

**ARTICULATION: THEORETICAL AND PRACTICAL FOUNDATIONS IN THE
FIELD OF DENTISTRY**

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Abstract: The term articulation is one of the basic concepts in the field of dentistry, especially in the field of orthopedics and orthodontics. Articulation means the correct formation of sounds, that is, speech sounds, as a result of the movement of the structures of the oral cavity - teeth, jaw, tongue, lips, soft and hard palate, nipple, chewing and facial muscles, the correct closure of teeth relative to each other, the natural movements of the jaws and the occurrence of harmony between them. In dentistry, the concept of articulation is broad and multifaceted, as it plays an important role not only in the formation of speech, but also in the processes of chewing food, swallowing, and breathing.

Keywords: Articulation, dentistry, jaw-tooth apparatus, occlusion, orthodontics, orthopedics, speech, chewing, rehabilitation.

The main function of articulation is to ensure proper harmony and interaction between the upper and lower dental rows, the jaws, and their muscular system. Correct articulation has a significant impact not only on a person's appearance, but also on the quality of life, digestive, respiratory, and speech processes. The structure of the articulatory apparatus structures, jaw movements, and the correct or incorrect placement of teeth can cause medical limitations and pathological conditions. For the correct formation of speech sounds, the coordination of movements in the articulatory apparatus is of great importance. In this process, all structures within the oral cavity - the dental arch, upper and lower jaws, tongue, lip muscles, and soft palate - work in cooperation. The coordinated movements of the lips and tongue, as well as the correct movements of the jaws in different planes, allow for the precise expression of speech sounds.

Incorrect positioning of teeth and jaws leads to articulation disorders, various speech disorders, and partial dysfunction of chewing function. In dentistry, the norm of the articulatory apparatus and its disorders are studied in depth. Problems arising as a result of articulation disorders are common in the clinic and also negatively affect the general health, psychological state, and social adaptation of patients. Among the criteria for the norm of articulation are the parallelism of the dental arches, the coordination of jaw movements, the maximum point of attachment in the jaw-tooth position and the strength of the established correct movements, as well as the correct formation of sounds for the purpose of speech[1].

The articulation of the maxillofacial apparatus can be impaired due to congenital or acquired causes. Among the congenital causes are anomalous development of the jaw and facial bones, excessive or insufficient development of teeth, and sometimes the presence of defects in the lips or palate. Acquired causes include injuries, some infectious diseases, previous tooth loss, or improperly placed prostheses. In dental practice, articulation disorders often arise as a result of incorrect tooth placement, misalignment of the length and width of the jaws, and defects in the dental arch. In these cases, patients experience speech disorders, impaired chewing function, pain syndromes in the maxillofacial region, and in some cases, tension of the temporomandibular joint (TMJ). In medical practice, the most common complaints of patients are the inability to correctly pronounce speech sounds, pain when opening the mouth, and the hearing of unnatural sounds during chewing. First, the dentist thoroughly examines the dental arch and maxillofacial

system. Various measurements are taken on X-rays, orthopantomograms, tomography, and articulatory apparatus. After these studies, articulation is restored using orthodontic tools, plates, bracket systems, or, if necessary, prostheses. In the process of manufacturing prostheses, correctly closing structures corresponding to the movements of the upper and lower jaws are developed[2].

In modern dentistry, the concepts of articulation and occlusion are inextricably linked, both expressing the anatomical and functional state of the jaws and teeth. It is known that occlusion means the maximum functional closure of teeth, while articulation means movements related to teeth and jaw, and the resulting sound formation. In this regard, the accuracy added to these two concepts and basic norms at each stage of dental diagnosis and treatment contributes to the complete elimination of diseases. Articulation problems in children require numerous orthodontic and speech therapy procedures. From an early age, constant monitoring of the development of the maxillofacial system, milk and permanent teeth, the formation and maintenance of correct articulatory movements contribute to the effective implementation of preventive measures. Incorrect placement of teeth, misalignment of jaws, muscle weakness, and various congenital defects negatively affect articulation function. Therefore, it is very important to identify articulation disorders in children at the earliest possible stage, determine the correct treatment tactics, and strengthen preventive measures. An individual approach, continuity, and effective use of modern technologies are required in the treatment of articulation disorders in young people and adults. Various physiotherapeutic exercises and treatment courses with orthodontic devices are recommended to strengthen jaw-tooth movements and restore correct movements. Special exercises are performed to return the teeth to the correct position, adjust movements in the maxillofacial apparatus, and increase the strength of the oral cavity muscles [3].

In dental orthopedics, articulation is an important requirement, and when performing new prosthetics or fillings, the mutual closure of teeth, jaw movements, and the correct formation of sounds in the oral cavity are carefully monitored. During the prosthesis preparation stage, the patient's jaw movements are imitated using special devices called articulators, attempting to fully reflect the mobility of the oral cavity. In modern dentistry, articulation is a complex and specific field. Based on the results of scientific research in this area, not only treatment, but also early detection and prevention of diseases are being determined. Preventive measures, ensuring the proper development of the maxillofacial system and articulatory mechanisms in children and adolescents, serve to prevent aesthetic and functional problems. Logopedic procedures are also important for the restoration and preservation of articulation. With the help of speech therapy training, the movements of the tongue, lips, and jaw muscles are significantly improved, resulting in the appearance of correct articulatory sounds and positive changes in speech. At the same time, the cooperation of an orthodontist and a speech therapist leads to large-scale results in improving the quality of life of patients. In dental practice, a deep and comprehensive study of articulation problems, the development and widespread introduction of modern treatment methods require constant professional development of medical personnel. Understanding the physiological basis of articulation, its norms and disorders, correct diagnosis in each clinical case, and the correct implementation of planned procedures ensure the development of dentistry in accordance with modern requirements. Based on preventive programs, it is necessary to strengthen awareness-raising work among students and the population about the importance of the jaw-tooth system and articulation. Proper dental care, proper nutrition, sufficient physical activity, and regular dental checkups help prevent articulation disorders. Paying special attention to personal hygiene and oral care in the correct formation of articulation contributes to ensuring stable results [4].

In the field of dentistry of modern medicine, the issue of articulation is one of the most pressing problems. The use of a combination of fundamental knowledge, clinical practice, and innovative technologies in its study and implementation is the basis for the development of modern dentistry. Timely detection and effective treatment of articulation disorders are an important condition for satisfying the functional and aesthetic needs of each patient, achieving a quality of life, and ensuring social adaptation. Articulation problems are common in orthodontic and orthopedic dentistry. In recent years, the number of jaw-dental system disorders, congenital and acquired defects, dental irregularities, and anomalies in the development of lip and tongue muscles in children and adolescents has been increasing. In this case, genetic factors, the ecological environment, improper nutrition, and other external factors play an important role. In each case, an in-depth diagnostic and individual treatment plan must be developed. As a result of modern computer technologies and 3D modeling in dental orthopedics and orthodontics, individual procedures are being developed for each patient. As a result of the use of high-precision devices, articulators, and scanners for determining articulation, the quality of dental services is increasing. As a result of early and high-quality treatment, patients acquire healthy articulation, a beautiful smile, and the ability for full speech. Articulation function is important not only for aesthetics but also for health. Chewing and swallowing, speech and breathing are vital processes for the human body, which are disrupted without normal articulation. Also, disorders of the articulatory and maxillofacial systems can negatively affect not only speech and chewing, but also the state of the respiratory tract, gastrointestinal tract, and central nervous system. The hygienic and prophylactic significance of articulation is high. Undergoing dental examinations throughout the year, assessing the coordination of the jaw-tooth system and muscle movements, and eliminating disorders detected in the early stages prevents negative consequences. Thanks to modern prosthetics in adults and orthodontic procedures in children, proper nutrition, and adherence to an active lifestyle, the articulatory system is maintained healthy and strong [5].

Summary:

Articulation is a basic concept in the field of dentistry, the functional compatibility of the maxillofacial apparatus and its associated soft tissues is important in the processes of speech, chewing, swallowing, and breathing. As a result of the correct movement of the teeth and jaws, the harmonious functioning of muscles, the patient's quality of life, general health, and social adaptation increase. Early detection of articulation disorders, treatment using modern technologies and multidisciplinary approaches, strengthening preventive measures is one of the important tasks facing the field of dentistry. With an individual approach, correct diagnosis, and professional treatment, it is possible to achieve healthy articulation and satisfactory aesthetic results in each individual. Modern dental approaches and scientific innovations contribute to the effective solution of articulation problems.

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