

Prosthetic Dentistry: textbook

КУПИТИ

The national textbook focuses on the issues regarding clinical biomechanics of the dentomaxillary system, examination methods and modern techniques for pain management in prosthetic treatment. It also includes the clinical pattern and prosthetic treatment methods for patients with partial and complete loss of teeth, as well as clinical and laboratory stages in denture manufacturing. The textbook consists of five corresponding modules and contains original illustrations. The textbook is intended for use by dental students, internship dentists, undergraduates, residents of the dental faculties at the institutions of higher education, dental practitioners, research members engaged in the field of Dentistry.

Prosthetic **DENTISTRY**

Edited by
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NATIONAL TEXTBOOK

RECOMMENDED
by the Academic Council of Ivano-Frankivsk National
Medical University as a national textbook for dental
students, internship dentists, undergraduates, residents
of the dental faculties at the institutions of higher
education, dental practitioners, research members
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AUTHORS' NOTE

The path to the development of the professional dental skill is full of learning the basics, new conceptions and methods, analyzing and differentiating already known information. The well-compiled textbook which will help you to deeply and comprehensively master the subject of prosthetic dentistry is the important assistant on this path. It was this task that the authors faced when creating and writing the textbook on prosthetic dentistry.

Despite the widespread introduction of e-learning, classic printed textbooks will remain a reliable and important source of information while pursuing higher education for a long time to come.

The textbook on prosthetic dentistry has evolved in parallel with the rapid development of dental science and practice. The educational process is changing, Ukrainian dental students study according to the Bologna system, which provides for a credit-module training system. This was taken into account when compiling the textbook. The material is systematized into five modules in accordance with the requirements of the academic program. The block of tests is compiled considering the main sections of prosthetic dentistry and qualification requirements for a licensed test exam, which is a component of the state certification of students in the specialty «Dentistry».

The textbook presents information corresponding the current level of the dental science development, completely complies with the program provided for the study of prosthetic dentistry.

The authors focused on the clinical features, diagnosis, prosthetic treatment of the dental pathology and complications resulted from the use of various constructions of dentures. The assimilation of the material is provided by a large number of illustrations, which make the complex information more available from the first pages of the textbook.

We will be grateful to the readers for all the comments and suggestions on the textbook, since it will help the team of authors to improve its quality. We hope that the textbook presented will help more than one generation of Ukrainian dentists to become professionals in their field.

INTRODUCTION

Prosthetic dentistry is an integral part of the general dentistry and the independent section of the general orthopedics.

The founder of orthopedics is the French surgeon Nicolas Andry (1658–1742), who in 1741 published his work «L'onthopedie», that is, «Orthopedics, or the art of preventing and correcting body deformities in children». The term «orthopedics» consists of two Greek words: orthos – straight, correct, fair and paideia – to educate, to train. When introducing this term, Andri had in mind the correct upbringing of children (physical) and defined orthopedics as «the art of preventing deformities in children and treating them».

Prosthetic dentistry is aimed to provide the same tasks in the area of the dentition and maxillofacial skeleton.

Prosthetic dentistry as the independent discipline has passed a difficult and long way of its development. Currently, it is the developed scientific discipline, which consists of general and special courses. The general course is propaedeutic (preparatory) one.

The special courses include three main sections: Prosthetic Treatment, Maxillofacial Prosthetics and Orthodontics.

The propedeutical course in prosthetic dentistry comprises the anatomical and physiological features of the masticatory apparatus, issues on biomechanics, occlusion and articulation, general and special methods of examining a patient in prosthetic dentistry clinic, clinical materials science, laboratory techniques for the manufacture of dentures and various prosthetic devices.

Prosthetic dentistry provides the prosthetic treatment, diagnosis, clinical presentation, prevention and elimination of defects in teeth and dentition resulting from the certain pathological process.

Maxillofacial prosthetics studies diagnosis, clinical presentation, prevention, the issues on prosthetic treatment, correction of deformities of the jaws and face caused by trauma, hostilities, diseases, and various operations.

Orthodontics studies the treatment of persistent anomalies and deformities of teeth, dentition and occlusion as well as the methods of their prevention.

Prosthetic dentistry in the modern vision is a branch of clinical medicine which studies the etiology and pathogenesis of diseases, anomalies, deformations and injuries of teeth, jaws and other organs of the oral cavity and maxillofacial region, and also develops the methods for their diagnosis, treatment and prevention.



MODULE

2

RESTORATION OF DENTITION INTEGRITY WITH REMOVABLE CONSTRUCTIONS OF DENTURES IN CASE OF PARTIAL DEFECTS

Prosthetic treatment of patients with partial loss of teeth, considering the studies of some authors (V.A. Labunets, 2000; M.M. Rozhko, 1993), tends to spread. The number of patients who need removable dentures is constantly growing. Thus, according to V.A. Labunets (2000), in Ukraine the number of patients who need the treatment with removable constructions is 53.8 % per 1000 examined.

In case of partial loss of teeth, if it is impossible to restore the dentition integrity with fixed constructions, they use removable dentures (partial laminar and clasp). The selection of removable denture design depends on the location and size of the defect, number of teeth preserved on the jaws, their hard tissues and parodontium state, degree of anatomical retention, state of the alveolar processes and parts, maxillary tuberosity, state of the hard palate.

Treatment of patients with partial loss of teeth with fixed dentures, obviously, provides the preventive and curative effect, but also has serious disadvantages. In particular, the need for significant preparation of dental hard tissues, the feasibility of fixed dentures application only in the presence of the dentition defects, the impossibility of effective hygienic care of the oral cavity and dentures, very limited indications for the use in prosthetic dentistry.

To some extent, the removable dentures do not have these disadvantages. In most cases, there is no need to prepare the abutment teeth. Moreover, in the area of the defect when applying the removable dentures, you can use artificial teeth on artificial gums of various shades, which is of aesthetic importance, and in the presence of good clinical conditions – without artificial gums (adjusted to the alveolar process). Removable dentures are easy to remove from the oral cavity for hygienic care. There are clear indications and contraindications to their use.

Partial laminar dentures restore only a small part of the lost masticatory efficiency, in most cases only by 10—15 %. Moreover, the removable dentures transmit masticatory pressure mainly to the oral mucosa and the bone base. This is a serious disadvantage compared to fixed dentures, since the mucosa is not phylogenetically adapted to the masticatory pressure, and the use of various types of clasps leads to traumatic occlusion, which causes loss of abutment teeth and requires repeated prosthetic treatment of patients.

The functional differences of these constructions depend on their design features.

CONSTRUCTIONS OF REMOVABLE LAMINAR DENTURES

Each removable denture has its design features, which are determined by the position and size of the defect, number of remaining teeth, state of the mucosa lining the prosthetic bed, preservation of the alveolar processes and alveolar parts, the hard palate dimensions and other anatomical features. Despite the variety of available designs, you can find the elements used in all types of removable dentures. These include: base, retaining elements (clasps), artificial teeth (Fig. 2.1). The arch denture, in addition to the base and retaining elements, includes the arch with processes (Fig. 2.1, *b*).

Denture base

The base of removable laminar denture is a plate made of plastic or metal, on which artificial teeth and fixing devices are fixed in the oral cavity. The base of the denture on the mandible is placed on the alveolar part, and on the maxilla — on the alveolar process and the palate. Masticatory pressure from the artificial teeth is transmitted through it to the prosthetic bed mucosa.

General medical contraindications to the use of plastic bases include: plastic allergy, epilepsy, bruxism, anatomical features of the prosthetic bed, occupational peculiarities. The main disadvantage is the repeated breakage of plastic bases. It is advisable to use metal bases in people with multiple included, but small defects of the dentition, for prosthetic treatment of patients with loss of only central or lateral incisors. Metal-based dentures are recommended for the treatment of patients with deep occlusion complicated by decreased interalveolar height. In case of jaw narrowing, conventional dentures reduce the already small oral cavity, which makes it difficult to speak, move the tongue and chew.



Fig. 2.1. Partial laminar (*a*) and clasp (*b*) dentures

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