

**Student action algorithm №1**  
**Fixed prosthetics.**  
**«Preparation for a swaged crown».**

1. Greet the patient.
2. Put on gloves.
3. Take a set of instruments (dental probe, mirror, and tweezers)
4. Inform the patient about the upcoming manipulation of the preparation of the tooth for a swaged crown.

During preparation, you keep your mouth open; do not strain your lips, cheeks and tongue.

5. Take the preparation burs (cone or cylindrical, teardrop or wheel) and fix one of them into the turbine handpiece.

6. Ask the patient to open his mouth.

7. Carry out preparation: - carry out the separation of the approximal surfaces, so that they are parallel, and by the thickness of the metal (0.3-0.4 mm)

- preparation of the occlusal surface to the thickness of the metal (0.3-0.4 mm), taking into account the relief

- from the oral and vestibular surfaces of the crown, parts are prepared that protrude above the level of the clinical neck (equator)

- the preparation is completed by the elimination of sharp corners that have formed during the preparation process.

Preparation of a tooth for a swaged crown consists in giving it a certain shape, most often it resembles a cylindrical shape, or a backward truncated cone with a wall slope of  $1^{\circ}$  -  $3^{\circ}$ , which provides free overlay of the crown, the edge of which, entering the gingival groove, should tightly cover the clinical the neck of the tooth.

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The image shows two handwritten signatures in blue ink. The top signature is 'Lysenko' and the bottom signature is 'Cherednychenko'. Both are written in a cursive style.

## Student action algorithm №2

### Fixed prosthetics.

#### "Preparation for one-piece metal crown".

1. Greet the patient.
2. Put on gloves.
3. Take a set of instruments (dental probe, mirror, tweezers)
4. Inform the patient about the upcoming preparation manipulation for a one-piece metal crown. During preparation, you keep your mouth open; do not strain your lips, cheeks and tongue.
5. Take the preparation burs (tapered or cylindrical, drop-shaped or fissure) and fix one of them into the turbine handpiece.
6. Ask the patient to open his mouth.
7. Carry out preparation:
  - carry out separation of the approximal surfaces so that they are parallel and to the thickness of the metal (0.5 mm)
  - preparation on the chewing surface of hard tooth tissues with a fissure bur by 0.5-0.7 mm, following the anatomical shape of the chewing surface.
  - preparation of the vestibular and oral surfaces is carried out parallel to the longitudinal axis of the tooth, the depth of preparation is 0.5-0.8 mm.
  - within the periodontal sulcus, we form a circular shoulder at a right angle, the shoulder width is 0.4 mm.
  - the preparation is completed by the elimination of sharp corners that were formed during the preparation process.
  - carrying out instrumental control of the prepared surfaces (if the probe does not encounter obstacles and glides smoothly over the tooth surface, the preparation is considered complete).

Preparation of a tooth for a cast metal crown consists in giving the stump the shape of a truncated cone with a taper angle of 5-7°. The surfaces of the tooth stump should not have steps or undercuts.

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## Student action algorithm №3

### Fixed prosthetics.

#### "Preparation of hard tooth tissues for a plastic (all-resin) crown."

1. Greet the patient.
2. Put on gloves.
3. Take a set of instruments (dental probe, mirror, tweezers)
4. Inform the patient about the upcoming manipulation of tooth preparation for a all-resin crown.

During preparation, you keep your mouth open; do not strain your lips, cheeks and tongue.

1. Take the preparation burs (cone or cylindrical, teardrop or wheel) and fix one of them into the turbine handpiece.
2. Ask the patient to open his mouth.
3. Make preparation:
  - separation of the proximal surfaces, so that they are parallel, and by the thickness of the all-resin (1-1.5 mm)
  - preparation of the occlusal surface to a thickness of all-resin (1.5 mm), taking into account the anatomical shape of the tooth and safety zones.
  - from the oral and vestibular surfaces of the tooth crown, areas in the equator area are prepared, which protrude above the level of the clinical neck.
  - within the periodontal sulcus, we form a circular ledge at a right angle, 0.5-0.8 mm wide, depending on the belonging to the functional group and the size of the crown.
  - the preparation is completed by the elimination of sharp corners that have formed during the preparation process.

Preparation of a tooth for a all-resin crown consists in giving the stump of the tooth a conical shape with an angle of inclination of the walls of 3-5 °, which ensures free overlapping of the crown.

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## Algorithm of student №4

### Fixed prosthetics.

#### «Preparation of hard tooth tissues for a metal-ceramic (porcelain-fused-to-metal)crown (H. T. Shillinburg method)».

1. Greet the patient.
2. Put on gloves.
3. Take a set of instruments (dental probe, mirror, tweezers)
4. Inform the patient about the upcoming manipulation of the tooth preparation under the porcelain-fused-to-metal crown.

During preparation, you keep your mouth open; do not strain your lips, cheeks and tongue.

5. Take the preparation burs (flat cone bur, long thin cone bur, fissure bur, cylindrical bur) and fix one of them in the turbine handpiece.
6. Ask the patient to open his mouth.
7. Carry out preparation:
  - Using a marker or cone-shaped diamond bur with a flat end on the vestibular surface of the tooth, apply “orientation grooves” (to control the thickness of abraded hard tissues) with a depth of 1.2 mm (bur diameter), and on the cutting edge with a depth of 2.0 mm.
  - Apply “orientation grooves” on the palatal surface with a depth of 1.2 mm: in the gingival region - parallel to the gingival edge, above the palatine tubercle - parallel to the incisal edge.
  - To dissect hard tissues of the vestibular surface of the tooth to the depth of the applied "reference grooves".
  - Separate the proximal surfaces with a long, thin, tapered diamond bur.
  - Preparation of the gingival region of the palatal surface of the tooth in accordance with the applied "orientation grooves".
  - Preparation of the palatal surface of the tooth above the palatine tubercle in accordance with the applied "orientation grooves", ensuring that the interocclusal distance between the prepared tooth and the antagonist is at least 1 mm.
  - With a carbide fissure bur with a rounded edge, we smooth out all sharp corners of the tooth stump that have formed during preparation.
  - With the same bur (carbide fissure bur), we form a circular 90 ° shoulder with a rounded inner corner within the periodontal sulcus.

Preparation of a tooth for a porcelain-fused-to metal crown consists in giving it a conical shape (5-7 °), the cutting edge of the tooth must be ground by 2 mm, the distance between the palatal surface of the prepared tooth and the antagonist must be at least 1 mm, the circular shoulder must have a rounded inner edge and be 0.8-1.0 mm deep, the surface of the prepared tooth should not contain roughness and undercuts.

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## Student action algorithm №5

### Fixed prosthetics.

#### "Preparation of Class I (first) cavities according to Black for a metal inlay"

1. Greet the patient.
  2. Put on gloves.
  3. Take a set of tools (probe, mirror, tweezers)
  4. Inform the patient about the upcoming preparation manipulation for the metal inlay.
- During preparation, you keep your mouth open, breathe through your nose, and do not strain your lips and cheeks.

1. Take the preparation burs flat-end cone bur, long thin cone fissure bur, cylindrical bur, ball bur and fix one of them into the turbine handpiece.
2. Ask the patient to open his mouth.
8. Carry out preparation:
  - Open the carious cavity with a fissure bur or a spherical bur, removing the overhanging edges of the enamel, achieving proportionality between the inlet and the bottom of the carious cavity.
  - Expansion of the carious cavity: alignment of the enamel edges, excision of damaged fissures, rounding of sharp edges.
  - Removal of necrotic dentin from the walls and bottom of the carious cavity with a spherical bur.
  - Leveling the bottom of the cavity.
  - Formation of the side walls of the cavity parallel to each other, with a slight divergence (4-6 °) to the occlusal surface, smoothing out sharp edges.
  - Creation of a bevel (fold) of the edge of the carious cavity at an angle of 45 ° within the enamel, so that the metal of the inlay overlaps the enamel prisms, preventing them from breaking.
  - Forming the cavity for the inlay is completed by smoothing its edges and walls.

Preparation of a cavity of I class according to Black tooth for a metal inlay consists in providing a cavity of a box-like shape, without undercuts in the cavity there should be no remnants of necrotic dentin, the formation of the side walls of the cavity parallel to each other, with a slight difference (4-6 °) to the occlusal surface, creating beveling the edge of the carious cavity at an angle of 45 ° and smoothing the edges and walls of the cavity.

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## Algorithm of student action №6

### Permanent prosthetics.

#### "Preparation of zinc-phosphate cement for the clinical stage of fixation of an artificial crown".

##### 1. Material support:

- Zinc phosphate cement "Adhesor"
- Metal spatula for kneading
- glass plate for kneading

##### 2. Methods of conducting:

- Take a glass plate for mixing cement, pre-cool it to 18-20 degrees Celsius (for efficient heat dissipation, released as a result of exothermic reaction).
- Take a measuring spoon (included in the Adgezor cement kit) and measure 1.4 g of powder (or 2 measuring spoons) from the cement container and 0.8 g of liquid (or 5 drops) from the liquid container, respectively.
- Take a metal spatula for kneading, and start kneading the cement in the following sequence: first mix 1 \ 4 part of the powder with liquid, thoroughly mixing the cement mass for 30 seconds to dissipate the heat, then add the rest of the powder and mix thoroughly for 60 -90 seconds, until a homogeneous cement mass.
- Prepare cement of the required consistency before applying it to the artificial crown.

Requirements for the preparation of zinc-phosphate cement for the clinical stage of fixation of an artificial crown:

1. The total working time should not exceed 90 seconds.
2. The obtained cement mass should be homogeneous (the presence of lumps of powder in the cement reduces the strength and increases the thickness of the fixing film).
3. Criteria of necessary consistence: at separation from cement of a spatula behind it the cement in 1-2 cm has to stretch.

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## Algorithm of student action №7

### Permanent prosthetics.

#### "Preparation of the lateral group of teeth under the zirconium crown".

1. Greet the patient.
2. Wear gloves.
3. Take a set of tools (dental probe, mirror, tweezers)
4. Inform the patient about the future manipulation of tooth preparation under the zirconium crown.
5. During preparation, keep your mouth open, breathe through your nose, lips and cheeks and do not strain your tongue.
6. Take burs for preparation (conical or cylindrical, teardrop-shaped or fissure) and fix one of them in the turbine tip
7. Ask the patient to open his mouth.
8. To carry out preparation:

- to separate the proximal surfaces so that they are parallel to the thickness of the crown (1 mm).

- preparation of the vestibular surface is carried out parallel to the longitudinal axis of the tooth, the depth of preparation is 1.5 mm.

- preparation of the oral surface is carried out parallel to the longitudinal axis of the tooth, the depth of preparation is 1-1.5 mm

- preparation on the masticatory surface of the hard tissues of the tooth with fissure boron by 1.5 mm, adhering to the anatomical shape of the masticatory surface.

- within the gingival sulcus form a vestibular ledge, the width of the ledge 0.5-0.8 mm.

- preparation is completed by eliminating the sharp corners formed during the preparation.

- carrying out instrumental control of the prepared surfaces (if the probe does not meet obstacles and smoothly slides on a tooth surface, preparation is considered finished).

Preparation of the tooth for the zirconium crown is to give the stump a conical shape at an angle of 4-8 degrees. The surfaces of the tooth stump should not have steps and undercuts.

The proximal tooth surfaces should be ground by 1 mm and parallel to each other, the vestibular tooth surface should be ground by 1.5 mm, the ledge should be 0.5-0.8 mm wide and within the gingival sulcus.

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## Algorithm of student action №8

### Permanent prosthetics.

#### "Preparation under a metal-plastic crown with a plastic lining of the vestibular surface."

1. Say hello to the patient.
2. Put on gloves.
3. Take a set of tools (dental probe, mirror, tweezers)
4. Inform the patient about the future manipulation of tooth preparation under the metal-plastic crown.
5. During preparation, keep your mouth open, breathe through your nose, lips and cheeks and do not strain your tongue.
6. Take burs for preparation (conical or cylindrical, teardrop-shaped or fissure) and fix one of them in the turbine tip
7. Ask the patient to open his mouth.
8. To carry out preparation:
  - to separate the proximal surfaces so that they are parallel to the thickness of the metal (0.5 mm)
  - preparation of the vestibular surface is carried out parallel to the longitudinal axis of the tooth, the depth of preparation is 1.5-2 mm
  - preparation of the oral surface is carried out parallel to the longitudinal axis of the tooth, the depth of preparation is 0.3-0.5 mm
  - preparation on the masticatory surface of the hard tissues of the tooth with fissure boron by 0.5-0.7 mm, adhering to the anatomical shape of the masticatory surface.
  - within the gingival sulcus form a vestibular ledge, the width of the ledge 0.8-1 mm.
  - preparation is completed by eliminating the sharp corners formed during the preparation.
  - carrying out instrumental control of the prepared surfaces (if the probe does not meet obstacles and smoothly slides on a tooth surface, preparation is considered finished).

Preparing a tooth for a solid metal crown is to give the stump a conical shape. The surfaces of the tooth stump should not have steps and undercuts. The proximal tooth surfaces should be ground by 0.5 mm and parallel to each other, the vestibular tooth surface should be ground by 1.5-2.0 mm to create space for the facing material, the ledge should be 0.8-1 mm wide and in within the gingival sulcus.

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## Student action algorithm №9

### Fixed prosthetics.

#### "Preparation of hard tooth tissues for veneers."

1. Greet the patient.
2. Put on gloves.
3. Take a set of instruments (dental probe, mirror, tweezers)
4. Inform the patient about the upcoming veneer preparation manipulation.
5. During preparation, keep your mouth open; do not strain your lips, cheeks and tongue.
6. Take the preparation burs (cone bur, flat end, long thin cone bur, fissure bur, cylindrical bur) and fix one of them in the turbine handpiece.
7. Ask the patient to open his mouth.
8. Carry out preparation:
  - Using a conical diamond bur with a flat end on the vestibular surface of the tooth, apply "orientation grooves" (to control the thickness of the removed hard tissue) to a depth of 1 mm from the incisal edge to the enamel-cement border, taking into account the anatomical shape of the tooth and the topography of the safety zones.
  - Prepare hard tissues of the vestibular surface of the tooth with a cone-shaped bur with a rounded apex according to the marked "orientation grooves" (to a pre-planned depth of 1 mm).
  - Formation of a straight shoulder with a cylindrical bur, or with a truncated cone bur, at the level of the gums, 0.3-0.5 mm wide.
  - The preparation of the contact (proximal) surfaces is a continuation of the preparation of the vestibular surface. With a conical bur with a rounded apex, vertical grooves with a depth of 0.5 mm are formed on the contact surfaces without disturbing the interdental contact points (to preserve the integrity of the dentition, provided that the proximal surfaces are preserved).
  - Finish the preparation by removing sharp edges that have formed during the preparation process with finishes.

Preparation of a tooth for veneer consists in preparing the vestibular surface of the tooth to the planned depth of 1 mm, the formation of a straight ledge at the level of the gums, 0.3-0.5 mm wide, the formation of vertical grooves 0.5 mm deep on the contact surfaces without disturbing the interdental contact points ( to preserve the integrity of the dentition, provided that the approximal surfaces are preserved), and smoothing of roughness on the prepared surfaces.

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## **Student action algorithm №1**

### **Removable prosthetics**

#### **«Obtaining anatomical impressions from the upper edentulous jaw with alginate mass.»**

1. Greet the patient, inform the patient about the upcoming manipulation, taking impressions from the upper jaw.

Now I will take an impression for you from the upper jaw. You must breathe through your nose. Do not strain your cheeks and lips.

1. Put on gloves.

2. Select a standard impression tray:

- Depending on which jaw the impression will be taken from (upper or lower jaw)

- To size

When choosing, you need to keep in mind that the distance between the surface of the spoon and the mucous membrane of the prosthetic bed should be at least 3-5 mm.

The edges of the spoon, when applied to the surface of the mucous membrane during the test, reach the transitional fold. When taking an impression, between the bottom of the tray and the alveolar ridge there should be a layer of impression material 2-3 mm thick, the edge of the tray should not reach the transitional fold, and the resulting lumen should not subsequently be filled with the impression material. This will make it possible to shape the edges of the impression with both passive and active soft tissue movements. With a long edge of the spoon, such a possibility of formation is excluded, since its edge will interfere with the movement of the tongue, bridles and other folds of the mucous membrane.

3. Carry out mixing of the alginate mass:

- Take a flask and a spatula

- Measure the alginate material into a flask in the ratio of an even measuring spoon of powder (10 g) to 1 scoop of water (20 ml).

- Mix for 30-45 seconds.

4. Fill the impression tray with alginate material to the brim.

5. Align and moisten the surface of the alginate mass in the impression spoon water.

6. Ask the patient to open his mouth.

7. Move the right cheek with a mirror or finger.

8. Insert the spoon with the impression material into the oral cavity at an angle;

- then, unfolding it, it is installed over the alveolar ridge. The location of the handle of the spoon is strictly along the midline serves as a guide.
- On the upper jaw, after centering, the spoon is pressed against the posterior third of the hard palate. After the mass leaves the edge of the spoon, the pressure is transferred to the leading edge - this is to prevent the impression mass from entering the larynx or trachea.
- The vestibular edges are formed by pulling the upper lip and cheeks down with the thumb and forefinger, pressing against the edge of the spoon.

It should be noted that when the doctor forms the edges of the impression by moving the lips and cheeks of the patient with his fingers, the movements of the soft tissues are called passive. If soft tissues move due to the tension of the mimic or chewing muscles, these movements are called active.

9. Fix the spoon by hand for 1-3 minutes (until the material hardens)

10. Removal of the spoon with an impression from the oral cavity.

11. After removal, rinse the impression under running water.

12. Rate the quality of the impression:

- you must voice the adhesion of the impression to the spoon
- you must voice the presence or absence of pores
- you must voice the uniformity of the thickness of the impression
- you must voice the clarity of the display of the prosthetic field
- you must voice out the clarity of contouring the edge of the print

(A correctly taken impression on the inner surface should not have squeezed places. After removing the impression, pay attention to: the fixation of the impression on the tray, the porosity of the impression material, the formation of the edge of the impression, the clarity of the relief of the mucous membrane of the prosthetic bed. It is important that the edges of the impression are rounded. the print should be free of pores and cavities, reflecting all anatomical formations and especially the boundaries of the transitional fold and line A. The impression should be clean, free of saliva).

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## **Student action algorithm №2**

### **Removable prosthetics**

#### **"Obtaining a diagnostic model of the jaws from plaster."**

##### 1. Material support:

- Impression made of silicone paste
- Gypsum
- water
- Rubber flask
- dental spatula
- plaster knife

##### 2. Methodology:

1. Pour the required amount of water into the flask (for 100 grams of gypsum 20-25 ml of water)
2. Smoothly pour gypsum into water with a spatula until saturation. A slight excess of water should remain on the surface of the water-soaked gypsum.
3. Stir the gypsum with a spatula until a homogeneous mass without lumps, creamy consistency is obtained.
4. Take the impression with your left hand, with a spatula apply a creamy consistency of gypsum in small portions to the protruding areas of the impression with a spatula, while shaking it, tapping on the edge of the rubber flask, and repeat the procedure for filling the impression with gypsum to the edges.
5. When the density of the gypsum increases, fill the impression with gypsum slightly above its edges, then put a small portion of the gypsum on the table surface, turn the print over with a spoon upwards, place it on the gypsum in a horizontal position parallel to the table.
6. With a dental spatula we form the base of the model, covering the edges of the print.

7. After the plaster has crystallized, cut off areas of the plaster that will prevent the impression tray from separating from the model.

Model requirements:

1. The gypsum of the model must be dense, free of pores.
2. The model should accurately represent all anatomical structures of the prosthetic field.
3. The base of the model should be 1.5-2 cm high, corresponding to the shape of the upper or lower jaw.

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## Student action algorithm №3

### Removable prosthetics

#### "Obtaining anatomical impressions from the lower jaw with alginate mass."

1. Greet the patient, inform the patient about the upcoming manipulation, taking impressions from the lower jaw.

Now I will take an impression for you from the lower jaw. You must breathe through your nose. Do not strain your cheeks and lips. During the insertion of the tray with the impression material, you must lift the tongue up.

2. Put on gloves.

3. Select a standard impression tray:

- Depending on which jaw the impression will be taken from (upper or lower jaw)

- To size

When choosing, you need to keep in mind that the distance between the surface of the spoon and the mucous membrane of the prosthetic bed should be at least 3-5 mm.

The edges of the spoon, when applied to the surface of the mucous membrane during the test, reach the transitional fold. When taking an impression, between the bottom of the tray and the alveolar ridge there should be a layer of impression material 2-3 mm thick, the edge of the tray should not reach the transitional fold, and the resulting lumen should not subsequently be filled with the impression material. This will make it possible to shape the edges of the impression with both passive and active soft tissue movements. With a long edge of the spoon, such a possibility of formation is excluded, since its edge will interfere with the movement of the tongue, bridles and other folds of the mucous membrane.

4. Carry out mixing of the alginate mass:

- Take a flask and a spatula

- Measure the alginate material into a flask in the ratio of an even measuring spoon of powder (10 g) to 1 scoop of water (20 ml).

- Mix for 30-45 seconds.

5. Place the alginate mass into the impression tray.

6. Level and moisten the surface of the alginate mass in the impression tray with water.

7. Ask the patient to open his mouth.

8. Move the right cheek with a mirror or finger.

9. Insert the spoon with the impression material into the oral cavity at an angle; - then, unfolding it, it is installed over the alveolar process. The location of the handle of the spoon is strictly along the midline serves as a guide.

- On the lower jaw, after centering, the spoon is pressed first in the anterior region, and then in the posterior one.

- The vestibular edges are formed by pulling the lips and cheeks to the side, up and back.

- To form a mass in the region of the lingual edge of the print, the patient is asked to lift the tongue up and forward.

It should be noted that when the doctor forms the edges of the impression by moving the lips and cheeks of the patient with his fingers, the movements of the soft tissues are called passive. If soft tissues move due to the tension of the mimic or chewing muscles, the muscles of the floor of the mouth, these movements are called active.

10. Fix the spoon by hand for 1-3 minutes (until the material hardens)

11. Removing the impression with a spoon from the oral cavity.

12. After removal, rinse the impression under running water.

13. Assess the quality of the impression:

- you must voice the adhesion of the impression to the spoon

- you must voice the presence or absence of pores

- you must voice the uniformity of the thickness of the impression

- you must voice the clarity of the display of the prosthetic field

-you must voice out the clarity of contouring the edge of the print

(A correctly taken impression on the inner surface should not have squeezed places, the edges on the vestibular and lingual sides should be of uniform thickness, the places of the prosthetic bed, important for retention, should be accurately removed, the neutral zone should be clearly contoured. The impression should be clean, free from saliva).

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## Student action algorithm №4

### Removable prosthetics.

#### «Determination of the boundaries of the basis of a complete removable denture on the model of the edentulous lower jaw»

##### 1. Material support:

- plaster model of the edentulous lower jaw
- chemical pencil

##### 2. Methodology:

- With a chemical pencil, we draw a line on the model along the outer slope - the transition to the active-mobile mucous membrane, while we bypass the frenulum of the lower lip, and in the area of the premolars - the attachment points of the lateral cords of the mucous membrane of the transitional fold.
- We bypass the mandibular (mucous) tubercles (the future full plate removable prosthesis should overlap the mandibular tubercles)
- We pass to the lingual side, we circle the jaw-hyoid lines on the right and left sides, and reaching in the anterior section to the place of attachment of the frenum of the tongue and be sure to bypass it.
- We draw the alveolar line strictly along the crest of the alveolar process.
- In addition to the indicated lines, we mark the mandibular (mucous) tubercles on the model. This marking helps with orientation when setting artificial teeth on an edentulous jaw.

Requirements for the boundaries of the bases of complete removable dentures on the lower jaw:

1. From the vestibular side, the base reaches the active-mobile zone of the mucous membrane, bypasses the frenulum of the lower lip, and does not overlap it in the area of the premolars along the outer oblique line.
2. The base overlaps the mandibular tubercles, passes to the lingual side, necessarily overlaps the maxillary-hyoid lines of the right and left sides, reaching in the anterior region to the attachment point of the frenum of the tongue and bypassing it.

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## Student action algorithm №5

### Removable prosthetics.

#### "Determination of the boundaries of the basis of a complete removable denture on the model of the edentulous upper jaw."

##### 1. Material support:

- plaster model of the edentulous upper jaw
- chemical pencil

##### 2. Methodology:

- With a chemical pencil on the model in the frontal area, we mark the boundaries, bypassing the frenum of the upper lip, and in the lateral areas - the buccal folds of the mucous membrane (so that they are not injured in the future by the edge of the prosthesis, and the prosthesis base itself does not move from the prosthetic bed).
- We designate the maxillary tubercles (in the posterior part, the base should overlap the maxillary tubercles to the pterygo-jaw folds)
  
- Next, we apply the valve line - along the outer slope of the valve zone; alveolar - strictly along the crest of the alveolar process; median - it should divide the model into equal right and left parts according to the frenum of the upper lip, the bone suture in the anterior part of the hard palate and blind fossae in the back of the hard palate.

Requirements for the boundaries of the bases of complete removable dentures on the upper jaw:

1. From the vestibular side, the border reaches the active - mobile zone of the mucous membrane, that is, approximately 1-1.5-2 mm on each side from the center of the dome of the transitional fold.
2. In front, the edge of the prosthesis bypasses the frenulum of the upper lip, and in the lateral areas - the buccal cords.
3. In the posterior part, the base should overlap the maxillary tubercles up to the pterygo-jaw folds that extend from the distal surfaces of the maxillary tuberosities.
4. From the hillocks, the border of the base passes along the section of transition of the hard palate to the soft palate, that is, along the central zone, at the place of attachment of the muscles of the soft palate, going beyond the so-called line A by 1-2 mm.

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**Algorithm of student action №6**  
**Removable prosthetics.**

**"Determination and fixation of central occlusion in 1 group of dentition defects according to Bethelman (using silicone material)".**

1. Say hello to the patient.
2. Put on gloves.
3. Take a set of tools (dental probe, mirror, and tweezers)
4. Inform the patient about the future manipulation of the determination and fixation of the central occlusion.
5. Material support: Material support:
  - Phantom with group I dentition defects
  - Basic silicone material
  - Set for inspection (tweezers, probe, mirror)
2. Methods of conducting:
  - Check the closure of the dentition in the position of central occlusion.
  - Prepare and mix the base silicone material:
    1. With a special measuring container to measure the material of the base silicone material in hand, the excess paste must be removed.
    2. Apply two strips of catalyst gel to each impression (approximate strip length 4 cm).
    3. Knead the silicone mass with your fingers for 30 seconds, until the roller acquires a uniform cut and consistency.
      - Form a roller 3-4 cm long and 1.0-1.5 cm wide.
      - Insert the silicone roller into the mouth and place it in the area of the dentition defect.
      - Close the teeth in the position of central occlusion.
      - After polymerization of the mass, open the teeth carefully remove the roller and assess the quality of the occlusal impression.

Requirements for silicone occlusion roller:

1. Silicone roller should not have delays (deformations)
2. It must securely fix the dentition in the position of central occlusion.

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## Algorithm of student action №7

### Complete removable prosthetics.

**«Outline the boundaries of the base of a partial removable laminar denture on the model of the upper jaw with a defect of the dentition class I according to Kennedy.»**

1. Material support:

- plaster model of the upper jaw with a defect of the dentition class I according to Kennedy
- chemical pencil

2. Methods of conducting:

- With a chemical pencil on the model in the edentulous areas of the alveolar process outline the boundaries of the base of the prosthesis, which pass 0.5-1 mm below the transition fold, bypassing the mobile buccal-alveolar strands of the mucous membrane
- Outline the maxillary mounds (in the distal part of the base should overlap the maxillary mounds)
- Outline the distal edge of the prosthesis, not reaching the line "A" (the distal edge of the prosthesis does not reach the line "A").
- At an orthognathic occlusion the basis of a prosthesis overlaps teeth of frontal group on a palatal surface on 1/3, and teeth of a lateral site from a palatal surface on 2/3 of height of crowns of lateral teeth.

Requirements for the limits of the basis of a partial plate removable prosthesis on the model of the upper jaw with a defect of the dentition class I according to Kennedy:

1. On the vestibular side, the border passes 0.5-1 mm below the transition fold of the edentulous areas of the alveolar process.
2. In the lateral edentulous areas of the alveolar process, bypassing the buccal cords.
3. In the distal part of the base should cover the humps of the upper jaw.
4. The distal edge of the prosthesis should reach the line "A", or stand slightly away from it, depending on the topography of the defect, the relief of the prosthetic bed and the size of the jaw.

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**Algorithm of student action №8**  
**Complete removable prosthetics.**

**«Outline the boundaries of the base of partial removable laminar denture on the model of the upper jaw with a defect of the dentition class II according to Kennedy.»**

1. Material support:

- plaster model of the upper jaw with a defect of the dentition class II according to Kennedy
- chemical pencil

2. Methods of conducting:

- With a chemical pencil on the model in the edentulous areas of the alveolar process outline the boundaries of the base of the prosthesis, which pass 0.5-1 mm below the transition fold, bypassing the mobile buccal-alveolar strands of the mucous membrane
- Outline the maxillary mounds (in the distal part of the base should overlap the maxillary mounds)
- Outline the distal edge of the prosthesis, not reaching the line "A" (the distal edge of the prosthesis does not reach the line "A").
- At an orthognathic occlusion the basis of a prosthesis overlaps teeth of frontal group on a palatal surface on 1/3, and teeth of a lateral site from a palatal surface on 2/3 of height of crowns of lateral teeth.

Requirements for the limits of the basis of a partial plate removable prosthesis on the model of the upper jaw with a defect of the dentition class I according to Kennedy:

1. On the vestibular side, the border passes 0.5-1 mm below the transition fold of the edentulous areas of the alveolar process.
2. In the lateral edentulous areas of the alveolar process, bypassing the buccal cords.
3. In the distal part of the base should cover the humps of the upper jaw.
4. The distal edge of the prosthesis should reach the line "A", or stand slightly away from it, depending on the topography of the defect, the relief of the prosthetic bed and the size of the jaw.

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## Algorithm of student action №9

### Removable prosthetics.

**«Outline the boundaries of the base of partial removable laminar denture on the model of the mandible with a defect of the dentition class I according to Kennedy.»**

1. Material support:

- plaster model of the lower jaw with a defect of the dentition class I according to Kennedy
- chemical pencil

2. Methods of conducting:

- With a chemical pencil on the model in the edentulous areas of the alveolar process outline the boundaries of the base of the prosthesis, which pass 0.5-1 mm above the transition fold, bypassing the mobile buccal-alveolar strands of the mucous membrane.
- In orthognathic occlusion, the base overlaps the teeth of the frontal and lateral areas, respectively, by 2/3 and 3/4 of the height of the crowns, due to the structural and physical and mechanical properties of the materials.
- The lower border of the base of the prosthesis from the lingual surface overlaps the inner oblique line and passes above the transition fold, bypassing the attachment of the bridle of the tongue.- The distal border of the base of the prosthesis must be delineated in the area of retromolar mucous tubercles (which are a duplicator of the mucous membrane). They must be partially or completely (depending on the degree of their mobility and the place of attachment of the pterygo-jaw fold) blocked.

Requirements to the limits of the basis of a partial plate removable prosthesis on the model of the mandible with a defect of the dentition class I according to Kennedy:

1. On the vestibular side in the edentulous areas of the alveolar process, the border is 0.5-1 mm above the transition fold.
2. Cheek strands should be carefully bypassed.
3. The lower border of the base of the prosthesis from the oral surface overlaps the inner oblique line and passes above the transition fold, bypassing the areas of attachment of the bridle of the tongue.
4. The distal border of the prosthesis should be delineated in the area of retromolar mucous tubercles that need to be partially or completely (depending on the degree of their mobility and the place of attachment of the pterygo-jaw fold) to block.

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## Algorithm of student action №10

### Removable prosthetics.

#### «Outline the boundaries of the base of partial removable laminar denture on the model of the mandible with a defect of the dentition class II according to Kennedy.»

##### 1. Material support:

- plaster model of the lower jaw with a defect of the dentition class II according to Kennedy
- chemical pencil

##### 2. Methods of conducting:

- With a chemical pencil on the model in the edentulous areas of the alveolar process outline the boundaries of the base of the prosthesis, which pass 0.5-1 mm above the transition fold, bypassing the mobile buccal-alveolar strands of the mucous membrane.
- In orthognathic occlusion, the base overlaps the teeth of the frontal and lateral areas by 2/3 and 3/4 of the height of the crowns, respectively, due to the structural and physical and mechanical properties of the materials.
- The lower border of the base of the prosthesis from the lingual surface overlaps the inner oblique line and passes above the transition fold, bypassing the attachment of the bridle of the tongue.
- The distal border of the base of the prosthesis must be delineated in the area of retromolar mucous tubercles (which are duplicators of the mucous membrane). They must be partially or completely (depending on the degree of their mobility and the place of attachment of the pterygo-jaw fold) blocked.

Requirements to the limits of the basis of a partial plate removable prosthesis on the model of the mandible with a defect of the dentition class II according to Kennedy:

1. On the vestibular side in the edentulous areas of the alveolar process, the border is 0.5-1 mm above the transition fold.
2. Cheek strands must be carefully bypassed.
3. The lower border of the base of the prosthesis from the oral surface overlaps the inner oblique line and passes above the transition fold, bypassing the areas of attachment of the bridle of the tongue.
4. The distal border of the prosthesis should be delineated in the area of retromolar mucous tubercles that need to be partially or completely (depending on the degree of their mobility and the place of attachment of the pterygo-jaw fold) to block.

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## **Algorithm of student action №11**

### **Removable prosthetics.**

**"Checking the correctness of the definition of central occlusion and preparation of models for plastering in the articulator in the partial absence of teeth (2nd grade according to Betelman)".**

1. Material support:

- Working plaster model of the upper lower jaw in accordance with the conditions of the task
- wax bases with biting rollers according to the conditions of the task
- ballpoint pen
- rubber rings

2. Methods of conducting:

- Choose from the provided set of models (upper (3 pieces) and lower (3 pieces)) model of the lower jaw, which meets the conditions of the task - upper jaw - 3rd grade Kennedy, lower jaw - 1st grade Kennedy, no teeth: 14, 25, 37, 36, 35, 34, 45, 46, 47, orthognathic occlusion.
- Choose used wax bases with bite rollers according to the selected models of the upper and lower jaws.
- Check on the model of the upper jaw the conformity of the boundaries and the tightness of the fit on the model of the wax base with a biting roller.
- Check on the model of the mandible compliance with the boundaries and tightness on the model of the wax base with a biting roller.
- Compare the models of the upper and lower jaws with wax bases with biting rollers in the CO position.
- To determine the presence of signs of occlusal (fissure-tuberculous) contacts characteristic of CA jaws on antagonizing pairs of teeth.
- Use a ballpoint pen to mark the occlusal features characteristic of CO on antagonizing pairs.
- Check the tightness of the occlusal surfaces of the teeth with their impressions on the wax bite roller.
- Check the coincidence of the incisor lines of the upper and lower jaws.
- Check the stability of the position of the compared models and the absence of trends in their bias.
- Fix the models compared in the position of the CO with the help of rubber rings.

Requirements for checking the correctness of the determination of CO and preparation of models for plastering in the articulator in the partial absence of teeth (2nd grade according to Betelman):

1. Selected working models of wax bases with wax bases with biting rollers are compared in the position of the CO on occlusal features.
2. Wax bases correspond to the outlined boundaries.
3. Wax bases are tightly adjacent to the selected models in \ shch, n \ shch.
4. Occlusal contacts of antagonizing pairs of teeth are dense.
5. Characteristic occlusal signs of antagonizing pairs of teeth are marked with a ballpoint pen.
6. The occlusal surfaces of the teeth are close to their impressions on the wax rollers.
7. Models with rollers are firmly located in the given position and do not have tendencies to displacement and oscillations.
8. The incisor lines of the upper and lower jaws coincide.

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## Algorithm of student action №12

### Removable prosthetics.

#### Correction of an individual tray according to Herbst on the upper jaw (I, II, III samples).

1. Greet the patient
2. Put on gloves
3. Took a set of sterile instruments:
  - mirror,
  - probe,
  - tweezers
4. Informed the patient about future manipulation: Fitting an individual spoon to the upper jaw according to the method of Herbst
5. Chose an individual spoon on the upper jaw, which is located on the model according to the conditions of the task.
  - individual spoon on the upper jaw,
  - individual spoon on the lower jaw.
6. Evaluated the made individual spoon to sound
  - according to the criteria of compliance of the delineated boundaries,
  - the density of the spoon to the model.
7. Determine the boundaries of the correction zone with a pencil on the model. State what the patient should do during the test according to the task.
  - wide mouth opening,
  - suction of the cheeks,
  - pulling the lips into a tube.
8. To substantiate taking into account anatomical and topographical conditions. (Announce the quality criteria for a correctly performed correction):
  - activated active-mobile mucous membrane under the influence of masticatory muscles,
  - the active-mobile mucous membrane under the influence of buccal muscles is activated,
  - the active-mobile mucous membrane is activated under the influence of the circular muscle of the mouth.
9. Shorten the edge of an individual spoon with a cutter:
  - shorten the edge in contact with the maxillary humps and the imaginary location of the molars
  - shortened in the cheek folds,
  - shortened in the front department.

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## **Algorithm of student action №13**

### **Removable prosthetics.**

#### **Correction of an individual tray according to Herbst on the lower jaw (I, II, III,IV, V samples).**

1. Greet the patient
2. Put on gloves
3. Took a set of sterile instruments:
  - mirror,
  - probe,
  - tweezers
4. Inform the patient about future manipulation: Fitting the lower individual spoon according to the method of Herbst
5. Chose an individual spoon on the lower jaw, which is located on the model according to the conditions of the task.
  - individual spoon on the lower jaw,
  - individual spoon on the lower jaw.
6. Evaluated the made individual spoon to sound
  - according to the criteria of compliance of the delineated boundaries,
  - the density of the spoon to the model.
7. Determine the boundaries of the correction zone with a pencil on the model. State what the patient should do during the test according to the task.
  - wide opening of the mouth and the act of swallowing,
  - holding the tongue on the red border of the lower lip,
  - touch the tip of the tongue to the cheek with a half-closed mouth,
  - protrusion of the tongue towards the tip of the nose,
  - active movements of facial muscles, folding of the lips with a tube.
8. To substantiate taking into account anatomical and topographical conditions. (Announce the quality criteria for a correctly performed correction):
  - the active-mobile mucous membrane is activated under the influence of the maxillofacial muscle,
  - the active-mobile mucous membrane is activated under the influence of the maxillofacial muscle,

- the active-mobile mucous membrane is activated under the influence of the maxillofacial muscle,
- the active-mobile mucous membrane is activated under the influence of tension of a bridle of language and reduction of muscles of language,
- the active-mobile mucous membrane is activated under the influence of facial muscle movements.

9. Shorten the edge of an individual spoon with a cutter:

- shortened along the edge from the place behind the mucous tubercle to the submandibular line,
- shortened along the edge that runs along the submandibular line,
- shorten the area that is at a distance of 1 cm from the midline on the sublingual edge of the spoon on the opposite side of the direction of movement of the tongue,
- shortened the area located near the bridle of the tongue,
- shortened the outer edge between the fangs.

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