

**D. V. RUBLEVSKY, J. Y. NAUMOVICH,  
A. O. SAKADYNETS**

**GENERAL  
ORTHODONTICS**

Minsk BSMU 2016

МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ  
БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ  
КАФЕДРА ОРТОДОНТИИ

Д. В. РУБЛЕВСКИЙ, Ю. Я. НАУМОВИЧ, А. О. САКАДЫНЕЦ

# ОБЩАЯ ОРТОДОНТИЯ

# GENERAL ORTHODONTICS

Учебно-методическое пособие



Минск БГМУ 2016

УДК 616.314-089.23 (075.8)

ББК 56.6 я73

P82

Рекомендовано Научно-методическим советом университета в качестве учебно-методического пособия 16.03.2016 г., протокол № 7

Рецензенты: д-р мед. наук, проф. Т. Н. Терехова; канд. мед. наук, доц. Н. М. Полонейчик

**Рублевский, Д. В.**

P82 Основы ортодонтии = General orthodontics : учеб.-метод пособие / Д. В. Рублевский, Ю. Я. Наумович, А. О. Сакадынец. – Минск : БГМУ, 2016. – 11 с.

ISBN 978-985-567-438-3.

Содержит вспомогательную информацию для подготовки к практическим занятиям по ортодонтии в 8 семестре.

Предназначено для студентов 4-го курса медицинского факультета иностранных учащихся, изучающих ортодонтию на английском языке.

УДК 616.314-089.23 (075.8)

ББК 56.6 я73

ISBN 978-985-567-438-3

© Рублевский Д. В., Наумович Ю. Я., Сакадынец А. О., 2016

© УО «Белорусский государственный медицинский университет», 2016

## PRACTICAL SESSION № 1

**Topic:** Classification of malocclusion. The basics of orthodontic terminology. Systematic approach in orthodontic diagnostics.

### **Practical questions:**

1. Name the main developmental periods of orthodontic classifications and their authors.

2. What are the main principles of the Angel's classification of jaws interrelationships? Give clinical characteristic of jaw interrelationships in sagittal plane according to Angle's classification.

3. What are the main disadvantages of the majority of orthodontic classifications of different periods? How to minimize their impact on the diagnostic process?

4. Describe the basic principles of modern nomenclature and terminology of malocclusion.

5. Describe the basic principles of the systematic morpho-functional approach in malocclusion diagnostics.

6. Give an analysis of the systematic approach in the description of orthodontic diagnosis.

### **Tasks for independent work of students:**

1. Select the number of classes and subclasses identified by E. Angle's malocclusion classification:

- a) two classes, three subclasses;
- b) three subclasses, three classes;
- c) three classes, two subclasses;
- d) three classes without any subclasses.

2. Select terms that were proposed by Lisher to indicate jaw interrelationships in sagittal plane that were used in the classification of E. Angle:

- a) mesial bite;
- b) sagittal bite;
- c) distal occlusion;
- d) the lateral bite.

3. Specify the method for determining the type of malocclusion, used in orthodontics:

- a) three-dimensional analysis;
- b) regression analysis;
- c) logical analysis.

### **REFERENCES**

1. Lecture material.
2. *Contemporary orthodontics* / W. R. Proffit [et al.]. 3rd ed. 2010.

## PRACTICAL SESSION № 2

**Topic:** Diagnostic methods in orthodontics. Clinical and functional diagnostic methods.

### **Practical questions:**

1. What are the diagnostic methods used in formulation of differential diagnosis in orthodontics? Describe them in terms of their informational content.
2. Give a general description of the clinical diagnostic method. How should one interpret the results of static clinical tests during their implementation?
3. Give examples of techniques for clinical functional tests.
4. Describe the functional methods used for diagnostics of respiratory and swallowing disorders?
5. How should one determine abnormalities in chewing and speech?

### **Tasks for independent work of students:**

1. What kind of research is carried out during the clinical step of diagnostics in orthodontics?
  - a) Biometric;
  - b) static;
  - c) Functional;
  - d) anthropometric.
2. Indicate in what type of malocclusion Eschler–Bittner test is used?
  - a) cross-bite;
  - b) mesial bite;
  - c) deep bite;
  - d) distal occlusion.
3. What is the purposes of application of miotonometry and myography?
  - a) diagnosis of changes in the functional activity of the muscles;
  - b) diagnosis of respiratory dysfunction;
  - c) diagnosis of maxillofacial muscle's tone changes;
  - d) diagnosis of speech dysfunctions.

### **REFERENCES**

1. Lecture material.
2. *Contemporary orthodontics* / W. R. Proffit [et al.]. 3rd ed. 2010.

## PRACTICAL SESSION № 3

**Topic:** Radiologic method of diagnostics in orthodontics.

### **Practical questions:**

1. Which radiological methods are applied in orthodontics? Give their brief characteristics.
2. Define the indications and give the clinical interpretation of dental radiography from the view of an orthodontist.

3. Define the indications and give the clinical interpretation of palatal suture radiography and TMJ (temporomandibular joint) radiography.

4. Define the indications and give the clinical interpretation of panoramic radiography; hand and wrist radiography.

5. Define the indications and give the clinical interpretation of regression analysis of the lateral cephalogram.

**Tasks for independent work of students:**

1. Define the indications for dental radiography in orthodontics:

- a) for determination of the level of file position in the root canal;
- b) for diagnosis of tooth completeness disorders;
- c) for selection of the tooth to be extracted due to orthodontic indications;
- d) for diagnosis of interproximal caries.

2. Define the indications for hand and wrist radiography in orthodontics:

- a) for determination of palatal suture ossification stage;
- b) for morphologic diagnosis of malocclusion;
- c) for planning of forced expansion of palatal suture;
- d) for evaluation of residual growth.

3. Pick the parameters that characterize the size of the jaw's apical bases on the lateral cephalogram:

- a) PNS-J';
- b) NSBa;
- c) B'-J';
- d) B'-J'.

**REFERENCES**

1. *Mitchell, L.* An Introduction to Orthodontics / L. Mitchell. 4th ed. 2013.
2. *Contemporary orthodontics* / W. R. Proffit [et al.]. 3rd ed. 2010.
3. *McDonald, F.* Diagnosis of the Orthodontic Patient / F. McDonald, J. Ireland. 1998. 280 p.
4. *Jacobson, A.* Radiographic cephalometry: from basics to videoimaging / A. Jacobson. Quintessence Pub Co, 1995. 322 p.

**PRACTICAL SESSION № 4**

**Topic:** Treatment of dentofacial disorders in different periods of dentition formation. Application of myotherapy in orthodontics.

**Practical questions:**

1. Name the treatment methods of dentofacial disorders applied in various periods of dentofacial system formation.
2. What are the aim and objectives of the myotherapy.
3. Name general rules for myotherapy performance.
4. Static and dynamic exercises. What influences the amount of physical load on the muscles of dentofacial region?
5. Degree of dentofacial muscles functional state decries.
6. What are the parts of myotherapy exercises complex.

### **Tasks for independent work of students:**

1. Surgical methods are mainly applied in:
  - a) mixed dentition;
  - b) deciduous dentition;
  - c) permanent dentition.
2. Application of myotherapy is most effective at age:
  - a) 1–2 years;
  - b) 6 month – 1 year;
  - c) 4–7 years;
  - d) 10–12 years.
3. How many degrees of masticatory and mimic musculature endurance decrease are there?
  - a) 3;
  - b) 4;
  - c) 5;
  - d) 7.
4. Dynamic myotherapy exercises are characterized by:
  - a) period of muscle contraction with period of their relaxation;
  - b) period of constantly increased muscular tone without it's alteration with the relaxation periods.
5. Application of orthodontic appliances is the main treatment method during:
  - a) deciduous dentition;
  - b) mixed dentition;
  - c) permanent dentition.

### **REFERENCES**

1. *Contemporary orthodontics* / W. R. Proffit [et al.]. 3rd ed. 2010.
2. *McDonald, F. Diagnosis of the Orthodontic Patient* / F. McDonald, J. Ireland. 1998. 280 p.
3. *Orthodontics. Current principles and techniques* / A. Xubair [et al.]. 5th ed.

### **PRACTICAL SESSION № 5**

**Topic:** Application of orthodontic appliances as treatment method in orthodontics. Classification of orthodontic appliances. Mechanical and functional appliances.

#### **Practical questions:**

1. Classification of orthodontic appliances.
2. Name removable mechanical appliances and determine the type of their anchorage.
3. Name fixed mechanical appliances and their benefits and drawbacks.
4. Differences between fixed and removable orthodontic appliances.
5. Name fixed and removable functional appliances and type of their fixation. Indications for application.

### **Tasks for independent work of students:**

1. On basis of their construction type orthodontic appliances are divided into:
  - a) fixed, removable, combined;
  - б) stationary, reciprocal;
  - в) arch type, kappa type, monoblock type.
2. Name mechanical orthodontic appliances:
  - a) Bruckle appliance;
  - b) Frankle appliance;
  - c) Orthodontic plate with a screw.
3. Quad Helix is applied for:
  - a) elongation of dental arches;
  - b) widening of dental arches.
4. Name functional appliances:
  - a) Angle's arch;
  - б) plate with occlusal bite plane;
  - в) Katz's crown;
  - г) Orthodontic plate with a screw.

### **REFERENCES**

1. *Contemporary orthodontics* / W. R. Proffit [et al.]. 3rd ed. 2010.
2. *McDonald, F. Diagnosis of the Orthodontic Patient* / F. McDonald, J. Ireland. 1998. 280 p.
3. *Orthodontics. Current principles and techniques* / A. Xubair [et al.]. 5th ed.

### **PRACTICAL SESSION № 6**

**Topic:** The principles of functional treatment of malocclusion. Myofunctional appliances and combined appliances. Main principles of their action, design and application.

#### **Practical questions:**

1. What are the main principles of functional treatment of malocclusion?
2. Myofunctional appliances. Main design features. Operating principle. Indications.
3. Combined orthodontic appliances. Principles of action, indications.

#### **Tasks for independent work of students:**

1. Functions of dentoalveolar system are fully formed:
  - a) by the 3rd year;
  - b) by 6 years;
  - c) by 12 years.
2. Contraindications to the use of vestibular shield appliance are:
  - a) deep overbite;
  - b) open bite, combined with tongue sucking habit;
  - c) hereditary distal occlusion;
  - d) abnormal respiratory function.



### **Case study**

The child is 4 years old. Thumb-sucking, mouth breathing. The upper incisors and alveolar bone are protruded. What kind of advice must you give to his mother? What kind of orthodontic appliance will you recommend?

### **REFERENCES**

1. Lecture material.
2. *Contemporary orthodontics* / W. R. Proffit [et al.], 3rd ed. 2010.

### **PRACTICAL SESSION № 7**

**Topic:** Complex treatment method of dentoalveolar anomalies. Orthodontic indications for permanent teeth extraction.

#### **Practical questions:**

1. Complex treatment method of malocclusion. Indications for use.
2. Compact-osteotomy. Indications for use, features.
3. Surgical correction of upper and lower lip frenulum, oral vestibuloplasty.

Indications and contraindications.

4. Creating access to the crown of the impacted tooth.
5. Hotz method — advantages and disadvantages. Indications.
6. Orthodontic indications for the extraction of permanent teeth.

#### **Tasks for independent work of students:**

1. The term “absolute macrodontia” means:
  - a) mesio-distal sizes of 4 upper incisors crowns is 45 mm;
  - b) mesio-distal sizes of 4 upper incisors crowns is 35 mm or more;
  - c) mesio-distal sizes of 4 lower incisors crowns is 27 mm or more;
  - d) mesio-distal sizes of 4 upper incisors crowns is 30 mm .
2. Most frequently extracted teeth in orthodontics treatment are:
  - a) premolars;
  - b) permanent incisors;
  - b) permanent canines;
  - c) permanent molars.
3. Indications for permanent canines extraction:
  - a) root fracture;
  - b) impaction and mesial inclination of germs of 35 degrees or more;
  - c) distal occlusion (upper canine);
  - d) mesial occlusion (lower canine).
4. Complex method by Hotz includes:
  - a) surgical and prosthetic treatment methods;
  - b) surgical treatment and massage of the alveolar bone in area of 1st premolar;
  - c) treatment with orthodontic appliances;
  - d) surgical treatment method and treatment with orthodontic appliances.

5. The purpose of compact-osteotomy:
- improvement of orthodontic appliance fixation;
  - acceleration of orthodontic treatment;
  - prolongation of the orthodontic treatment;
  - completion of orthodontic treatment.

#### REFERENCES

- Contemporary orthodontics* / W. R. Proffit [et al.]. 3rd ed. 2010.
- McDonald, F. Diagnosis of the Orthodontic Patient* / F. McDonald, J. Ireland. 1998. 280 p.
- Orthodontics. Current principles and techniques* / A. Xubair [et al.]. 5th ed.

#### PRACTICAL SESSION № 8

**Topic:** Prosthetic treatment method in orthodontics.

**Practical questions:**

- Indications for prosthetics in the temporary occlusion.
- Indications for prosthetics in mixed dentition.
- Indications for prosthetics in permanent dentition.
- Types of prostheses used in pediatric practice.
- Fabrication of partial dentures in pediatric practice.

**Tasks for independent work of students:**

- Methods of setting the teeth in the anterior part of partial denture:
  - on the artificial gum;
  - without artificial gum.
- In children dentures have to be replaced:
  - every 6 months;
  - every year;
  - after two or three years.
- Spacer maintainers are intended:
  - to restore the defect of the dentition;
  - perform space control for permanent teeth eruption in future.

#### REFERENCES

- Contemporary orthodontics* / W. R. Proffit [et al.]. 3rd ed. 2010.
- McDonald, F. Diagnosis of the Orthodontic Patient* / F. McDonald, J. Ireland. 1998. 280 p.
- Orthodontics. Current principles and techniques* / A. Xubair [et al.]. 5th ed.

## CONTENTS

Practical session № 1 .....	3
Practical session № 2 .....	4
Practical session № 3 .....	4
Practical session № 4 .....	5
Practical session № 5 .....	6
Practical session № 6 .....	7
Practical session № 7 .....	8
Practical session № 8 .....	9

РЕПОЗИТОРИЙ БГМУ

Учебное издание

**Рублевский Даниил Викторович**  
**Наумович Юлия Яковлевна**  
**Сакадынец Александр Олегович**

# **ОБЩАЯ ОРТОДОНТИЯ**

# **GENERAL ORTHODONTICS**

Учебно-методическое пособие

На английском языке

Ответственный за выпуск И. В. Токаревич  
Переводчики: Д. В. Рублевский, Ю. Я. Наумович, А. О. Сакадынец  
Компьютерная верстка Н. М. Федорцовой

Подписано в печать 17.03.16. Формат 60×84/16. Бумага писчая «Снегурочка».  
Ризография. Гарнитура «Times».  
Усл. печ. л. 0,7. Уч.-изд. л. 0,35. Тираж 50 экз. Заказ 148.

Издатель и полиграфическое исполнение: учреждение образования  
«Белорусский государственный медицинский университет».  
Свидетельство о государственной регистрации издателя, изготовителя,  
распространителя печатных изданий № 1/187 от 18.02.2014.  
Ул. Ленинградская, 6, 220006, Минск.