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MODERN TOOLS FOR MYOFUNCTIONAL CORRECTION IN SPEECH THERAPY

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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 modern correction of orofacial and myofunctional disorders in the context of ensuring the full development of speech in children.

KEYWORDS

Speech therapy, myofunctional disorders, articulatory apparatus, correction, anomaly, deformation, parafunction, myotherapy, Infant trainer, occlusion.

INTRODUCTION

According to world statistics, the number of speech disorders in children and adolescents is growing. Interdisciplinary integration of a speech therapist with an orthodontist, pediatric dentist, and pediatrician makes it possible to identify and correct myofunctional disorders at a very early age. As a pedagogical science, speech therapy deals with the study of defects and persistent speech disorders that can be overcome with the help of specialists. The close relationship of speech therapy with such medical disciplines as the development of the maxillofacial skeleton, the structure and functioning of the respiratory system, dentistry, orthodontics, and otorhinolaryngology makes it possible to effectively correct speech

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disorders. Hence the need arises for a speech therapist to work with the listed medical workers in order to improve the quality of the professional care provided to them, as well as for the timely detection of disorders in the structure of the articulatory apparatus that require special medical intervention.

Correct development of speech is possible with normally formed functions of the speech organs, full hearing, and also with sufficient communication with adults (full speech environment).

Often, parents are not sufficiently informed about certain pathologies, as a result of which the speech therapist is the first specialist to whom parents of children with myofunctional abnormalities turn for help, since speech dysfunction caused by these problems is the most obvious and significant aspect of the delay for parents child development. When identifying such deviations, it is very important to explain to parents the complex root cause of the disorders, and not just a purely speech problem, and promptly give the child the correct diagnosis, which may require consultation with an orthodontist, dental surgeon and otolaryngologist. The speech therapist's knowledge of the features of the articulatory apparatus, including the growth and structure of the dental system, characteristic of certain age periods of a child's development, helps to promptly identify risk factors for the occurrence of malocclusions.

As a rule, risk factors for the formation of such disorders are established in a child at a very early age, during the period of the so-called primary (or temporary) occlusion and are consolidated in the form of bad habits, dysfunctions and parafunctions associated with the work of the muscles of the prioral region, the influence of which on the formation of the dentofacial area. the facial system is especially significant. The dental system, like other systems of the human body, is functional, self-regulating, capable of adapting to changing external conditions. In most cases, speech pathologies are one way or another associated with functional disorders caused by the structural features of the speech organs. Thus, with anomalies in the structure of the hard and soft palate, the normal interaction of the oral and nasal resonators is disrupted, which, in addition to defects in the pronunciation of sounds, leads to a disorder of vocal function. Incorrect distribution of muscle pressure during chewing, as well as with impaired breathing, swallowing and speech production functions, is the main cause of most anomalies and deformities of the maxillofacial area. That is why you cannot limit yourself to examining a child starting classes with a speech therapist only with a pediatric neurologist, otolaryngologist and ophthalmologist; it is necessary to conduct a thorough examination by an orthodontist for the timely detection of disorders in the development of the dental system, which is closely related to the formation of speech function. Working

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closely with an orthodontist leads to an increase in the professional level of the speech therapist and, accordingly, to better results of correction.

More than 75% of the growth and formation of maxillofacial structures occurs in a child between the ages of 1 and 5 years. In addition, intrauterine (prenatal) development is of no little importance in the ontogenesis of the articulatory apparatus.

According to G.P. Sosnina and A.V. Kritsky (1988) anomalies and deformations of the maxillofacial region interfere with the normal articulation of sounds, contribute to the consolidation of habits of incorrect articulation and complicate their speech therapy correction. Limitation of tongue mobility as a result of an abnormality of its frenulum contributes to impaired articulation.

To identify the causes of disturbances in the structure of the articulatory apparatus, a thorough examination of the child and a conversation with parents are necessary, the key issues of which are highlighted below.

1. Acquaintance with the structure of the articulatory apparatus, which largely bears traces of the influence of unfavorable heredity and the lifestyle of parents. Such structural features of organs as diastema, short frenulum of the tongue, cleft of the hard palate, underdevelopment or excessive development of the jaws can be inherited.

2. How did the pregnancy proceed (first and second half), were there any complications during childbirth, was the child born full-term, what diseases did he suffer in the first year of life.

3. How feeding was carried out, which affects the formation of swallowing and then chewing functions. In this regard, it is necessary to find out until what age the child was breastfed, from what age he was bottle-fed, when he switched to spoon and cup feeding, and from what month he began to eat solid food.

4. Uneven teeth in a child, as a rule, are not the result of heredity, since in approximately 80% of cases this problem is associated with dysfunctions and acquired bad habits.

A thorough and high-quality examination of the child and communication with parents allows the speech therapist to identify pathology and make the correct conclusion. Thus, build an effective correction route and specific recommendations for parents.

The main types of malocclusion: 1 - open (vertical disocclusion); 2 - distal (underdevelopment of the lower jaw); 3 — cross (shifted to the left or right); 4 - mesial (progeny). There is a milk (temporary) bite at the age of 6 months. up to 5-6 years, replaceable - from 6 to 12 years and permanent (after the eruption of permanent teeth). In the primary (temporary) dentition, in turn, three periods are distinguished: the period of the developing temporary dentition from the

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age of 6 months. up to 3 years, formed temporary occlusion - from 3 to 5 years and preceding the change of teeth - from 5 to 6 years.

In scientific world and domestic practice, there are many effective methods of correction and rehabilitation of various authors in the field of orthodontics, speech therapy and gnathology.

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 articulatory structure. Techniques for facial muscle massage aimed at overcoming facial tone or hypotonicity are proposed.

Vestibular plates and trainers are standard devices, the use of which does not require taking impressions or individual manufacturing, which allows the simplest and most effective way to correct myofunctional disorders, bad habits and malocclusions even in preschool age. The devices do not require constant wearing - 20-30 minutes of training with them at home under the supervision of parents is enough to significantly increase the efficiency of work when practicing with a speech therapist. In addition, without carrying out preliminary (or parallel) correction for underdevelopment of the lower jaw or the formation of an open bite, as a rule, it is impossible to count on effective results.

Children's interdental sigmatism, caused by the insertion of the tongue between the dentition during swallowing and speech, often accompanied by dysfunction of the oral muscles and weakened tone of the orbicularis oris muscle, are the most common disorders encountered in the practice of speech therapists. In such children, the mouth is constantly half-open at rest, which provokes the emergence of habitual mouth breathing, underdevelopment of the lower jaw and the formation of malocclusions, which inevitably lead to impaired speech articulation.

The Center for Myofunctional Research, which has been studying the influence of the muscle factor on the formation of the dentofacial system for more than 20 years, has developed a special trainer “Infant” (MRC, Australia) for active training of oral muscles and correct positioning of the tongue in children with primary occlusion (3-5 years). Regular use of this trainer allows the child to develop the correct position of the tongue at rest and when swallowing. Myofunctional trainers are made of elastic silicone, absolutely safe for the child’s body, completely indifferent to the tissues of the oral cavity. It does not cause irritation to the mucous membranes, does not acquire an unpleasant odor and does not change color during use. Thanks to the high flexibility of silicone, the trainer easily adapts to the individual characteristics and width of the dental arches, even if they are formed

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incorrectly and deformation of the dentition has already occurred.

The "Infant" trainer can be used both in individual and group classes. The recommended mode of using the trainer is 2 times a day for 10-15 minutes. If the lower jaw is underdeveloped, it is also useful to additionally wear a trainer during daytime sleep, since by moving the lower jaw into direct relationship with the upper jaw, the trainer stimulates the growth of the lower jaw mainly in the area of the neck of the temporomandibular joint (TMJ). Thanks to this mode of using the trainer, the sagittal gap, which forms when the growth of the lower jaw in the primary occlusion lags, is eliminated in literally 3-4 months, which helps to normalize the functions of chewing and speech in the child. In addition, the "Infant" trainer model is equipped with elastic air cushions in the area of the chewing teeth, stimulating the child to bite the device lightly, thereby ensuring effective training of the entire complex of chewing structures - muscle and bone tissues of the facial area.

The lack of a sufficient amount of solid food in the diet of a modern child leads to underdevelopment of the chewing muscles and underdevelopment of the dental system as a whole. That is why such a load is necessary for the normal formation of the dental arches - it prevents their narrowing, which inevitably leads to improper eruption and crowding of permanent teeth due to lack of space for them, since permanent teeth are larger and noticeably wider than baby teeth. Normally, a child aged 4-6 years should have physiological gaps (cracks, spaces) between the incisors, since it is at this age that active growth of the jaw bones and preparation for a mixed bite are observed. For this reason, this age period is most effective for the prevention of dental anomalies and the elimination of dysfunction of the muscles of the maxillofacial area. It is important to note that the regular use of trainers in the primary and early mixed dentition (3-8 years) makes it possible to normalize the shape of the palate, which in children with oral breathing acquires a high Gothic arch, disrupting normal phonation. Thanks to the design of the trainer, the tongue learns to take the correct upper position with emphasis on the anterior third of the hard palate, which provides support from the tongue for the arch of the upper jaw from the inside, its shape, width and height are normalized, muscle imbalance is eliminated (the pressure of the tongue compensates for the pressure of the orbicularis oris muscle and the cheek muscles from the outside). At the same time, the bottom of the nasal cavity drops, and the palate acquires a regular dome-shaped shape. In the second half of the mixed dentition, this effect is no longer observed. That is why it is necessary to start correcting breathing as early as possible - already in the primary dentition (3-5 years)

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In the practice of a speech therapist, a question may arise: what should a speech therapist do if a child does not want to wear a trainer, is afraid, or has increased tone at the root of the tongue, which can cause a gag reflex? The answer is obvious, play! You should not ask your child to open his mouth and immediately put on the trainer. It is recommended to play, feel, touch the trainer first with your palms, hands, shoulders, head, cheeks, chin, then lips, then lick and chew, thereby giving a feeling of security. If a child's gag reflex is triggered, it is recommended to touch the tongue with the trainer for a few seconds, gradually increasing the touch time, and you can also spray mint spray into the oral cavity or eat mint candy. Then, while your tongue is sticking out as much as possible, you need to put on the trainer and close your mouth.

Today, in connection with the development of the scientific field: preventive medicine, it consequently develops and gives impetus to other disciplines, becoming relevant for new research. For example, preventive orthodontics makes it possible to identify and prevent certain dental and jaw anomalies at an early age, while at the same time speech therapy deals with the correction and prevention of functional disorders in the same area. The awareness of a competent speech therapist makes it possible to identify and differentiate these anomalies and, in time, inform the orthodontist and, if necessary, work in conjunction. Conclusion, speech therapists must keep up with the times, expanding the boundaries of their knowledge and experience in pursuit of new trends in the scientific field.

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