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Foundations of Orthopedic Stomatology

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Annotation: This article examines the fundamental aspects of orthopedic dentistry - a field aimed at restoring the integrity of the dentoalveolar system through prosthetics, correcting tissue defects, and ensuring the full functioning of the chewing apparatus. Modern methods of diagnosis, principles of orthopedic treatment, classification of dental prostheses, biomechanical bases of construction, as well as features of the interaction of a dentist-orthopedist with other specialists are highlighted.

Keywords: orthopedic dentistry; dental prostheses; occlusion; diagnosis; non-removable structures; removable prostheses; biomechanics; articulation; clinical stages.

Introduction. Orthopedic dentistry is one of the key disciplines of the dental profile, dealing with the diagnosis, prevention, and treatment of defects in the hard tissues of teeth, dental rows, and the chewing apparatus by manufacturing artificial structures. The importance of this area is due to the high prevalence of diseases leading to partial or complete tooth loss, as well as the need to restore the functional, aesthetic, and psycho-emotional components of the patient's life.

Orthopedic dentistry is one of the key areas of modern dental science and practice, dealing with the restoration of the anatomical shape, function, and aesthetics of the dentoalveolar system during its partial or complete destruction. This discipline is at the intersection of medicine, engineering, and art, requiring a specialist to possess deep knowledge in anatomy, physiology, biomechanics, materials science, and aesthetics.The history of orthopedic dentistry spans millennia - from primitive prostheses of ancient civilizations to modern high-tech designs. However, it is precisely in recent decades that a qualitative leap has occurred in the development of this field due to the introduction of digital technologies, new biocompatible materials, and the improvement of diagnostic and treatment methods. The relevance of studying the basics of orthopedic dentistry is due to the high prevalence of dentoalveolar anomalies and defects requiring orthopedic treatment. According to epidemiological studies, the need for various types of dental prosthetics among the adult population reaches 60-75%, increasing with age.

Loss of teeth disrupts chewing and speech functions, deforms the facial skeleton, and increases the risk of gastrointestinal diseases. Orthopedic treatment is aimed not only at eliminating the cosmetic defect but also at correcting occlusion disorders, restoring biomechanical balance, and normalizing muscle and joint function. With the development of technologies and materials, orthopedic dentistry has reached a new level of accuracy and biocompatibility.

Historically, the first attempts to replace lost teeth date back to ancient civilizations: Egypt, India, and Greece. However, the scientific development of orthopedic dentistry began in the 18th-19th centuries, when basic classifications of dental row defects, methods for fixing prostheses, and the first laboratory materials appeared.

In the 20th-21st centuries, metal-ceramic systems, solid-ceramic structures, adhesive bridge prostheses, implantation, and digital modeling (CAD/CAM) have been introduced into orthopedic practice. Today, the orthopedic dentist relies on digital technologies, 3D scanning, computer analysis of occlusion, and high-precision biomechanics.

Orthopedic dentistry is one of the most important clinical disciplines in modern dentistry, dealing with the restoration of impaired functions of the dentoalveolar system through prosthetics. This field of

medicine combines deep theoretical knowledge of anatomy, physiology, and biomechanics with practical skills in manufacturing and applying various orthopedic structures.

Orthopedic dentistry as a science has its origins in ancient times. Archaeological finds indicate attempts to restore lost teeth in the ancient civilizations of Egypt, Greece, and Rome. However, the scientific foundations of modern orthopedic dentistry were laid only in the 18th-19th centuries through the works of prominent scientists and practitioners.

Orthopedic dentistry is a branch of dentistry that studies the etiology and pathogenesis of diseases, anomalies and deformities of teeth, dental rows, alveolar processes, and jaws, and develops methods for their diagnosis, treatment, and prevention through prosthetics and the application of apparatus treatment methods.

Orthopedic dentistry is closely related to therapeutic dentistry, surgical dentistry, orthodontics, as well as general medical disciplines - anatomy, physiology, pathological anatomy, and physiology. The interdisciplinary approach is the basis of modern orthopedic treatment.

Currently, orthopedic dentistry is experiencing a period of intensive development related to the introduction of new materials, prosthetic manufacturing technologies, computer modeling, and digital diagnostic methods. The emergence of dental implantology has opened new horizons in restorative treatment, allowing for results as close as possible to the natural state of the dentoalveolar system.

The study of the basics of orthopedic dentistry requires a systematic approach, a deep understanding of the biological processes in the oral cavity, and mastering modern methods of diagnosis and treatment, which constitutes the content of this course.

For successful prosthetics, it is necessary to understand the structure and functions of the oral organs:

A tooth includes crown, root, pulp, dentin, and enamel. The periodontium consists of the gums, periodontium, root cementum, and alveolar bone. Their condition determines the choice of orthopedic treatment method.

CNH disorders are directly related to incorrect occlusion and can intensify with incorrect prosthetics.

Muscle work affects the load distribution, the retention of prostheses, and the stability of occlusal contacts.

High-quality diagnostics is the basis for successful prosthetics.

Conclusion. Orthopedic dentistry is a crucial area that ensures the restoration of the function of the chewing apparatus, aesthetics, and the quality of life of patients. Modern technologies, accurate diagnostics, and the correct choice of designs allow for high clinical results. The development of digital dentistry makes orthopedic treatment more predictable, comfortable, and effective. Further research will be aimed at improving the biocompatibility of materials, increasing the accuracy of modeling, and enhancing the durability of orthopedic structures.

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