

At the same time, myofunctional correction (MFC) is used as a method of prevention and correction of anomalies of the maxillofacial region and as a stage of orthodontic treatment. As a clinical method, IFC contributes to the normalization and development of facial expressions, chewing and swallowing functions and posture.

In light of the complexity of myofunctional and maxillofacial problems and their multifaceted consequences, an interdisciplinary approach to their correction is becoming integral and very relevant in modern rehabilitation practice. The importance of an interdisciplinary approach in correcting these disorders lies in the fact that these problems often require a comprehensive view and influence from various specialists. The work of a speech therapist, orthodontist, dentist, gnathologist, physiotherapist and other medical professionals should be combined for effective diagnosis and correction.

In addition, interdisciplinary coordination allows you to create a personalized treatment plan that takes into account the individual needs of each patient. This is especially important in cases where myofunctional disorders are combined with other medical problems, such as neurological disorders or structural abnormalities.

In conclusion, an interdisciplinary approach to the correction of MFN not only improves work efficiency, but also contributes to a deeper understanding of the problem as a whole, where many conditions require integrated research and exposure, an interdisciplinary approach is a key factor in the successful rehabilitation of children.

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