

**Algorithm of actions of a student with a practical skill: Anthropometric research methods: the Ponts method"**

1. Prepare the required tools
  - meter
  - ruler
  - pencil
  - paper
  - patient diagnostic models
2. To determine the Pont method, it is necessary to determine the mesio-distal dimensions of the four incisors of the upper jaw (the widest part of the tooth crown) using a meter.
3. Sum values
4. Write down the obtained values on a sheet of paper
5. Using Pont's formula, determine the norm for a given clinical situation

(Sum of m/d sizes of 4 incisors upper jaw) x 100% / 80 (premolar index)

(Sum of m/d sizes of 4 incisors upper jaw ) x 100% / 64 (molar index)

6. Record the received results
7. Using a pencil, determine the position of Pont's points on the premolars and molars of the upper and lower dentition.
8. Using the meter, determine the distance between the premolars using Pont's points on diagnostic models of the upper jaw  
(Pont's points on the first premolars of the upper jaw - the middle of the inter-tubercular fissure)
9. Record the received results
10. Using a meter, determine the distance between molars using Pont's points on diagnostic models of the upper jaw  
(Pont's points on the first molars in the upper jaw - the anterior pit of the inter-tubercular fissure)
11. Record the received results
12. Using the meter, determine the distance between the premolars according to Pont's points on diagnostic models of the lower jaw (Pont's points on the first premolars lower jaw - the distal point of the slope of the buccal tubercle)
13. Record the received results
14. Using a meter, determine the distance between molars using Pont's points on diagnostic models of the lower jaw  
(Pont's points on the first molars lower jaw - tip of the posterior buccal tubercle)
15. Record the received results
16. Compare the distance between the premolars and molars that is available with the calculated norm according to the Pont formula (point 5)
17. Draw conclusions (about the narrowing or expansion of the dentition in the area of premolars and molars upper jaw and lower jaw )

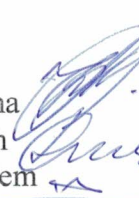
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**Algorithm of actions of a student with a practical skill:**  
**"Fixation of the orthodontic ring"**

1. Say hello to the patient
2. Explain the steps and purpose of the procedure (to fix the orthodontic ring it is necessary to prepare the required tooth and fit the factory ring)
3. wear a mask
4. Sterilize your hands
5. wear gloves
6. Take a sterile tray from Panmed and select the required instrument:
  - tray
  - tweezers
  - spatule
  - mixing surface for glass-ionomer cement
  - probe
7. Choose an orthodontic ring from the set for the required tooth
8. Fit it in the oral cavity (the ring should fit tightly to the crown of the tooth and not overestimate the bite)
9. Take the tool for cleaning and polishing the tooth from the Petri dish:
  - Low speed handpiece brush
  - elastic for the low speed handpiece
10. Clean the surface of the tooth
11. Isolating the tooth from saliva with a cotton roll
12. Using tweezers, take a cotton ball soaked in ethyl alcohol and treat the surface of the tooth and the orthodontic ring
13. Blow off the remaining ethyl alcohol from the orthodontic ring and tooth with a jet of air.
14. Add the required amount of fixing material to the mixing glass according to the instructions
15. Mix the fixing material
16. Using a spatula, apply a layer of cement of sufficient thickness to the inner surface of the orthodontic ring
17. Fix the ring to the tooth
18. Remove cement residues using a probe (start removing excess cement when the material becomes rubber-like in consistency)

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**Algorithm of actions of a student with a practical skill:**  
"Anthropometric methods of research: Korkhaus's method"

**Method for measuring the anterior segment of the dental arch according to Korkhaus**

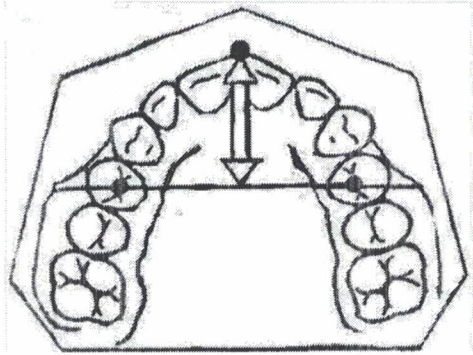
1. Prepare the required tools:
  - meter
  - ruler
  - pencil
  - paper
  - patient diagnostic models
2. Using the meter, determine the mesio-distal dimensions of the four incisors of the upper jaw (the most convex part of the tooth crown - the equator)
3. Sum values
4. Write down the obtained values on a sheet of paper
5. In the table of values according to Korkhaus, in the first column, we find the resulting sum of the mesio-distal size of the maxillary incisors and write out from the second column the corresponding norm of the length of the anterior segment of the maxillary dentition.

Total of the 4 <sup>th</sup> upper incisors width , mm	Length of the anterior part of the upper dental arch ,mm
27,5	16,3
28,0	16,5
28,5	16,8
29,0	17,0
29,5	17,3
30,0	17,5
30,5	17,8
31,00	18,0
31,5	18,3
32,0	18,5
32,5	18,8
33,0	19,0
33,5	19,3
34,0	19,5
34,5	19,8
35,0	20,0
35,5	20,5
36,0	21,0

6. Using a pencil, determine the position of the Pont points on the premolars upper jaw



7. On the diagnostic model of the patient's upper jaw , along the Pont points on the upper premolars, we apply a ruler (the Pont points on the first premolars of the upper jaw - the middle of the inter-cusp fissure)



8. Draw a perpendicular from the contact point between the upper central incisors to Pont's line using a meter
9. We measure the length of the dentition (from the contact point between the upper central incisors to Pont's line using a meter)
10. We compare the length of the anterior segment of the dental arch on the model with the normal values.
11. On the diagnostic model of the upper jaw of the patient, along the Pont points on the lower premolars, we apply a ruler (Pont points on the first premolars lower jaw are the distal contact points)
12. Draw a perpendicular from the contact point between the lower central incisors to Pont's line using a meter
13. We measure the length of the dentition (from the contact point between the lower central incisors to Pont's line using a meter)
14. We compare the length of the anterior segment of the dental arch on the model with the indicators in the norm (on the lower jaw, the norm of the length of the anterior segment is 2-3 mm less)
15. We conclude (about the degree of shortening of the anterior segment of the dental arch):
  - 1a degree shortening up to 3 mm
  - 2a degree shortening from 3 to 5 mm
  - 3rd degree shortening more than 5 mm

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Three handwritten signatures in blue ink, corresponding to the authors listed in the text.

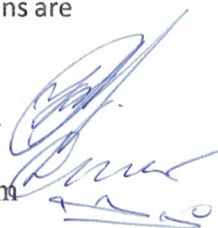
**Algorithm of actions of a student with a practical skill:**  
"Additional methods for examining the crossbite"

All actions that you will perform must be voiced.

1. Inform the patient about the need for research
2. Explain to the patient how the study is conducted
3. Obtain permission to conduct research
4. Wash your hands and wear rubber gloves
5. Carrying out 1 sample (**Study at rest**)... Review of the patient's face in frontal projection to determine the presence or absence of displacement of the position of the lower jaw to the side at rest.
6. **Second test (study of habitual occlusion).** The patient is offered to close the teeth without opening the lips. In cases of habitual displacement of the lower jaw, facial signs of disturbance (facial asymmetry) become more pronounced according to the direction of the displacement of the jaw.
7. **Third test (study of lateral jaw displacements).** The patient is offered to open his mouth wide and determine the displacement of the lower jaw to the side. With its lateral displacement, the asymmetry of the face increases (which indicates changes in the TMJ) decreases or disappears (asymmetry is the result of improper closure of the dentition). Monitor the ratio of the midline of the face and the dentition.
8. **The fourth test (comparative study of the habitual and central occlusion).** The harmony of the face is assessed after placing the lower jaw in the correct position (without its usual displacement) and compared from an aesthetic point of view with the harmony of the face when the lower jaw is placed in the usual occlusion (with the displacement of the lower jaw).

With the help of the first three samples, the direction of the displacement of the lower jaw and its cause are determined; improper closing of teeth and dentition; changes in the temporomandibular joint that interfere with normal function. With the help of the last test, the existing violations are clarified for the presence of asymmetry of the bones of the facial skeleton.

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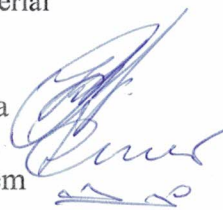


**Algorithm of actions of a student with a practical skill:**

**"Fixation of an orthodontic thin-walled crown"**

1. Say hello to the patient
  2. Explain the course and purpose of the procedure (to fix the orthodontics' crown, it is necessary to prepare the necessary tooth and fit the factory crown)
  3. put on a mask
  4. sterilize hands
  5. Put on gloves
  6. Take a sterile tray from Panmed and select the necessary instrument:
    - tray
    - round tapered pliers
    - tweezers
    - spatula
    - mixing surface for glass ionomer cement
    - probe
  7. Pick up an orthodontic crown from the factory set
  8. Using tweezers and a cotton ball pre-moistened in ethyl alcohol, treat the orthodontic crown
  9. Blow off the remaining ethyl alcohol with an air jet
  10. Use pliers with round tapered to fit the crown in the oral cavity (the crown should reach the gingival margin, but not enter the gingival sulcus)
  11. Take a tooth cleaning and polishing tool from the Petri dish
    - Low speed handpiece brush
    - low speed handpiece elastic
  12. Clean the surface of the tooth
  13. Isolate the tooth from saliva with a cotton roll
  14. Using tweezers, take a cotton ball soaked in ethyl alcohol and treat the surface of the tooth and orthodontic crown
  15. Blow off the remaining ethyl alcohol from the orthodontic crown and tooth with the air gun
  16. Apply the required amount of fixing material to the mixing glass according to the instructions.
  17. Mix the fixation material
  18. Using a spatula, apply a layer of cement of sufficient thickness to the inner surface of the orthodontic crown.
  19. Fix the crown on the tooth (during the entire curing time, the pressure should be moderate)
- Using a probe, remove the excessive cement (begin to remove excess cement when the material becomes like rubber in its consistency)

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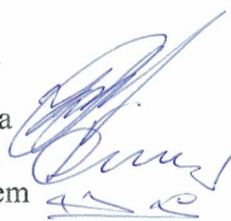




**Algorithm of actions of a student with a practical skill:**  
**"making a Jaw Impression"**

1. Say hello to the patient
2. Explain the course and purpose of the procedure (to take an impression you need to try on an impression spoon, then mix the material and take an impression)
3. Put on a mask
4. Sterilize your hands
5. Wear gloves
6. Choose a standard impression spoon (- depending on which jaw the impression will be taken; by size)
7. Try on a spoon in the mouth (the edges of the spoon when applied to the surface of the mucous membrane during the inspection reach the transition folds)
8. Take a flask and a spatula
9. Measure the alginate material into the flask (in the ratio of an equal measuring spoon of powder - 10 g per 1 measure of water - 20 ml)
10. Knead the alginate mass
11. Apply the resulting alginate mass in an impression tray
12. Ask the patient to open his mouth
13. Insert a spoon with the material into the mouth
14. Fix the spoon with your hand for 1-3 minutes (until the material hardens)
15. Remove the spoon with the imprint from the mouth
16. Rinse under running water
17. Disinfect

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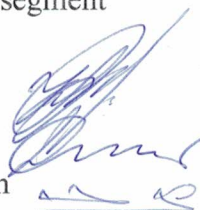
**Algorithm of actions of a student with a practical skill:**  
"Anthropometric research methods: the Nance method"

Prepare the necessary tool:

- meter
- ruler
- pencil
- paper
- patient diagnostic models

1. Using a meter, determine the mesio-distal size of the 16th tooth
2. Using a meter, determine the mesio-distal size of the 15th tooth
3. Using a meter, determine the mesio-distal size of the 14th tooth
4. Using a meter, determine the mesio-distal size of the 13th tooth
5. Using a meter, determine the mesio-distal size of the 12th tooth
6. Using a meter, determine the mesio-distal size of the 11th tooth
7. Using a meter, determine the mesio-distal size of the 21st tooth
8. Using a meter, determine the mesio-distal size of the 22nd tooth
9. Using a meter, determine the mesio-distal size of the 23rd tooth
10. Using a meter, determine the mesio-distal size of 24 teeth
11. Using a meter, determine the mesio-distal size of the 25th tooth
12. Using a meter, determine the mesio-distal size of the 26th tooth
13. Summarize the values
14. Attach the ligature wire to the distal surface of 16 teeth
15. Place the wire on the side teeth in the middle of the chewing surfaces according to the shape of the dentition (we do not pay attention to the teeth outside the arch)
16. Arrange the wire on the front teeth along the cutting edge in the shape of the dentition (do not pay attention to the teeth outside the arch)
17. Mark the end of the wire arch on the distal surface of the 26 tooth
18. Straighten the wire
19. Measure the length of the ligature segment by attaching to the ruler
20. Calculate the shortage of space in the dental arch (Subtract the length of the wire segment from the sum of the dimensions of twelve teeth)

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**Algorithm of actions of a student with a practical skill:**  
**"Determining the signs of orthognathic bite"**

1. Ask the patient's name
  2. Sterilize your hands
  3. Put on a mask
  4. Put on gloves
  5. Ask the patient to open his mouth
- Identify signs of orthognathic occlusion:

- The upper front teeth overlap the lower by 1/3 of the length of the crowns of the lower teeth;
- The tubercle of the crown of the upper canine is located between the lower canine and the first premolar
- The midline between the central incisors of the upper and lower jaws coincides
- The mesial-buccal tubercle of the upper first molar is located in the transverse groove of the lower tooth of the same name.
- Each tooth of the upper jaw has two antagonists - the same and behind standing (except for the central lower incisors and upper wisdom teeth)
- The buccal tubercles of the upper lateral teeth overlap the buccal tubercles of the lower, and the palatal tubercles of the upper teeth are located between the buccal and lingual tubercles of the lower
- The upper dental arch has the shape of a semi-ellipse, and the lower-parabola, in a temporary bite - a semicircle on both jaws
- Dental arches of the upper and lower jaws are symmetrical
- In the state of central occlusion between all teeth (except not completely erupted) there is a complete occlusal contact
- In the state of physiological rest between the dentitions, an intercluster space of ~ 2 mm is formed.

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**Algorithm of actions of a student with a practical skill:**

**"Examination of the orthodontic patient"**

1. Say hello and find out the name of the patient
2. Determine age
3. Find out complaints
4. Collect medical history:  
(Have previously been treated by an orthodontist)
5. Conduct an external examination (say all the results aloud)
  - 5.1. Determine the symmetry of the face
  - 5.2. Determine the proportionality of the face
  - 5.3. Determine the condition of the nasolabial folds
  - 5.4. Determine the conditions of the chin folds
  - 5.4. Assess lip closure
  - 5.5. Determine the profile of the patient (look at the relationship between two imaginary lines, one of which runs from the Glabella point to the base of the upper lip, and the other from this point down to the chin)
6. Wear disposable gloves
7. Palpate the TMJ:  
Place the pads of the fingers in the area of the TMJ, ask to open and close the mouth wide while assessing the presence of clicks. (say the result aloud)
8. Examine the oral cavity:
  - 8.1. Determine the condition of the frenulum
    - upper lip: pull back the upper lip and assess its attachment;
    - lower lip: pull the lower lip and assess the place of attachment of the frenulum;
    - tongue: ask the patient first to raise the tongue to the palate, then stick the tongue forward and evaluate the attachment and length of the frenulum.
  - 8.2. Inspect for anomalies in the position of individual teeth
  - 8.3 Determine bite:
    - the relation of the first permanent molars (pull the cheek, ask the patient to close her teeth and rate the Angle class on the left and right)
    - the relation of the center line of the incisors of the upper, lower jaw and the center line of the face
    - to determine the fissure-tubercle overlap in the lateral areas in the transversal plane on the left and right
    - depth of incisal overlap
9. Make a preliminary diagnosis

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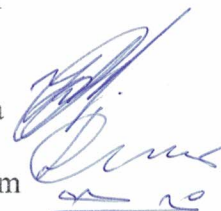


### **Algorithm of actions of a student with a practical skill:**

#### **"Additional examination methods for distal occlusion"**

1. Say hello to the patient
2. Explain the course and purpose of the procedure (to determine the shape of the distal occlusion, it is necessary to conduct the Eschler-Bitner test)
3. Turn on the dental chair and light
4. Sterilize your hands
5. Wear gloves
6. Wear a mask
7. Ask the patient to close their teeth in a familiar occlusion
8. Remember patient profile in familiar occlusion
9. Ask the patient to move the lower jaw to the neutral ratio of the posterior teeth according to 1cl of the Angle classification (each tooth of the lateral segment of the upper jaw has contact with two antagonists of the lower jaw of the same name and standing behind)
10. Determine the patient's profile and draw conclusions
  - The profile has improved (if the profile of the face has improved, then the distal bite is due to the underdevelopment of the lower jaw (lower micrognathia) and its distal position (lower retrognathia))
  - The profile has worsened (if the aesthetics of the face become worse, then the distal occlusion is caused by a violation of the size of the upper jaw (upper macrognathia) or the position of the upper jaw and upper jaw of the dentition (upper prognathia))
  - The profile first improved and then worsened (distal occlusion is caused by impaired growth and development of the upper and lower jaw (upper macrognathia and lower microgenia))

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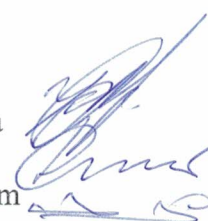




**Algorithm of student actions on practical skill:**  
**"Anthropometric research methods: Nance method »**

1. Prepare the necessary tool
  - Meter
  - Ruler
  - Pencil
  - Paper
  - Diagnostic Patient Models
2. Using a meter, determine the mesio-distal size of the 46th tooth
3. Using a meter, determine the mesio-distal size of the 45th tooth
4. Using a meter, determine the mesio-distal size of 44 teeth
5. Using a meter, determine the mesio-distal size of 43 teeth
6. Using a meter, determine the mesio-distal size of 42 teeth
7. Using a meter, determine the mesio-distal size of 41 teeth
8. Using a meter, determine the mesio-distal size of 31 teeth
9. Using a meter, determine the mesio-distal size of 32 teeth
10. Using a meter, determine the mesio-distal size of the 33rd tooth
11. Using a meter, determine the mesio-distal size of 34 teeth
12. Using a meter, determine the mesio-distal size of the 35th tooth
13. Using a meter, determine the mesio-distal size of the 36th tooth
14. Summarize the value
15. Attach the ligature wire to the distal surface of the 46th tooth
16. Place the ligature wire on the side teeth in the middle of the chewing surfaces according to the shape of the dentition (we do not pay attention to the teeth outside the arch)
17. Place the ligature wire on the front teeth along the cutting edge according to the shape of the dentition (we do not pay attention to the teeth outside the arch)
18. Mark the end of the wire arch on the distal surface of the 36 tooth
19. Straighten the wire
20. Measure the length of the ligature segment by attaching to the ruler
21. Calculate the shortage of space in the dental arch (subtract the length of the wire segment from the sum of the dimensions of twelve teeth)

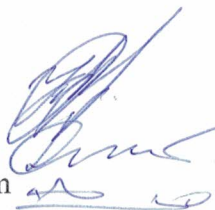
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**Algorithm of student actions on practical skill:**  
"Orthodontic's button fixation"

1. Say hello to the patient
2. Explain the steps and purpose of the procedure (to fix the orthodontic's button, it is necessary to prepare the necessary tooth and fix the button)
3. Wear a mask
4. Treat hands
5. Wear gloves
6. Take a sterile tray from Panmed and select the necessary instrument:
  - tray
  - reverse action tweezers
  - spatula
  - probe
7. Take a tooth cleaning and polishing tool from the Petri dish
  - Low speed handpiece brush
8. Clean the surface of the tooth
9. Rinse with water from the water gun
10. Isolate the tooth from saliva with a cotton roll
11. Apply etching gel
12. Rinse the tooth with water from the water gun
13. Dry the tooth with the air gun
14. Apply the required amount of bond to the tooth using the applicator
15. Blow off the bond with an air gun
16. Apply fixing material to button base
17. Spread the material evenly over the base of the button
18. Place the button on the tooth and press down for a firm fit to release of excess material
19. Remove excess material with a probe
20. Curing the material with a photopolymer lamp

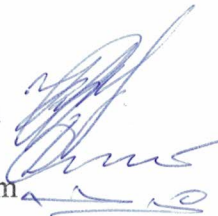
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**Algorithm of student actions on practical skill:**  
**"Bracket Fixation"**

1. Say hello to the patient
2. Explain the steps and purpose of the procedure (to fix the bracket, it is necessary to prepare the necessary tooth and fix the bracket)
3. Wear a mask
4. Sterilize your hands
5. Wear gloves
6. Take a sterile tray from Panmed and select the necessary instrument:
  - tray
  - reverse active tweezers
  - spatula
  - Bracket height gauge
  - probe
7. Choose from the set the appropriate bracket for the tooth
8. Take a tool for cleaning and polishing the tooth from the Petri dish
  - Low speed handpiece brush
9. Clean the surface of the tooth
10. Rinse the tooth with water from the water gun
11. Isolate the tooth from saliva with a cotton roll
12. Apply etching gel to the tooth
13. Rinse the tooth with water from the water gun
14. Dry the tooth
15. Apply the required amount of bond to the tooth using the applicator
16. Blow off excess bond with the air gun
17. Apply fixing material to the base of the bracket
18. Evenly distribute the material on the base of the bracket
19. Place the bracket on the tooth, checking the correct position
  - vertically with a bracket height gauge
  - by mesio-distal location: parallel to the line connecting the contact points
  - by angulation: along the axis of the tooth
20. Remove excess material around the bracket with a probe
21. Use a photopolymer lamp to cure the material from the mesial and distal sides.

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**Algorithm of actions of a student with a practical skill:**  
**"Fixation of an orthodontic space maintainers"**

1. Say hello to the patient
2. Explain the steps and purpose of the procedure (to fix an orthodontic space maintainers, it is necessary to prepare a tooth and fix the structure)
3. Wear a mask
4. Sterilize your hands
5. Wear gloves
6. Take a sterile tray from Panmed and select the necessary instrument:
  - tray
  - round tapered pliers
  - tweezers
  - spatula
  - mixing surface for glass ionomer cement
  - probe
7. Using tweezers and a cotton ball pre-moistened in ethyl alcohol, treat the orthodontic construction
8. Blow off the remaining ethyl alcohol with the air gun
9. Fit the space maintainers in the oral cavity (the crown should reach the gingival margin, but not enter the gingival sulcus)
10. Take a tool for cleaning and polishing the tooth from the Petri dish
  - Low speed handpiece brush
11. Clean the surface of the tooth
12. Isolate the tooth from saliva with a cotton roll
13. Using tweezers, take a cotton ball soaked in ethyl alcohol and treat the tooth surface and orthodontic structure
14. Blow off the remaining ethyl alcohol from the structure with the air gun .
15. Apply the required amount of fixing material to the mixing glass according to the instructions.
16. Mix the fixing material
17. Using a spatula, apply a layer of cement of sufficient thickness to the inner surface of the space maintainers
18. Fix the structure on the tooth
19. Using a probe, remove the remaining cement (begin to remove excess cement when the material becomes like rubber in its consistency)

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