

THE MINISTRY OF HEALTH OF UKRAINE  
THE HIGHER STATE EDUCATIONAL INSTITUTION OF UKRAINE  
"UKRAINIAN MEDICAL STOMATOLOGICAL ACADEMY"

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at the meeting of orthodontics department  
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protocol № 1  
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**METHODICAL RECOMMENDATION  
for independent work of students during the preparation  
to practical lessons and the lessons**

|                             |  |
|-----------------------------|--|
| Academic discipline         | Orthodontics   |
| Module №3                   | Children's dental prosthesis   |
| The theme of the lesson №13 | Features of local and general disorders of somatic state during malocclusion |
| Course                      | V  |
| Faculty                     | Preparation of foreign students  |

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### 1. The relevance of the topic.

The dental system is a part of the body, a dynamically changing in the process of development and growth. Relationship between local violations in dento-facial region in children and adolescents with general diseases allows considering dento-facial anomalies and deformations as multyorganic, socially significant pathology. Therefore, diagnosis, treatment and prevention of dento-jaw anomalies and deformations must be considered in the context of the integrity of the emerging body of the child, interrelation of forms and functions of its organs and systems.

### 2. Specific objectives:

To explain the features of objective examination of the orthodontic patient.

To explain methods of functional diagnostics used in orthodontics.

To explain the somatic diseases, which can lead to changes in dento-facial system.

To explain the influence of the malocclusion on the overall condition of the body.

To explain the influence of the respiratory and cardiovascular systems violation on malocclusion formation.

To explain the endocrine disorders that influence on dento-facial deformation.

To explain the violation of the functions of the musculoskeletal system.

To explain the anhidrotic ectodermal dysplasia syndrome.

### 3. Basic knowledge's, abilities, skills necessary for studying the topic (interdisciplinary integration)

| Name of previous disciplines                | Skills  |
|---|---|
| 1.Anatomy                                   | To know the structure of face bones structure.  |
| 2.Normal physiology                         | To describe the physiological act of a mastication, swallowing, speaking, breathing.  |
| 3.Radiology                                 | To know radiology diagnostic, cephalometrics. To determine the form of malocclusion according to the lateral cephalometric.   |
| 4.Pediatric dentistry                       | To know the growth and development of the facial skeleton and of muscles in the age aspect, the timing of teething. To master principles of rehabilitation of the oral cavity in the prevention of a malocclusions. |
| 5.Prophylaxis of stomatological diseases    | To write down the tooth formula (clinical, anatomic, by WHO), determine bite period and dental age.   |
| 6. Propaedeutic of a therapeutic odontology | To define teeth according to the bite: temporary or constant occlusion.   |

|                                |   |
|--------------------------------|---|
| 7.Orthodontics (intra-subject) | To know construction of orthodontic appliance, principles of their design to choose a rational orthodontic appliances for the treatment of deep bite. |
|--------------------------------|---|

#### **4. Tasks for independent work during preparation to the lesson and the lesson**

4.1. A list of the main terms, parameters, characteristics that need to learn by the student during the preparation to the lesson:

| Terms  | Definition  |
|--|---|
| 1. A clinical examination.                         | Clinical examination of patients with dento-alveolar anomalies is the main method in the determination of orthodontic diagnosis and consists of subjective and objective studies.   |
| 2. Subjective study.                               | Subjective research is the elucidation of passport data of the patient; gathering of complaints, anamnesis of life and disease. Is carried out by probing the patient or his parents.   |
| 3. Passport (chronological or calendar) age.       | This is the period from birth to any particular moment of life.   |
| 4. Biological or anatomical and physiological age. | Is determined by the set of metabolic, structural, functional, and regulatory characteristics of adaptive opportunities of an organism and is a required function of time, but unlike the passport is characterized by less distinct intervals of time, during which irreversible age-related biological changes in the body. Biological age can meet the chronological (passport), to get ahead or be left behind. |
| 5. Objective examination.                          | A stage of clinical survey in which carried out examination of the patient (posture, face) and his oral and maxillofacial region.   |
| 6. Inspection.                                     | The main admission objective of the examination of the orthodontic patient includes: overview, definition, build and features of the structure of the face, examination of the oral cavity.   |

|  |  |
|--|--|
| 7. Posture.  | The usual posture that a person takes standing or sitting without excessive muscle tension.  |
| 8. Signs of correct posture:   | The middle line the entire length of the spine is vertical, head looking straight. The symmetrical arrangement of the blades, shoulders, nipples. Both clavicular bones are connected by a horizontal line. Both buttocks are located on the same level. On the back there is no asymmetric skin folds. All the physiological curves of the spine are in a normal range of values (no pathological lordosis, kyphosis). No lateral curvature of the spine (scoliosis). Both legs have the same length. |
| 9. The dysontogenesis.   | This is a condition in which there is a deviation from normal personality development in a certain period of life. It can appear at any age. There are several types of this condition: asynchrony, retardation and regression.  |
| 10. Bone age.  | The age of the person, defined by the skeletal system. To determine bone age are more likely to use radiographs of the hand.   |
| 11. Anthropometric measurements of the face and head of the patient. | While conducting additional diagnostic methods in orthodontics using anthropometric examination of the face and head of the patient (metering). These planes are located mutually perpendicular to each other. With regard to their studying variations in the structure of the face and malocclusion have transverse-flax, sagittal and vertical directions.  |
| 12. Oriented plane by Simon.   | While studing head are used 3 oriented plane by Simon: mid-sagittal, ear-orbital and frontal.  |
| 13. Index by Izard (IFM).  | The shape of the face can be determined using the index (IFM) – morphological facial index. $IFM = \frac{oph-gn \times 100\%}{zy-zy}$ . The value of the index 104 or more characterizes a narrow face, from 97 to   |

|  |  |
|--|--|
|  | 103 – average, 96 I less– wide face.   |
| 14. The principle of "Golden section".             | "The Golden section" is called two parts of the segment, in which the smaller part refers to bigger like a big to the entire segment.  |
| 15. Anthropometric measurement models of the jaws. | Anthropometric measurement models of the jaws are held in three planes: mid-sagittal; vertical; transversal. To define the diagnostic criteria during the period of temporary, mixed and permanent dentition are used as traditional methods of anthropometry KDM and special. |
| 16. The x-rays.                                    | Radiological methods of research of patients with DMD are required to clarify the etiopathogenetic aspects, diagnostic criteria, planning orthodontic treatment, prediction and monitoring of its results.   |
| 17. Anhydrotic ectodermal dysplasia                | Amitotically ectodermal dysplasia – a hereditary disease that develops due to violations of the formation of the ectoderm (germ layer). Another name of this condition is a syndrome Krista-Siemens.   |

#### 4.2. Theoretical questions to the lesson:

1. What are the stages of objective examination of orthodontic patients?
2. What are the peculiarities of the general inspection of orthodontic patients?
3. What are the features of determining the structure of the face?
4. What are the methods of functional diagnostics used in orthodontics?
5. What are the methods of determination of a violation of the functions of DFS?
6. What are the methods of determination of a violation of the functions of the musculoskeletal system?
7. What are the methods for determination of disorders of the respiratory system?
8. What is anhidrotic ectodermal dysplasia Syndrome?

#### 4.3. Practical works (task) which are executed at the lesson:

1. To make a clinical examination of the orthodontic patient.
2. Conduct a survey of the patient and / or his or her parents.
3. To define the basic data of the anamnesis of life and history of the disease.
4. To determine the type of posture.
6. To write clinical functional tests.

7. To put a diagnosis regarding the classification of malocclusion.
8. To decode extra-oral radiographs of the TMJ.
5. To decode panoramic x-rays, cephalometrics.
6. To determine bone age of radiograph of the hand.
10. To make the impression, cast model.

### **The content of the topic:**

The integrity of the human body, the interdependence of the forms and functions of its organs and systems with vividly proved by the study of the relationship of local and systemic violations of the organism, arising during the anomalies of the dental system. Malocclusion are characterized by incorrect location teeth, lack of multiple contacts between the tooth rows, change of the form of the alveolar process, violation of the size of the jaws, and their location to the skull. Observed in violation of the functions of the dentofacial system, highlighted the changes and impact on the development of adjacent organs and the whole organism.

#### **Violation of the functions of the musculoskeletal system.**

Posture is depends on functional state of the musculoskeletal system. Fixed posotonic reflexes caused by harmful habits, lead to incorrect posture of the body, which in turn contributes to the development of dento-maxillary anomalies. With decreased bone mineralization bone shape changes even with a slight, but long term effects of improperly functioning of muscles. In this regard, the usual incorrect body position, and especially the head during sleep (sleep on one side, with a planted under his cheek with his hand or with a brush hands with a clenched fist) promotes nonsymmetrical jaw development, often one-sided narrowing of the dental arches, dislocation of the lower jaw. The habit of sleeping on a back, throwing his head back, or with a bowed head on the chest leads to disruption of the growth of the jaws.

If you look in the profile of head, the center of gravity of his head, shoulder-humeral articulation, hips, knees and feet are, as a rule, on the same vertical axis, which is characteristic of harmoniously developed, statuesque figures. While abnormal bite, the center of gravity of the head is often located at the front of this vertical axis, that entails a change in posture. Load attributable to the neck muscles, increases; thus maintain the correct position of the head and the horizontal direction of the gaze is possible only at the further strengthening of the action of the muscles of the neck. As a result of functional overload in most patients with occlusion anomalies are observed tilt the head forward, retraction of the chest, decrease of its mesiodistal size, changing the angle of the ribs, protrusion of the shoulder blades, bulging belly, curvature of legs, a flat feet. Such deviations in the early stages of their development can be characterized as weak posture. Increase of deviations, as well as their aggravation with age is characterized as a violation of posture. Often it is due lordosis, kifosis, scoliosis.

Depending on the severity of spinal curves distinguish the following types of posture: **normal, straightened, scoliotic lordosis, kifosis**. In patients with dento-

facial anomalies functional changes are often combined with the morphological, including posture, which spontaneously is not corrected.

### **Disorders of the respiratory and cardiovascular systems.**

Some of dento-facial anomalies are recorded on respiratory function. Deformation of the upper jaw when the sagittal anomalies bite accompanied by decreasing of volume of the nasal cavities and violation of pneumatization of airways cranial sinuses. Obstruction of nasal breathing leads to the insufficient moistening and heating of the air stream, weakening bacteriostatic and bactericidal action of the nasal mucosa. Such patients often suffer tracheitis and chronic bronchitis. Impaired posture creates conditions for the difficulty of development of the chest and lung function. To assess respiratory failure is advisable to apply clinical tests Stange and Gench, spirometry, x-rays and other methods of laboratory diagnostics. In patients with pronounced dento-facial anomalies violation of respiratory function is often combined with cardiovascular failure.

### **Disorders of the digestive system.**

Violations of chewing were observed after the plural tooth loss after caries destruction, injury, inflammatory processes, operations for treatment of tumors and other. It is facilitated by multiple retention of teeth, adentia, sagittal, vertical and transversal malocclusion, combined with a significant reduction in the number of teeth. Violations of the meal were also observed in birth defects in the maxillofacial region - congenital cleft lip, alveolar bone and palate. The defect of the upper jaw, congenital absence of the lateral incisor, located in the area of the cleft, multiple missing teeth and bite violations impede chewing of food, which often leads to chronic gastritis, colitis, and other gastrointestinal disorders. Food that falls into the nasal cavity, causing inflammation of the mucous membrane. The ingestion of such food residue, decomposed in the nose, it can lead to the development of intestinal disorders.

Greatly disturbed digestion when anhidrotic ectodermal dysplasia is a congenital disease with hypoplasia or aplasia of the skin glands, hair follicles, glands and mucous membranes of the majority of the germs of the teeth. These violations significantly impede chewing. Hypoplasia glands mucous membranes leads to:

- 1) dryness in the mouth cavity, the small number of saliva;
- 2) rough voice from childhood, voice softening;
- 3) the propensity to respiratory diseases, chronic rhinitis;
- 4) dryness of the eyes, reducing tearing, susceptibility to inflammation of the conjunctiva;
- 5) gastritis, gastric or duodenal ulcers.

In connection with the defeat of different organs and systems, such patients need treatment and dispensary observation of many specialists: dermatologists, pediatricians, therapists, orthodontists, otolaryngologists, ophthalmologists and other

### **Peculiarities of formation of the psyche.**

Face reflects the state of mind of man. Various emotions change facial



expression thanks to the facial muscle and the muscles that move the lower jaw.

The character and temperament are reflected on the formation of the dento-facial system, the mental condition - on posture.

Deformation of the facial skeleton and disfigurement of the face negatively affect mental development of the child. Such children look timid, droopy, sometimes become withdrawn, angry. Feelings of inferiority oppressing and violates their relationships with others, especially with their peers. Enrolling in school, they find themselves among the not always tactful classmates who notice characteristic of dento-maxillary anomalies in infringement of the form and expression, which often leads to mental injury. Interaction between the facial muscles and psyche is especially apparent when there is abnormal occlusion, combined with not closed lips. Open mouth and open lower jaw seen as a weakening of the protections the social function of the organism, as a potential lack of willingness to a willful actions [R. Frankel, 1967]. When such a violation, the child often passive, eyes expressed fatigue, lethargy.

Consider that patients with distal, blocking bite impressionable, and with mesial bite, as a rule, strong-willed, but incontinent. Studying facial expression and behavior of the child, one can judge about its character, temperament and mental development. It is important to establish contact with the patient, understanding, selection and treatment, as well as construction of orthodontic appliances.

In addition to the aesthetic violations of pathological types bite cause of functional disorders in the body.

**Open bite** results in significant functional disorders (difficulty food biting, chewing, abnormal swallowing, speech disturbance, breath changes).

When the anterior open bite violated food biting because of frontal teeth off the contact. This leads to an overload of the remaining teeth and to a decreasing of mastication. In children with a small number of pairs of antagonists teeth in the chewing of food participates tongue, in result its muscles becoming overly intelligent and strong, and tongue increased in volume (hypertrophy tongue).

Open bite after inappropriate swallowing (V.P. Okushko). In the somatic type of swallowing lips closed, teeth closed, and the tip of the tongue rests in the hard palate behind the upper incisors; when the infantile - teeth open, and the tip of the tongue pushes of the lips and cheeks. This may lead to disunity of the front teeth.

Observed fuzzy pronunciation of the dental and lips hissing sounds. Tongue during a speech, as a rule, sliding into the available gap (unclear speech, hissing). Lack of articulation of the sounds of children aspire to talk to compensate for the contraction of the mouth or approaching the tip of the tongue to the lower dental arch, this explains the peculiar facial expressions during talking.

Type of breathing with open bite mainly oral, that is caused by permanent mouth opening. Muscles of the mouth and muscles that surround mouth area usually less mobile this is explained by the conditioned reflex reaction to a gaping mouth opening, the desire to hide the defect by tension of lips. A constant tension lips makes breathing easier and leads to less dryness of mucous membranes of the



oral cavity. With mouth breathing has been violations of a General nature. There is sufficient mixing of the residual air and with tidal, which is extremely important for the normal ventilation of the lungs. In addition, the passage of air through the nose stimulates the respiratory muscles. With mouth breathing emits significantly less carbon dioxide than the nose. When oral hyperventilation an increased concentration of carbon dioxide in the blood and the oxygen content is reduced. Even in float mouth breathing the blood loses half of oxidizing ability. Biochemical shifts in the plasma concern and increasing the content of glucose, calcium. Clinical blood test shows in such cases, decrease in hemoglobin, leucocytosis with a shift to the left, unstable. Mouth breathing leads to the deterioration of the outflow of venous blood and disorders of the Central nervous system. Breathing shallow. Congestion in the lungs.

Functional disorders in deep overlapping expressed in decrease of efficiency of chewing, overload periodontal front teeth and often damage the mucosa, which contributes to the emergence and development of periodontal disease, blurring of cutting edges of incisor and cusps of teeth.

Inter-occlusal space between the front and side teeth at the position of the lower jaw alone sometimes (especially when bruxism in adults) is missing; some patients with pronounced curve of Spee distance between the tooth rows alone is 9 mm (average rate of 2 mm), that testifies to considerable violation of the functions of the masticatory muscles

Prognathism a bite leads to significant disorders of the oral cavity. It becomes impossible to nibble food front teeth. Function biting food moves on the side teeth. The consequence of this is atrophy of periodontal front of the site of the dental arches, excessive load on the periodontium lateral areas of the dental arches.

Difficult swallowing, chewing, develops breathing through the mouth is observed incorrect language articulation and fuzzy pronunciation of sounds.

The degree of deformation of the occlusal plane, the value of the sagittal cracks in the frontal area, the degree of reduction of chewing square dentitions, and lack of medial - distal contact in the field of the first permanent molars affect the nature of chewing movements of the lower jaw, and therefore on the chewing function.

Prognathic ratio is characterized by the prevalence vertical movements of the lower jaw, lengthening the period of chewing, reduction of mastication.

Functional disorders in prognathic bite characterized by disturbance of biting food, blocking side movements of the lower jaw.

When a cross bite broken face shape, hampered transversal movement of the lower jaw, which may lead to an uneven distribution of masticatory pressure, traumatic occlusion and disease periodontal tissues. Some patients complain of biting a mucous membrane of cheeks, improper pronunciation of speech sounds.

Often disturbed function of the temporo-mandibular joints, especially when malocclusion with a shift of the lower jaw to the side.

**Ectodermal dysplasia** is not a single disorder, but a group of syndromes all deriving from abnormalities of the [ectodermal](#) structures. Despite some of the

syndromes having different genetic causes the symptoms are sometimes very similar. Diagnosis is usually by clinical observation often with the assistance of family medical histories so that it can be determined whether transmission is autosomal dominant or recessive.

Ectodermal dysplasias are described as "heritable conditions in which there are abnormalities of two or more ectodermal structures such as the [hair](#), [teeth](#), [nails](#), [sweat glands](#), [salivary glands](#), cranial-facial structure, digits and other parts of the body.

Ectodermal dysplasia syndrome was first described in the medical literature by Thurnam, who reported two typical patients in 1848. Individuals affected by ectodermal dysplasia syndromes have abnormalities of the glands, tooth buds, hair follicles, and nail development. Some ectodermal dysplasia syndromes are mild, while others are devastating. Other symptoms include deficient tears and saliva, poorly functioning mucous membranes, frequent respiratory infections, hearing or vision deficits, missing fingers or toes, cleft lip or palate, problems with the immune system, sensitivity to light, lack of breast development, and other abnormalities of the ectoderm. Lifespan can be affected in some rare ectodermal dysplasia syndromes. However, there are very few documented examples of a person affected by ectodermal dysplasia syndrome dying because of an inability to perspire. Anhydrotic ectodermal dysplasia is a rare X-linked condition. Affected males lack teeth, have hypotrichosis, and no sweat glands. Patches with and without sweat glands are seen in heterozygous females. Anhydrotic ectodermal dysplasia is a triad of hypodontia or anodontia, hypotrichosis,<sup>4</sup> and hypohydrosis, and is associated with other problems that result from the defective development of structures of ectodermal origin. This is one of 132 known clinical ectodermal dysplasia syndromes. Anhydrotic ectodermal dysplasia occurs in all races, with an incidence of 1 to 7 per 100,000 live births.

Patients with anhydrotic ectodermal dysplasia generally have prominent supraorbital ridges, frontal bossing, and a saddle nose. The maxillae may be underdeveloped and the lips thick and prominent. The nose may appear pinched, and the alae nasi hypoplastic. The patient may resemble an edentulous old person. Some patients do not produce tears. The nails are usually normal. The skin of an infant may appear hypopigmented. Maculopapular eruptions may occur during infancy. Asthma and eczema are occasionally reported in these patients.

The characteristic dental defect in this syndrome is peg-shaped or conical front teeth, which cannot be distinguished from incisors. Both the deciduous and permanent teeth are affected. Anodontia may occur, but hypodontia with misshapen teeth is usual, and these teeth may be hypoplastic.

Early and extensive dental treatment is needed throughout childhood because of the absence of most of the deciduous and permanent dentition. A multidisciplinary team approach to treatment is recommended in these cases.<sup>10</sup> Osseo-integrated implants are an alternative treatment in older people with anhydrotic ectodermal dysplasia.

This clinical report describes a combined surgical, orthodontic, and prosthodontic approach to the treatment of a patient with anhydrotic ectodermal dysplasia.

**Rickets.** Vitamin D plays a vital role in the absorption of calcium and phosphate. Low levels of vitamin D can trigger the body to release hormones that lead to the eventual loss of calcium and phosphate from bones, which causes insufficient bone mineralization.

Vitamin D is obtained either from food sources or produced by the body through sunlight exposure. The two most common forms of vitamin D are vitamin D2 (ergocalciferol) and vitamin D3 (cholecalciferol). Vitamin D2 is obtained from plants and can be man-made in a supplement form. Vitamin D3, the most active form, is processed in the skin through ultraviolet radiation or obtained from animal sources.

Rickets is present in three different forms: nutritional vitamin D deficiency rickets, vitamin D dependent rickets, and vitamin D resistant rickets. Nutritional vitamin D deficiency rickets affects children who have low levels of vitamin D, while vitamin D dependant rickets and vitamin D resistant rickets are inherited. Vitamin D dependent rickets occurs when children are unable to absorb calcium through the intestines. Vitamin D resistant rickets is present in children with unstable phosphate levels who can't absorb calcium and vitamin D. All three disorders affect skeletal development and dentition formation similarly.

### **Materials for self-control:**

A. Tasks for self-control (tables, diagrams, drawings, graphs):

1. Write in the album the abstract graph of the logical structure of the stages of clinical examination.
2. Write in the album abstract graph of the logical structure of the stages of additional examination.

B. Tasks for self-control:

1. To diseases of the endocrine system include?
  - a) hypothyroidism
  - b) rickets
  - c) measles
  - d) hypovitaminosis
  - e) rubella
3. Diseases of the endocrine system include?
  - a) diabetes mellitus
  - b) rubella
  - c) scarlet fever
  - d) avitaminosis.
  - e) hypervitaminosis

4. Diseases of the endocrine system include?
  - a) hyperthyroidism
  - b) measles
  - c) rubella
  - d) rickets
  - e) avitaminosis
  
5. The metabolic disorders include?
  - a) avitaminosis
  - b) scarlet fever
  - c) measles
  - d) Addison's Disease
  - e) diabetes mellitus
  
6. The metabolic disorders include?
  - a) rickets
  - b) hyperthyroidism
  - c) rubella
  - d) hypothyroidism
  - e) addison's Disease
  
7. The metabolic disorders include?
  - a) hypervitaminosis
  - b) diffuse toxic goiter
  - c) measles
  - d) congenital adrenogenital syndrome
  - e) scarlet fever
  
8. Open bite can lead to disorders of what functions?
  - a) digestive
  - b) respiratory
  - c) genitourinary
  - d) endocrine
  - e) musculoskeletal
  
9. The oral type of breathing leads to such deformation of the upper dentition?
  - a) v shape dental arch form, gothic palate
  - b) expansion of dental arch
  - c) flattening of palate
  - d) shortened upper lip frenulum
  - e) spacing in lateral areas
  
10. Clinical manifestations of ectodermal dysplasia?
  - a) hypoplasia of the sweat glands, hypotrichs, multiple adentia, dysplasia of the

face and skull

- b) TMJ dysfunction
- c) respiratory disorder
- d) enamel hypoplasia
- e) multiple caries

11. Scoliotic posture leads to the formation of a pathological occlusion?

- a) cross bite
- b) deep bite
- c) open bite
- d) orthognetic bite
- e) distal bite

12. Deep bite leads to?

- a) TMJ dysfunction
- b) face asymmetry
- c) flat foets
- d) respiratory disorder
- e) speech disorder

13. Rachitic lower jaw has the form?

- a) trapezoid
- b) semicircles
- c) semiellips
- d) triangle
- e) parabolic

14. Signs of diffuse toxic goiter are?

- a) early mineralization of crowns in permanent teeth
- b) delay of dental age, chronological
- c) delayed eruption of teeth
- d) multiple cavities.
- e) hyperplasia of enamel

15. In violation of the respiratory function of the lower dental arch often has the following form?

- a) shortened in the front and expanded in the lateral region
- b) narrowed in the frontal area
- c) asymmetrically narrowed
- d) symmetrically narrowed and elongated
- e) increase in the size of the base of the upper jaw.

16. To the orthodontist asked parents with a boy 6,5 years about not closing the front teeth. The child has the habit of sucking languages. About-but: observed

symptom of "thimble" at the closing of the lips, speech impaired, between the front teeth there is a vertical gap up to 7 mm. In anamnesis - rickets. What is the diagnose?

- a) open bite
- b) mesial bite
- c) cross-bite
- d) distal to the occlusion
- e) deep bite

17. The muscles of the maxillofacial are divided into?

- a) facial and chewing
- b) muscles of the tongue
- c) masticatory and tongue muscles
- d) dental enamel hypoplasia
- e) muscles that move the lower jaw

18. What disease is characterized by disturbance of speech with pronunciation through nose?

- a) cleft palate
- b) arthrosis
- c) periodontitis
- d) retention
- e) diseases of ENT-organs

19. Etiological factors of violation of a pronunciation with whistling sounds are?

- a) open bite
- b) deep bite
- c) supernumerary teeth
- d) fused teeth
- e) cross-bite

20. Destruction of the chewing surfaces of crowns of permanent molars due to enamel hypoplasia leads to?

- a) decrease of the height of the bite
- b) lengthening of the dental arch
- c) oral inclination of the front teeth
- d) vestibular inclination of the front teeth
- e) increasing the height of the bite

21. The most usual lesion of the teeth` hard tissue during hypofunction of parathyroid gland is?

- a) enamel hypoplasia
- b) caries
- c) wedge-shaped defect



- d) hyperplasia of the enamel
- e) fluorosis of the teeth

22. In patients with acromegaly the deformation of the bite is?

- a) increase of the dimensions of the base of the upper jaw
- b) decrease in the size of the branches of the lower jaw
- c) decrease in the size of the lower jaw
- d) decrease in the body and angle of mandible
- e) decrease in the size of the body of the mandible

23. Functional abnormalities due to prognathic bite are characterized by?

- a) violation of food biting process and blocking of lateral movements of the lower jaw
- b) lock the vertical movements of the lower jaw
- c) violation of respiratory function
- d) violation of the pronunciation of the whistling sounds
- e) formation of vertical cracks

24. In the normalization of respiratory function is primary important to?

- a) treatment of the nasopharynx
- b) exercises for training of circular muscle of the mouth
- c) normalization of posture, head position
- d) normalization of tongue position
- e) breathing exercises

25. If there are defects of dentition in lateral areas what harmful habits can appear?

- a) putting the soft tissue of tongue and cheeks in the area of the defect
- b) tongue sucking
- c) incorrect swallowing
- d) thumb sucking
- e) biting of the lips

26. What is the most preferred occlusion in a patient with the syndrome of Franceschetti?

- a) mesial
- b) open
- c) distal
- d) neutral
- e) cross

27. What is the most preferred occlusion in a patient with Crouzon syndrome?

- a) cross
- b) deep

- c) open
- d) mesial
- e) distal

28. Heredity disorder of enamel and dentin structure?

- a) Stanton-Capdepon
- b) Scheithauer-Marie-Santana
- c) Papillon-Lefevre
- d) Fibromatosis
- e) Crouzon

29. Specify the primary symptom what is typical for the syndrome Pierre Robin?

- a) multiple impacted teeth
- b) hypoplasia and deformity of the upper jaw
- c) hypoplasia and deformity of the mandible
- d) congenital absence of teeth
- e) cranial deformation in the form of a trefoil

30. What syndrome is characterized by deformity of the skull in the form of a trefoil?

- a) Stanton-Capdepon
- b) Williams
- c) Crouzon
- d) Papillon-Lefevre
- e) Pierre Robin

31. The occurrence of Crouzon syndrome caused by impaired fetal development in the period?

- a) 12th – beginning of 13th week
- b) 3rd – beginning of 4th week
- c) 6th – beginning of 7th week
- d) 9 th – early 10 th week
- e) 15 th – early 16 th week

32. General myopathy observed in the syndrome?

- a) Stanton-Capdepon
- b) Williams
- c) Chondrodystrophy
- d) Albright
- e) Pierre Robin

33. What syndrome is observed in newborn glossoptosis?

- a) Crouzon
- b) Williams

- c) Pierre Robin
- d) Franceschetti
- e) Shereshevsky–Turner

34. Vitamin synthesis function of the skin is the synthesis of vitamin?

- a) vitamin D
- b) vitamin A
- c) vitamin B
- d) vitamin C
- e) vitamin E

35. To the defining characteristics of mental health include?

- a) neuro-mental development corresponds to age
- b) presence of mental disorders in relatives
- c) decrease in professional abilities
- d) increase motor activity
- e) advance mental development relative to age

36. Average value of Turkish saddle in the newborn?

- a) 2.5 - 3 mm
- b) 4-5 mm
- c) 9 - 11 mm
- d) 6-7 mm
- e) 13 mm

## **Literature**

### **Main:**

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### **Additional:**

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