

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

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METHODICAL RECOMMENDATION
for independent work of students during the preparation
to practical lessons and the lessons

Academic discipline	Orthodontics
Module №2	Anomalies and deformation of dento-jaw region
The theme of the lesson №10	Treatment and prorhylaxis of deep bite.
Course	IV
Faculty	Preparation of foreign students

Poltava 2017

1. The relevance of the topic.

Deep bite is a type of vertical malocclusion. Normally frontal teeth of upper jaw overlap the teeth of the lower no more than 1/3 of size of the tooth crown. In most people the upper teeth overlap the lower. When amount of overlap greater than 1/3 we can talk about deep overlap.

2. Specific objectives:

To explain basic principles of diagnosis and prevention of deep bite.

To classify forms of deep bite.

To explain features of treatment of different forms of deep bite in a temporal, mixed and permanent bite.

To explain appliances which are used for treatment of different forms of deep bite.

To determine degree of complication of morphological and functional violations at treatment of forms of deep bite.

To explain features of treatment period of different forms of deep bite.

To determine prognosis of treatment of deep bite forms.

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 vertical malocclusions
5. Prophylaxis of stomatological diseases	to write down the dental formula (clinical, anatomic, by WHO), determine bite period and dental age
6. Propedeutics of a therapeutic odontology	to define teeth according to the bite: temporary or permanent 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.Myofunctional balance	Equal force between muscles that surround the dental arch (m. buccinator and m.orbicularis oris from outside and tongue muscles –from internal side)
2.Supraocclusion of teeth	Position of teeth, when they are above the occlusion plane
3.Infraocclusion of teeth	Position of teeth, when they are below the occlusion plane
4.Height of the bite	Distance between the alveolar crests of upper and lower alveolar process that fixed with antagonist teeth
5.Frontal biting plane	It reduces deep bite by separating the molars allowing them to over-erupt and so decreasing the over bite
6. Physiological occlusion height elevation.	There are singled out 4 stages of the physiological elevation of occlusion height: - the 1st on 2-2.5 years, eruption of milky molars; - the 2nd at 6 years, i.e. the time of 1st permanent molars eruption; - the 3rd – 12-13 years, eruption of canines and 2 nd molars; - the 4th – 18-25 years, i.e. as a result of the eruption and regular articulation of the 3rd molars

4.2. Theoretical questions to the lesson:

1. What are the periods of the physiology height bite increasing.
2. What are the features of treatment of deep bite in the milky bite.
3. What are the features of treatment of deep bite in a mixed bite.
4. Features of treatment of deep bite in a permanent bite.
5. Description of constructions of appliances which apply for treatment of different forms of deep bite.

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

1. To diagnose the different forms of deep bite.
2. To make the plan of treatment of different forms of deep bite.

3. To choose rational construction of appliances for treatment of different forms of deep bite.
4. To make the impressions.
5. To determine and fix the constructional bite in patients with deep bite.
6. To choose rational construction of appliances.
7. To determine the prognosis of treatment of deep bite forms.
8. To fill the current document of doctor.
9. To correct and activate the appliance for deep bite treatment.

The content of the topic:

Deep bite treatment is the most effective in the period of eruption of temporary teeth, the 1st permanent molars, temporary incisors replacement with permanent ones, 2nd permanent molars eruption.

The treatment of malocclusions in vertical plane it is advisable in stages of physiological occlusion height elevation.

There are singled out 4 stages of the physiological elevation of occlusion height:

- the 1st falls on 2-2.5 years, i.e. the moment of all temporary teeth eruption completion;
- the 2nd is marked at the age of 6 years, i.e. the time of 1st permanent molars eruption;
- the 3rd – 12-13 years, after the complete replacement of temporary teeth with permanent, due to the vertical growth of the alveolar process, full value eruption and regular reciprocal arrangement of second permanent molars and canines;
- the 4th – 18-25 years, i.e. as a result of the eruption and regular articulation of the 3rd molars; if they are absent, occlusion height elevation occurs at the expense of dento-alveolar lengthening. At all stages, as occlusion height increases dynamically the frontal overbite depth decreases, and dentitions correlation becomes orthognathic.

The main task of treatment:

- elimination of the reasons that leads dento-alveolar lengthening in the region of lateral teeth, disjoining them;
- decrees of dento-alveolar lengthening in the region of frontal teeth;
- correction of the dental arches from, individual teeth and their groups position;
- normalization of the lower jaw position and jaw growth.

Disorders are eliminated in different ways, by means of different methods taking into account their reasons, the period of occlusion formation, its correspondence to the patient's age and sex.

In the period of milk occlusion it is recommended to habituate children to hard food mastication (raw vegetables, fruit, hard bread, etc.) in order to stimulate the normal development of jaws, alveolar processes and dental arches.

In case of carious destruction of the temporary molars crowns they should be restored, which is achieved with the help of fillings, restorative crowns.

If children have pernicious habits (sucking fingers, lips, different objects, pulling cheeks into the oral cavity and biting them with lateral teeth), it is difficult

to break them of the habits. Vestibular plates are used for the purpose.

If the tongue frenulum is attached irregularly, frenulum plastic surgery is conducted.

Correct tongue functioning prevents the development of dental arches and jaws disorders, promotes overbite depth normalization.

Prematurely lost temporary molars are subject to replacement with removable dentures with the purpose of deep bite prophylaxis. Occlusion may be heightened on artificial lateral teeth, having provided the contact of the lower frontal teeth cutting edges with the upper jaw prosthesis biting platform.

At the formation and development of sagittal occlusion anomalies a vestibular plate with a biting platform for incisors, used during sleep, should be recommended, and curative gymnastics for the function normalization of the muscles surrounding the dental arches and carriage improvement. Preorthodontic trainers usage may be started.

In the final period of temporary occlusion and in the early period of transitional dentition, i.e. from 5.5 to 9 years, active orthodontic treatment is to be begun. Lateral teeth disjoining in this period at 1st permanent molars eruption promotes dento-alveolar lengthening till the contact with the opposing teeth, in which connection overbite depth decreases. At deep overbite a removable device for the upper jaw with an inclined or biting plane for lower frontal teeth rest, clasps or other fixing appliances may be used. The thickening in its anterior part, which is to disjoin the lateral teeth, is by 2 mm higher than the rest position. The device is fixed with clasps, vestibular arches, and other appliances.

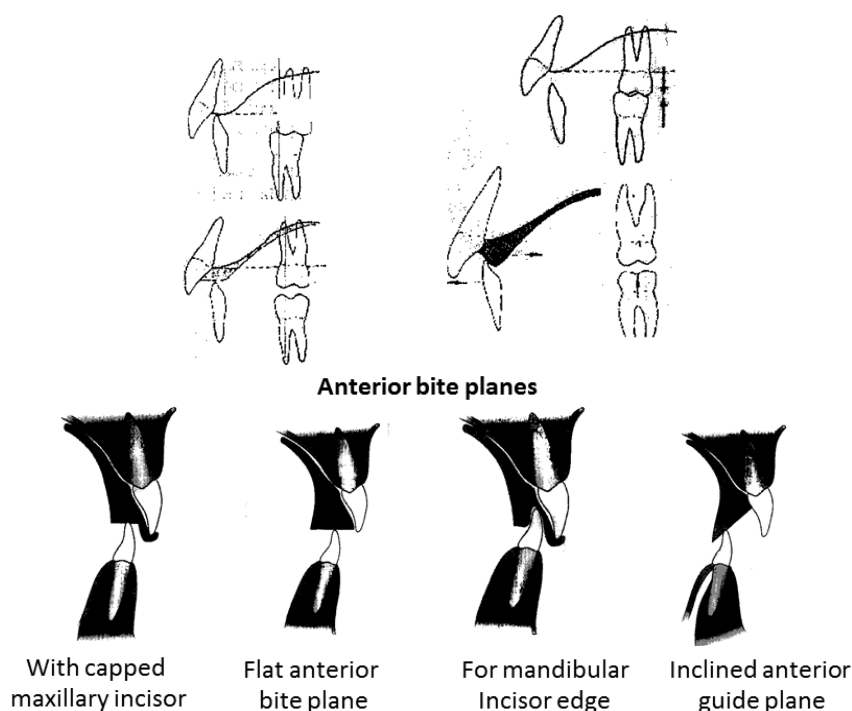
Functionally directing elements for deep bite correction

1. Flat anterior bite planet-

- A thickening of the acrylic base plate behind till the canine such that the lower anterior teeth extending usually till the canine such that the lower anterior may bite on it;
- The extension should be flat and parallel to the occlusal plane.
- The bite plane should high enough to disocclude the posterior teeth by about 2-3mm.
- It reduces deep bite by separating the molars allowing them to over-erupt and so decreasing the over bite.
- It can be used to free cuspal interferences to correct posterior crossbites of single teeth.

2. Inclined anterior bite plane

- It is modification of the anterior bite plane used in case where there is severe retroclination of lower anterior teeth with increased overjet.
- The plane is inclined so that the lower anterior is proclined as it contacts the slopping bite plane. The lower incisions engage the bite plane when the patient closes the mouth and mandible is guided to be held in the forward position;
- It correct deep bite and increased overjet by allowing molars to over-erupt and proclining lower incisors.



For the elimination of lower jaw displacement forward or to the side, the inclined plane is made not smooth, but with imprints of the opposite incisors' edges and canine teeth tubercles – the biting platform. In case of dental arch narrowing, the absence of physiological spacing with permanent ones a dilating screw or spring may be fixed to the described device.

For the treatment of distal deep overbite Andresen-Haupl's activator, Muelleman's propulsor, Baiters' bionator, open activator, etc. are used. Orthodontic appliances are used for the purpose of using them both during sleep and during the day. They also include Katz' biting plate.

Propulsor of Meuleman. Propulsor (pusher) Moleman (Muhleman) refers to a functionally active vestibular-oral. It is used to treat deep distal occlusion with protrusion of upper anterior teeth and the presence of between three and slight narrowing of the upper jaw. In the apparatus the combined elements of the vestibular plate and activator Andresen-Couple: in the upper jaw, its borders like the vestibular lamina, and in the lower jaw – to the activator. Both parts are connected with plastic material which is located between the dentition in the frontal portion.

Propulsor Moleman holds the lower jaw in the extended position (to neutral ratio of the first permanent molars) and disjoints the occlusion in the area of lateral teeth. Valid and greater extension of the lower jaw position forward (over), that enhances the action of the muscles, which shift the jaw posteriorly. The pressure transmitted through the device on the lower jaw, facilitates its growth, and the effect on the upper front teeth – contributing to their retrusion. The vestibular shield pushes the cheeks, isolates the pressure on the lateral areas of the maxilla. Due to the separation of the lateral teeth observed elongation, which helps reduce the depth of incisal overlap. In case of early loss of deciduous molars, the dentition defects replace with a plastic, which prevents the displacement of the teeth in the

direction of the defect. Propulsor prevents mouth breathing, helps to wean the child from bad habits sucking tongue, lips, fingers or other objects.

Andresen-Haupl's activator.

During deep overbite treatment attention is paid to the tongue position, because of space reduction in the oral cavity, usually takes a low, posterior position and lies flat between the lateral teeth. As a result of achieving lower jaw displacement with the help of removable dentures with the purpose of deep overbite prophylaxis, the tongue rises up to the palate, its form changes, as the agent causing its irregular position is eliminated. Lateral shields of function regulator hamper cheeks suction and drawing in.

At deep overbite the frontward growth of the dental arch apical basis and vertical growth of the lateral teeth are hampered. Labial bumper stimulate lower jaw growth: lateral teeth disjoining create conditions for alveolar lengthening. At upper and lower dental arches underdevelopment in the anterior part the function regulator FR-I is supplemented with labial bumper for drawing the upper and lower lips aside. In the final treatment phase the middle part of the lingual arch is pressed to the dental tubercles of the lower frontal teeth to prevent their dento-alveolar lengthening. In case of upper incisors retrusion there is conducted plastic surgery for the upper jaw with a screw, resting against the palatine surface of vestibularly located teeth; sector saw cut, biting platform and numerous clasps or a plate with inhibitory springs, palatine arches.

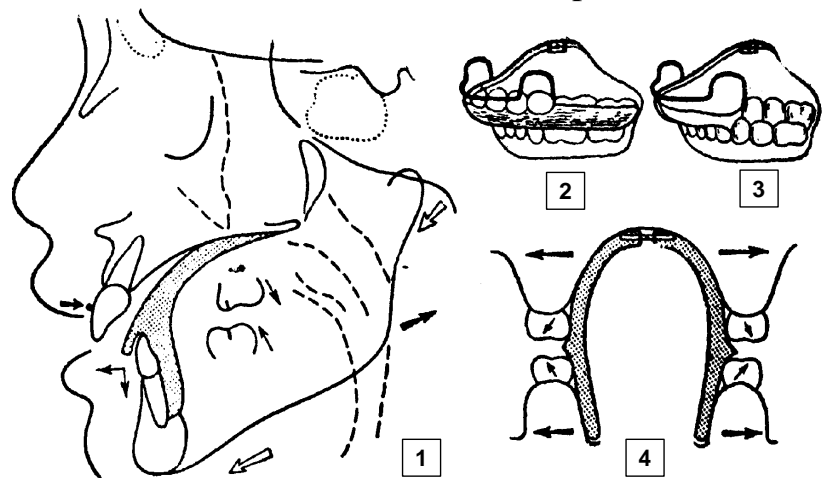
For the treatment of mesial deep overbite orthodontic appliances are chosen depending on pathology varieties.

In the final period of transitional dentition and initial period of permanent occlusion, i.e. at the age of 9-12 years, there is used the physiological elevation of occlusion at the establishment of premolars, canine teeth and 2nd permanent molars. There are used the same orthodontic appliances as in the previous period, and also fixed orthodontic appliances, for example, Angle's device, bracket system.

In the period of permanent occlusion, at more than 12 years old, to eliminate the most evident dento-gnathic anomalies, combined with deep overbite, it is recommended to use

intraoral vestibular arch orthodontic appliances with inter-maxillary recoil (Angle's, Johnson's, Begg's devices, bracket systems, etc.). These appliances are used, as in the previous period, in combination with a removable plate for the upper jaw with a biting platform. For dento-

alveolar lengthening rings with hooks, buttons or other devices for vertical interdental recoil applying are fixed on the transferred premolars and molars. With



the purpose of dento-alveolar lengthening in the region of the upper lateral teeth it is possible to use an extra-coronal vestibular arch in combination with oblique extra-oral recoil. Low location of hooks on the hat in comparison with the hooks on the ends of the facial arch or the change of the inclination of the facial arch ends in comparison with the extra-coronal arch ends increases vertical teeth transfer.

For dento-alveolar shortening in the anterior part of the upper dental arch and dento-gnathic lengthening in its lateral parts Luri's apparatus modifications are used. The device is made of orthodontic wire 1-1.2 mm in diameter. Rod-like bends are made behind the canine teeth by means of raising the middle part to the level of the incisors roots middle. Then a small vestibular U-arch is bent of steel wire 0.7-0.8 mm in diameter. Its middle part is adjacent to incisors, springs are made on ascending parts. Small arch ends are welded to the arch at the level of the lateral incisors distal surface. Rings with keyhole arrangements are fixed on the 1st premolars for better fixation of the extra-coronal arch. The small arch is used either for dento-alveolar shortening or for the shortening in the region of incisors.

During the treatment of adults myotatic reflexes should be rebuilt, bruxism and other parafunctions are to be eliminated; one must watch the regular closure of dental arches at different types of occlusion, selectively regrind individual teeth tubercles. Such measures are resorted to as preliminary ones before orthodontic treatment and dento-gnathic prosthetics.

If some teeth are absent, especially lateral ones, dental prosthetics is obligatory after orthodontic treatment.

In the process of treating deep overbite one tries to obtain numerous contacts between the dental arches. If the treatment is begun in the period of transitional dentition or temporary occlusion, the child is to be observed by an orthodontist till the end of permanent occlusion formation. Unrepaired functional disorders promote anomaly recurrence.

Orthodontic treatment duration depends on the period of occlusion formation, degree of deep overbite manifestation and concomitant diseases, deformations of teeth, dental arches, occlusion, and general disturbances of organism development.

Treatment prognosis is favorable if the treatment is conducted in the initial period of transitional dentition or permanent occlusion, if in the process of treatment not only morphological, but also functional disorders are eliminated and deep overbite is not a family feature.

Retention duration after orthodontic treatment is finished depending on the period of occlusion formation, application of functional or mechanical treatment methods, presence of unrepaired functional disorders and obtained treatment results. After achieving numerous contacts between dental arches with the help of an activator, bionator, function regulator, and other functionally acting devices no retention period is needed. If the treatment was conducted with mechanically acting devices and function disorders are not completely eliminated, retention devices are to be used, being chosen subject to possible teeth displacement. Devices application duration is individual, on average it equals the period of active

orthodontic treatment.

Materials for self-control:

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

1. To draw in albums elements of orthodontic appliances that used for treatment of teeth extrusion;
2. To draw in albums elements of orthodontic appliances that used for treatment of upper teeth retrusion;
3. To draw in albums appliances that used for treatment of deep bite during mixed bite.

B. Tasks for self-control:

1. During the intraoral examination 9-year-old patient it was revealed that the distal occlusion is complicated with deep overbite. What type of appliance may be offered for this treatment?
 - a) removeble appliance with functionally directing action
 - b) Shonnchers vestibular plane
 - c) mechanical action
 - d) functionally acting
 - e) Craus vestibular plane

2. A 10 year-old child complains of bad chewing of food. From the dental history it was revealed milk molars in the mandible have been erupted with caries complications at the age of 3 year-old. Objectively: the lower third of the face is shortened, symmetrical face is not proportional. Choose the correct device for the treatment of deep bite during the change of teeth?
 - a) Andresen-Haupl's activator
 - b) blue preorthodontic trainer
 - c) Frenkel's
 - d) Hinz's plate
 - e) surgical treatment

3. For the treatment of deep bite the appliance consists of?
 - a) flat biting plane in the frontal region
 - b) occlusal biting plates
 - c) an inclined plane
 - d) vestibular arches
 - e) occlusal biting plates with teeth prints

4. A 5 year-old boy orthodontist revealed deep bite. For treatment of this pathology one must use miogymnestic. Do the exercise for the muscles, moving the lower jaw?
 - a) the lower jaw slowly move forward to the incisal overlap
 - b) click the tongue
 - c) count with the tongue teeth without opening the jaws

- d) there is no correct answer
- e) play on the wind instruments, sing

5. What is the tactics in treating deep bite in period of temporary occlusion?

- a) oral cavity sanitation, hard food chewing, bad habits elimination, functional appliances
- b) bad habits elimination, mechanically acting devices
- c) does not require treatment at this stage
- d) oral cavity sanitation , soft food function devices
- e) oral cavity sanitation, soft food, mechanically acting devices

6.A 5- year- old child complaining of lack of lower lateral teeth, bad chewing of food. From history we know that milk molars in the mandible were erupted from the complications of caries in 3-year-old. Objective: the lower third of the face is shortened. All teeth are temporary, missing of 85, 84,74,75 teeth. What malocclusion is formed in a child?

- a) deep bite
- b) open bite
- c) mesial bite
- d) distal occlusion complicated with deep bite
- e) cross bite

7.A 9 year-old patient comes to the orthodontist. During the examination it was revealed deep bite combined with mesial occlusion. For the treatment of mesial deep bite it can be used?

- a) Brakley's appliance
- b) appliance with loops Rudolph
- c) vestibular shield
- d) physiotherapeutic treatment
- e) miogymnestic

8.A 10 year-old child complains of bad chewing of food. From the dental history it was revealed milk molars in the mandible have been erupted with caries complications at the age of 3 year-old. Objectively: the lower third of the face is shortened, symmetrical face is not proportional. Choose the correct device for the treatment of deep bite during the change of teeth?

- a) Andresen-Haupl's activator
- b) blue preorthodontic trainer
- c) Frenkel's
- d) Hinz's plate
- e) surgical treatment

9.For the treatment of deep occlusion complicated prognathic which appeared due to biting of lower lip during temporary occlusion?

- a) Mulleman propulsor
- b) Andresen-Haupl's activator
- c) plate with loops Rudolph
- d) Brukle's appliance
- e) brackets

10. A 8 year-old child was referred to the orthodontist. During the examination it was revealed that all temporary molars of the upper dental arch have been removed. The lower incisors are in contact with mucous membrane of the palate. Where must the biting plane be located during the treatment of deep bite?

- a) in the frontal area
- b) in the lateral area
- c) in the frontal and in the lateral areas
- d) in the buccal area
- e) sublingual

11. Parents of 8 year-old child referred to orthodontist with complaints on aesthetic defect. During the intraoral examination it was diagnosed deep bite complicated with distal occlusion, combined with upper frontal teeth retrusion, the lower dental arch is shortened. For the treatment of distal occlusion can be used?

- a) Frenkels II
- b) Bruckls appliance
- c) Frenkels I
- d) Frenkels III
- e) Persin appliance

12. A 9 year-old patient referred to orthodontist with complaints of aesthetic defect. During intraoral examination was revealed: deepbite complicated with distal occlusion, combined with upper frontal teeth protrusion, lower incisors not infrequently injure the mucous tunic of the palate. What appliance will you use in this case?

- a) Frankel's I
- b) Frankel's II
- c) Frankel's III
- d) Hinz's plane
- e) Brukle's

13. For the treatment of distal occlusion with deep dentoalveolar elongation in the frontal area of the upper jaw in the I period of mixed bite is used?

- a) Frenkel's function regulator II type
- b) plate with lateral bite plane
- c) plates with Rudolph' loops
- d) Brukl` appliances
- e) Frenkel's function regulator III type

14. For the treatment of deep prognathic distal occlusion in the period of mixed bite is used?

- a) Frenkel's function regulator I type
- b) Katz' bite plate
- c) plate with lateral bite plane
- d) plates with Rudolph' loops
- e) Frenkel's function regulator III type

15. For the treatment of deep distal occlusion (II-2 class Angle) during mixed bite is used?

- a) Frenkel's function regulator II type
- b) Frenkel's function regulator I type
- c) Frenkel's function regulator III type
- d) Frenkel's function regulator IV type
- e) plates with Rudolph' loops

16. Removable upper jaw appliance with a flat frontal biting bite plane is used for?

- a) dentoalveolar shortening in the mandible anterior area
- b) dentoalveolar shortening in the maxilla anterior area
- c) dentoalveolar shortening in lateral areas of jaws
- d) stimulation of the vertical growth of the frontal areas of jaws
- e) eliminate bad habit

17. Preventive examination of a 4,5-year-old child revealed untimely missing of all the upper molars. The lower incisors contact with mucous membrane of palate. What is the tactics of choice?

- a) fabrication of a removable lamellar prosthesis
- b) fabrication of an orthodontic appliance for deep overbite correction
- c) ones a year examination till changing of the permanent teeth
- d) twice a year examination till changing of the permanent teeth
- e) medical intervention is not required

18. 10-year-old boy consulted a dentist about pain in the palate during eating. Objectively: the lower third of his face is shortened, mouth opening is not limited. By joining the teeth the cutting edge of inferior incisors contacts with the mucous membrane of palate. Mucous membrane in the contact point is hyperemic. Lateral teeth exhibit Angle's class I malocclusion. What is the most appropriate plan of treatment of the lower jaw?

- a) intrusion of frontal part
- b) intrusion of lateral parts
- c) to widen the lower jaw
- d) extrusion of frontal part
- e) extrusion of lateral parts

19. Deep bite treatment is aimed at?

- a) dental alveolar shortening in the frontal area and lengthening in the lateral area
- b) dentoalveolar lengthening in the anterior and shortening in the lateral
- c) dentoalveolar shortening in the frontal and lateral areas
- d) dentoalveolar lengthening in the frontal and lateral areas
- e) the height of the bite is not corrected

20. For the treatment of deep bite is used the following element?

- a) frontal flat biting plane
- b) frontal inclined plane
- c) occlusal flat biting plane
- d) buccal shields
- e) labial pilots

21. Deep bite treatment is most effective during the following periods?

- a) the eruption of the first permanent molars, canines and second permanent molars
- b) the eruption of deciduous incisors
- c) eruption of permanent incisors
- d) eruption of temporary canines
- e) the period of stable temporary occlusion

22. To prevent the development of deep bite it is not necessary to use preventive measures?

- a) one side chewing
- b) restoration of destroyed crowns of teeth
- c) the elimination of bad habits
- d) correction of anomalies of attachment of soft tissues of the oral cavity
- e) treatment of defects of dental arches

23. To eliminate harmful habits of sucking we use?

- a) vestibular-oral shield
- b) Frontal flat biting plane
- c) the regulator functions of Frenkel
- d) open activator Klammt
- e) Balters bionator

24. In the treatment of deep bite the disjoint in the lateral areas should be?

- a) on 2 mm more than the state of physiological rest
- b) 5 mm more than the state of physiological rest
- c) do not exceed the distance of physiological rest
- d) greater than 5 mm than in the state of physiological rest
- e) on 7-10 mm more than the state of physiological rest

25. Maxillary removable appliance with a frontal biting plane with imprints for of the lower incisors is used for?

- a) fixation of denoalveolar height of the mandible in the anterior area
- b) dentoalveolar shortening in the frontal area of the upper jaw
- c) dentoalveolar shortening in the posterior area of mandible
- d) dentoalveolar shortening in the posterior area of upper jaw
- e) dentoalveolar lengthening in the anterior area of maxilla

26. For the treatment of deep neutral occlusion is used?

- a) RF-I
- b) RF-II
- c) removable appliance with inclined frontal biting plane
- d) Muleman propulsor
- e) removable appliance with occlusal bite plane

27. Labial pilots of Frankel regulator I and II type for the treatment of deep bite are?

- a) stimulate the growth of apical basis of lower jaw
- b) stimulate the growth of the apical basis of the upper jaw
- c) inhibit the growth of apical basis of lower jaw
- d) inhibit the growth of apical basis of the upper jaw
- e) inhibit the growth of both jaws

28. For treatment of deep bite with retrusion of upper incisors are used?

- a) appliance on the upper jaw with a screw, located in area of palatal surface of upper incisors
- b) appliance for the upper jaw with flat occlusal biting plane
- c) appliance for the upper jaw with occlusal biting plane with prints of the lower lateral teeth
- d) appliance on the upper jaw with the inclined biting plate
- e) appliance on the lower jaw with occlusal biting plate

29. Lip bumper in the treatment of deep bite can be used for?

- a) elimination of the tension of the lips and stimulation the growth of apical basis
- b) inhibit of the growth of apical basis
- c) changes of inclination of the teeth
- d) stimulation of the tone of the masticatory muscles
- e) disjoin of the dental arches

30. Deep bite leads to such complications?

- a) the abrasion of hard tissues of frontal teeth, TMJ dysfunction, periodontal disease in the area of the front teeth of the lower jaw
- b) periodontal disease in the posterior teeth of both jaws
- c) appearance of non-carious lesions of hard tissues of anterior teeth of the lower jaw

- d) the occurrence of dental caries and its complications
- e) diseases of the mucous membranes of the oral cavity

31. For treatment of neutral occlusion with a deep overbite, protrusion of the upper frontal teeth and retrusion of lower use the following modification of the RF?

- a) RF-Ia
- b) RF-Ib
- c) RF-II
- d) RF-III
- e) RF-IV

32. For the treatment of distal deep bite with retrusion of the front teeth use the following modification of the RF?

- a) RF-II
- b) RF-Ib
- c) RF-Ia
- d) RF-III
- e) RF-IV

33. The goal of treatment of different forms of deep bite is?

- a) correction of shape and size of dental arches, bite height correction, degree of the overlap, normalization of the function of masticatory muscles and TMJ, correction of shape and size of dental arches
- b) bite height correction
- c) degree of the overlap
- d) normalization of the function of masticatory muscles and TMJ
- e) correction of shape and size of dental arches

34. Propulsor Mulleman is used to treat?

- a) deep distal occlusion with protrusion of upper front teeth and a slight narrowing of the upper jaw
- b) mesial occlusion with displacement of the lower jaw forward
- c) mesial occlusion with retrusion anterior teeth of upper jaw
- d) oral slope of the upper front teeth
- e) II-2

35. What period of bite formation is more favorable for deep bite treatment?

- a) late mixed bite
- b) early mixed bite
- c) formation of milky bite
- d) permanent bite
- e) stability of milky bite

36. Which appliance is necessary to prescribe for patient with disorder of breathing for M. Orbicularis oris exercise?

- a) Dass activator
- b) Kuznetsov` applicator
- c) Mulleman propulsor
- d) Bynin kappa
- e) Hinz appliance

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