

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

Approved
at the meeting of orthodontics department
«____»_____20____y.
protocol №____by _____
Head of department_____ L.V. Smaglyuk

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

Academic discipline	Orthodontics
Module № 1	Orthodontia. Diagnostic of dento-gnathic anomalies and deformations.
The theme of the lesson № 4	The notion about the norm in orthodontics. Orthognathic bite, his characteristics. The keys of occlusion by E. Engle and Andrews. Physiological and pathological types of occlusion
Course	III
Faculty	Preparation of foreign students

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1. The relevance of the topic. The development of orthodontic diagnosis, researchers tried to formulate the concept of normal and pathological development, structure and functioning of the dentition. Information about the patient obtained with the help of clinical and laboratory diagnostic techniques, objective source for obtaining and content but in form and subjective interpretation of a physician, establishing the diagnosis. Management of orthodontic treatment is only possible settlement for differential diagnosis, it is important that the subjectivity of thinking the doctor is not impacted negatively on the diagnosis.

2. Specific objectives:

To know the definition of "normal", "optimal individual norm" in orthodontics.
 To analyze the periods of child development and bite.
 To classify the types of physiological pathology that bites.
 To explain the outside and intraoral signs of physiological occlusion.
 To explain the keys of occlusion by Engle and E. Andrews.
 To be able to identify the keys to occlusion of the KDM.
 To be able to determine the dental evidence for KDM.
 To write a dental formula of the patient.

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

Name of previous disciplines	Skills
Histology	To know the periods of temporary and permanent teeth, the histological structure of the fabric of time and permanent teeth
Anatomy	To know the anatomical features of different groups of temporary and permanent teeth. To be able to identify the group of the temporary and permanent teeth. To know the features of the brain structure and facial skull.
Prevention of dental disease	To know the terms of the sequence and order of eruption of the temporary and permanent teeth.

4. Tasks for independent work during preparation to the lesson and on 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
"The optimal individual norm"	state guaranteed enough time morphological, functional and aesthetic balance in the dentition and facial skeleton as a whole, to strive for during orthodontic treatment
The E. Engle key	fissure-cusps contacts between the first permanent molars upper and lower jaw with the right inclination of longitudinal

	axes of these teeth to the occlusal plane
Abnormal bite	Occlusion, which indicated anomalous position of individual teeth, deformation of the dental arches and abnormal ratio (a shift in the sagittal, vertical or transversal direction), is an abnormal or pathological.

4.2. Theoretical questions to the lesson:

1. The definition of "norm" in orthodontics.
2. Keys of occlusion by Engle and Andrews.
3. Bite characteristics in third planes.
4. Physiological and pathological types of malocclusion, their characteristics.

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

1. To determine type of the bite.
2. To determine the key occlusion by Engle.
3. To determine key occlusion by Andrews.
4. Writing a dental formula by CDM.

The content of the topic:

There are some classifications of physiological kinds of an occlusion:
Grigoreva (1984)

1. Orthognatic bite.



2. Orthogenic bite

Kutcevlayk (1998)

1. Orthognatic bite.
2. Ortogenic bite.
3. Biprognatia.
4. Opistognatia.

Thus general for all classifications there are 2 physiological kinds of an occlusion. "The Optimum individual norm" in orthodontic is defined as a condition enough guaranteed during long time morphological, functional and aesthetic balance in teeth-jaw system and in a facial skeleton as a whole, which is necessary for reaching in process of orthodontic treatment (Maligin, 1979).

The neutroocclusion is characterized by facial attributes; an attribute inherent in a physiological condition of an occlusion and of temporal-mandibular joints, and also myodynamik balance of muscles of a jaw-facial system.

The description of features the face has the large meaning for definition of the aesthetic forecast of treatment. Therefore it is necessary to know the descriptive

characteristics of the face behind a neutroclusion. The face under the form part on wide, average and narrow. Besides they can be round, square, oval, triangular, with the form of the truncated cone or hexahedron. Studying a structure, distinguish the average, convex or concave faces.

Is conditional the faces part on three parts: upper, middle and lower, which are formed owing to realization of horizontal lines:

- upper – passes through the superciliary point;
- middle – passes through the undenasal point;
- lower – through the bottom part of a chin.

The upper part begins from border of a pilar part of forehead to middle of a line of superciliary arches; middle – from a median line of superciliary arches to undenasal point, lower – from undenasal points to the lower part of a chin. Only middle part has the rather stable vertical sizes.

Behind a neutroclusion an middle and lower part of the face almost level. Bridge of nose of the usual form, mobile wings of a nose. The upper labium prevails above lower, forming "step of lips". Lips connect without a strain, average depth of a labium-mental sulcus. Size of an angle of a mandible in borders 120° - 130° . The physiological asymmetry of the face (up to 2 mm) is defined.

The neutroclusion is characterized by morphological attributes, one of which concern all tooth arch, others - only parity frontal teeth, third - parity lateral teeth.

The attributes, which concern all tooth arch:

1. The upper tooth arch has ellipsoid form, lower - form of a parabola.
2. On the upper jaw a tooth arch large, than alveolar, alveolar large, than basal. On a mandible other parity: a tooth arch smaller, than alveolar, and last smaller than basal. Thus, upper tooth arch smaller than lower. It explains that fact, which for ortognatic bite the upper dentition is blocked lower, and at complete absence of teeth, even at an insignificant degree of athrophia of alveolar processes, the upper jaw smaller, than lower.
3. Each tooth, as a rule, connects with two antogonists, from which is called as one main, and second - collateral, except for top teeth of "wisdom" and lower central incisors. It is explained in greater width of the top central incisors in comparison with lower. For this reason the lower teeth is displaced mesially rather teeth of the upper jaw. The upper tooth of "wisdom" narrower, than lower, therefore mesial shortening of the bottom dentition become level in a site teeth of "wisdom" and their distal surface lay in one plane. Each upper tooth connects with same and behind of itself by posed lower teeth, and each lower tooth connects with same and posed ahead by top teeth.
4. The teeth of each dentition adjoins one up to one, concerning contact items (point, linear, flat), posed on a proximal surfaces at the expense of equators.
5. Height of crowns teeth gradually decreases, beginning from the central incisors and finishing molar tooth (except for a canine).
6. The upper teeth is posed with an inclination of crowns from the outside and roots deep into; and lower, on the contrary, inclined by crowns is oral, and roots from the outside.

The attributes, which concern to frontal teeth:

1. The average lines, which pass between central incisors upper and lower jaws, lay in one sagittal plane and is continuation one.
2. The upper incisors block lower on 1/3 heights of a crown.
3. The lower incisors by the cutting edges contact with tooth cusp on palatal surface of the upper incisors.

Attribute of closing chewing teeth in buccal-palatal direction:

1. Buccal cusp of upper premolars and molars are posed outside from same cusp lower, and buccal cusp lower - inside from same cusp upper, therefore upper palatal cusp get in axial fissure lower teeth, and lower buccal – in axial fissure of upper teeth.
2. Lingual cusp of lower teeth posed deep into from the same cusp upper teeth.
3. External (buccal) and internal t cusp of chewing teeth on both parties upper and lower of jaws posed on various levels. The cross section chewing teeth, with which goes on the right to left or in the opposite direction, makes by itself transversal curve, convex below and concave above.
4. The upper tooth arch wider from lower on size buccal cusp, due to what the scope of lateral movements of a mandible is enlarged and extends occlusal field.

Attribute of closing of chewing teeth in medial-distal direction:

1. Frontal buccal cusp of the first upper molar tooth is posed on the buccal party of the first lower molar tooth in transversal fissure between buccal cusps, and back buccal cusp – between distal-buccal cusp of the first lower molar tooth and medial-buccal cusp of the second molar tooth.
2. The chewing surfaces lower teeth, beginning from premolars and finishing last molar tooth, form concave sagittal curve surface. The chewing surfaces upper chewing teeth also form sagittal curve, but not concave, but convex, that repeats the form of the lower concave curve.

By the second variant of a neutroclusion is by a straight line or orthogenic. He differs from orthognatic by that the cutting edges of the upper incisors do not block lower, and are established in direct contact (contact by cutting surfaces). That is the difference is a parity frontal teeth in a vertical plane. In a site lateral teeth same interrelations, as well as for orhtognatic of an occlusion.

In clinic of an orthopedic odontology allocate other versions of a neutroclusion. It, in particular, physiological prognatia and physiological opistognatia, biprognatia.

These versions of an occlusion have such parities in lateral sites, as well as at a neutroclusion. And differ from last only of directions of alveolar crests and inclination frontal teeth. For opistognatic of an occlusion frontal teeth and alveolar processes with frontal teeth on both jaws directed back; for prognatic an alveolar process and frontal teeth directed forward; for biprognatia – frontal directed alveolar processes and frontal teeth both of jaws; for physiological progenia tracking a return parity frontal teeth – the lower incisors block upper. As

infringements of a parity in a site lateral teeth is not defined, such occlusions valuable and in the functional attitude, as the authors consider, which have offered these forms.

Filling a clinical case history (out-patient card of the patient), an occlusion describe in three planes: sagittal, transversal and vertical.

Medial-sagittal plane passes between central incisors through a seam of a palate, the middle of a nose and is parted by the face on two parts. In this plane characterize locating of a mandible concerning upper in medial-distal direction (neutral, distal, mesial).

Orienteers of the description of an occlusion serve:

- a) presence of dense contact of incisors on sagittal;
- b) correct sagittal contact of incisors, or return overlapping (blocking);
- c) presence of sagittal split (space between incisors both of jaws);
- d) canines relation;
- e) first permanent molars or second temporary molars relation.

At a neutroocclusion the incisors have dense contact on sagittal or sagittal space does not exceed 2 mm; cusp of the upper canine is projected between the lower canine and first premolar tooth (permanent occlusion) or between a canine and first temporary molar tooth (temporary and mixed occlusion); frontal-buccal cusp of the upper permanent molar tooth is posed in intercusp fissure between frontal and back cusps of the lower first constant molar tooth.

The vertical plane passes in parallel planes of forehead from above downwards and characterizes presence of incisor contact, depth of its overlapping (blocking) (normal, deep) or absence of incisor contact. Normal the overlapping(blocking) up to 1/2 heights of a crown of the lower incisor is considered.

Transversal plane (horizontal, lateral), perpendicular to sagittal plane, contact to chewing cusp first permanent molars and premolars (medial-buccal - in first constant molars and medial - in premolars). In this plane define lateral position of a mandible. Orienteers of the description of an occlusion there is a parity buccal cusp upper and lower chewing teeth. At a neutroocclusion the upper tooth arch large, than lower on size buccal tuberculum. Shift of a mandible judge for discrepancy of bases of bridles of lips. A degree of shift define on the attitude to a crown of the lower central incisor.

In 1972 L. Andrews has described 6 keys, which characterize optimum occlusion.

ANDREWS SIX KEYS TO NORMAL OCCLUSION

Lawrence F Andrews studied 120 casts of non orthodontic patients with normal occlusion for four years (1960-1964). He identified 6 key characteristics. He was of the opinion, that for normal occlusion to exist these six characteristics had to be present. According to Andrews, the 6 keys to normal occlusion contributed individually and collectively to the total scheme of occlusion and, were therefore essential for an orthodontic treatment to be considered successful. The six keys were:

KEY I Molar relationship. The molar relationship should be such that the distal surface of the distal marginal ridge of the upper first permanent molar contacts and occludes with the mesial surface of the mesial marginal ridge of the lower second molar. Secondly, the mesiobuccal cusp of the upper first permanent molar falls within the groove between the mesial and middle cusps of the lower first permanent molar. Also, the mesiolingual cusp of the upper first molar seats in the central fossa of the lower first molar.

KEY II. Crown angulation, the mesiodistal "tip". In normally occluded teeth, the gingival portion of the long axis (the line bisecting the clinical crown mesiodistally or the line passing through the most prominent part of the labial or buccal surface of a tooth) of each crown is distal to the occlusal portion of that axis. The degree of tip varies with each tooth type.

KEY III. Crown inclination, the labiolingual or buccolingual, "torque". Crown inclination is the angle between a line 90 degrees to the occlusal plane, and a line tangent to the middle of the labial or buccal surface of the clinical crown. The crowns of the maxillary incisors are so placed that the incisal portion of the labial surface is labial to the gingival portion of the clinical crown. In all other crowns, the occlusal portion of the labial or buccal surface is lingual to the gingival portion. In the maxillary molars the lingual crown inclination is slightly more pronounced as compared to the cuspids and bicuspid. In the mandibular posterior teeth the lingual inclination progressively increases.

KEY IV. Absence of Rotations. Teeth should be free of undesirable rotations. If rotated, a molar or bicuspid occupies more space than it would normally. A rotated incisor can occupy less space than normal.

KEY V. Tight contacts. In the absence of such abnormalities as genuine tooth-size discrepancies, contact points should be tight.

KEY VI. Flat curve of Spee. A flat occlusal plane is a must for stability of occlusion. It is measured from the most prominent cusp of the lower second molar to the lower central incisor, no curve deeper than 1.5 mm is acceptable from a stand point of stability. At physiological kinds of an occlusion of movement in temporal-mandibular joint are carried out in regular intervals, smoothly, without accompanying of sound effects (crunch, clicks etc.).

Summary

Occlusion has been rightly defined as "the medium that brings all branches of dentistry together" by Ramford and Ash. Ricketts Dorlands Medical Dictionary defined occlusion as, 'the act of closure or process of being closed.' In dentistry, occlusion, refers to the "relationship of the maxillary and mandibular teeth when they are in functional contact during activity of mandible." The study of occlusion involves the entire stomato-gnathic system, the understanding of the interrelationship between the teeth, periodontal tissues, bones, joints, muscles and nervous system during the full range of mandibular movements as well as the normal functional movements. The study of occlusion is essential for the proper understanding, and for achieving the objectives of orthodontic treatment. The purpose of this chapter is to present orthodontically oriented concepts of occlusion

that require certain acceptable static cusp-fossa relationships to be present for an occlusion to be considered normal, as well as help in achieving a functional occlusion. The establishment of a functional occlusion is one of the primary goals of the orthodontics.

UNDERSTANDING FREQUENTLY USED TERMS GNATHOLOGY

It is the science of mandibular movement and resultant occlusal contacts.

- Relating centric relation to centric occlusion
- Importance of centric relation in orthodontics
- Compensatory curvatures
- Andrews six keys to normal occlusion

DENTAL OCCLUSION Shaw defined dental occlusion, "as the static, closed contacting position of the upper teeth to lower teeth".

DISOCCLUSION OF TEETH Harvey Stallard defined disocclusion, "as a separation of the teeth from occlusion; the opposite of occlusion".

STAMP CUSPS The cusps that stamp into a fossa of an opposing tooth are known as stamp cusps. The lingual cusps of the upper teeth and the buccal cusps of the lower teeth are the posterior stamp cusps.

SHEARING CUSPS The upper buccal cusps and the lower lingual cusps are used to shear or cut food and are called shearing cusps.

NORMAL OCCLUSION What is referred to as normal occlusion orthodontically, is an Angle's Class I occlusion. The key teeth for this classification are the permanent first molars. The mesiobuccal cusp of the maxillary first molar should occlude in mesiobuccal groove of the mandibular first permanent molar (Fig.6.1). However, even with this relationship, when the teeth are in full closure there may be a significant discrepancy between the relationships of mandibular or temporomandibular joints (TMJ) and the maxilla.

Normal occlusion usually involves occlusal contact, alignment of teeth, overjet, overbite, arrangement and relationship of teeth between the arches and relationship of teeth to osseous structures. "Normal" simply implies a situation commonly found in the absence of disease. It should include not only a range of anatomically acceptable values but also physiological adaptability.

IDEAL OCCLUSION This concept refers both to an aesthetic and a physiologic ideal. In recent times, emphasis has moved from aesthetic and anatomic standards to the current concern with function, health and comfort. This has primarily occurred due to our increased knowledge of the underlying physiology of jaw movements and the TMJ.

Ideal occlusion, aesthetic, and satisfying the idealized structural and functional characteristics Hence now the important aspect of ideal occlusion includes functional harmony and stability of masticatory system and the neuromuscular harmony in the masticatory system.

BALANCED OCCLUSION Balanced occlusion is said to exist when there exist a simultaneous contact of maxillary and mandibular teeth, on the right and left, in the anterior and posterior occlusal areas when the jaws are either in centric or eccentric occlusion.

PHYSIOLOGIC OCCLUSION The occlusion that exists in an individual, who has no signs of occlusion related pathosis, is a physiologic occlusion. Physiologic occlusion may not be an ideal occlusion but it is devoid of any pathological manifestation in the surrounding tissue due to these deviations from the ideal. Here there is a controlled adaptive response characterized by minimal muscle hyperactivity, and limited stress to the system.

TRAUMATIC OCCLUSION This an occlusion which is judged to be a causative factor in the formation of traumatic lesions or

Example so traumatic occlusion disturbances in the supporting structures of the teeth, muscles and TMJ. Almost every dentition has supra contacts that have traumatic potential to alter the status of muscle tones and induce stress. However, the criterion which determines if an occlusion is traumatic or not is not how teeth occlude but whether it produces any injury.

THERAPEUTIC OCCLUSION

This a treated occlusion employed to counteract structural interrelationship related to traumatic occlusion.

CONCEPTS OF OCCLUSION

Numerous concepts of occlusion have been suggested. Some of the important ones are listed below.

Occlusion in Orthodontics

1. Angle 1887
2. Hellman 1921
3. Lucia 1962
4. Stallard and Stuart 1963
5. Ramford and Ash 1983

These concepts stress to a varying degree, state and/ or functional characteristic of occlusion. None are completely applicable to natural dentition. Since a few concepts provide specific occlusal relations to joint positions, some provide ways in which muscles and the neuro-musculature functions.

CLASSIFICATIONS OF OCCLUSION Many different classifications have been suggested, but the important ones are: 1. Based on mandibular position 2. Based on relationship of 1st permanent molar 3. Based on organization of occlusion 4. Based on pattern of occlusion.

BASED ON MANDIBULAR POSITION **Centric Occlusion** It is the occlusion of the teeth when the mandible is in centric relation. Centric relation has been defined as the maxilla-mandibular relationship in which condyles articulate with the thinnest avascular position of their respective discs with the complex in the antero-superior position against the shape of the articular eminence. This position is independent of tooth contact and is clinically discernible when the mandible is directed anteriorly and superiorly. It is restricted to a purely rotary movement about the transverse horizontal axis.

Eccentric Occlusion It is defined as the occlusion, other than centric occlusion. It includes: 1. Lateral occlusion It can be right or left lateral occlusion. It is defined as the contact between opposing teeth when the mandible is moved

either right or left of the mid-sagittal plane. 2. Protruded occlusion Defined as the occlusion of the teeth when the mandible is protruded, i.e. the position of mandible is anterior to centric relation. 3. Retrusive occlusion of the teeth when the mandible is retruded, i.e. position of mandible is posterior to centric relation.

RELATING CENTRIC RELATION TO CENTRIC OCCLUSION Centric is an adjective and must be used along with either relation or occlusion to be specific and meaningful. Centric relation is a bone-to-bone relationship of the upper and lower teeth to each other with the mandibular condyle in the glenoid fossa. Once centric relation is established, centric occlusion can be built to coincide with it. Confusion also results from the fact that in many people the centric occlusion of natural teeth does not coincide with centric relation of the jaws. This can be considered a minor malocclusion that may or may not contribute to damage of periodontal structures. However, as age advances and loss of recuperative powers by the body tissues, the chances for damage increase. Centric relation must be accurately recorded so that centric occlusion can be made to coincide with it. Natural tooth interferences in centric relation initiate impulses and responses that direct the mandible away from deflective occlusal contacts into centric occlusion impulses created by closures of the teeth into centric occlusion establish memory patterns that permit the mandible to return to the position, usually without tooth interferences. Thus when the natural teeth are removed or lost the receptors that initiate impulses resulting in positioning of the mandible are lost or destroyed. Therefore, the edentulous patient cannot control mandibular movements or avoid defective occlusal contact in centric relation, in the same manner as dentulous patients.

IMPORTANCE OF CENTRIC RELATION IN ORTHODONTICS Diagnosis and treatment planning should be performed by an evaluation of the occlusion with mandible in centric relation, that is, the natural musculoskeletal position of the condyles in the fossa, in order to obtain the true maxillary-mandibular skeletal and dental relationship in the three plane of space. If this is overlooked, an incorrect diagnosis and treatment plan of the actual malocclusion, along with its unfavorable consequences may result. Example: A case of false Class III, may incorrectly be considered a true Class III, with a consequently poorer prognosis, or the cusp cross bite, in centric relation. Therefore, bilateral manipulation of the mandible into centric relation is imperative at the first visit. Usually, the models are trimmed and the lateral cephalograms are obtained in centric occlusion because of the difficulties in taking them in centric relation. Hence, during treatment planning we have to consider any discrepancy presented. Moreover, during every appointment the patient has to be monitored in centric relation so that the mechanotherapy is guided to accomplish the final ideal state of functional occlusion. If monitoring is not done in this manner, the treatment may finish with the mandible in centric occlusion, with several prematurities. This may later cause trauma from occlusion and TMJ disorder.

COMPENSATORY CURVATURES

The occlusal surfaces of dental arches do not generally conform to a flat plane. a. According to Wilson the mandibular arch appears concave and that of maxillary arch convex. b. According to Bonwill, the maxillary and mandibular arches adapt themselves in part to an equilateral triangle of similar sides. c. According to Von Spee, cusps and the incisal ridges of the teeth display a curved alignment when the arches are observed from a point opposite the 1st molar. The curve of Spee, as it is frequently called, is seen from the sagittal plane. d. Monson connected the curvature in the sagittal plane with compensatory curvatures in the vertical plane and suggested that the mandibular arch adapts itself to the curved segment of a sphere of similar radius. Here, the maxillary canine guides the mandible, so that the posterior teeth come into occlusion with a minimum of horizontal forces.

CURVE OF SPEE It refers to the anteroposterior curvature of the occlusal surfaces, beginning at the tip of the lower cuspid and following cusp tip of the bicuspid and molars continuing as an arc through to the condyle. If the curve were extended, it would form a circle of about 4 inches diameter.

The curve of Spee: A line from the tip of the canine touching the tips of the buccal cusps of the posterior teeth (drawn on jaws of a skull)

CURVE OF WILSON It is a curve that contacts the buccal and lingual cusp tips of the mandibular posterior teeth. The curve of Wilson is mediolateral on each side of arch. It results from the inward inclination of the lower posterior teeth. The curve helps in two ways 1. Teeth aligned parallel to the direction of medial pterygoid for optimum resistance to masticatory forces. 2. The elevated buccal cusps prevent food from going 'past the occlusal table.

CURVE OF MONSON It is obtained by extension of the curve of Spee and curve of Wilson to all cusps and incisal edges.

Materials for self-control:

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

1. Write down the periods of permanent occlusion.
2. To draw in albums the scheme of teeth bite discription.
3. To draw in albums the keys by Endrews.

B. Tasks for self-control:

1 .Which from the following muscles does not relate to the mimic?

- m. pterigoioleus lateraris
- m. platysma
- m. risorius
- m. orbicularis oris
- m. mentalis

2.Which from the following muscles does not relate to the mimic?

- m. pterigoideus medialis

m. levator labii superior
m. zygomaticus major
m. incisionis labii inferioris
m. risorius

3. Which of the following muscles belong to masseter?

m. pterygoideus medialis
m. buccinator
m. zygomaticus
m. orbicularis oris
m. risorius

4. Which from the following muscles relate to the mimic?

m. risorius
m. temporalis
m. masseter
m. pterygoideus medialis
m. lateralis pterygoideus

5. The rule of "Golden section" is associated with the name:

Leonardo da Vinci
Sandro Botticelli
Giorgione
Caravaggio
Titian

6. The relation between the size of the larger segment to the same lower size by the rule of "Golden section" is:

1,67
1,57
1,37
1,47
1,27

7. Which from the following features does not characterize the correct first permanent molars relation?

small key of occlusion
big key of occlusion
correct relation
neutral relation
mesio-distal relation

8. Give the definition of "occlusion":

occlusal contact

occlusion when the mandible displacement to the right
dentitions closing in the anterior location of the mandible
occlusal contact in posterior location of the mandible
closing the teeth when the mandible displacement to the left

9. Give the definition of "bite":

occlusal contact in central occlusion
occlusion when the mandible displacement to the right
dentitions closing in the anterior location of the mandible
occlusal contact in posterior location of the mandible
closing the teeth when the mandible displacement to the left

10. Give the definition of "central occlusion"

dentitions closing in the maximum number of teeth-antagonists contact
occlusion when the mandibular displacement to the right
dentitions closing in the anterior location of the mandible
occlusal contact in posterior location of the mandible
dentitions closing when the mandibular displacement to the left

11. Physiological occlusion is:

the character of dental arches closing, which provides morphological, functional and aesthetic balance in the dentition
the character of dental arches closing, which ensures the optimal functioning of the dentition
the form of dental arches closing, in which the canines and the molars are in a neutral relation
the form of dental arches closing, in which the canines and the molars are in the same relation
the character of dental arches closing, in order to ensure that the individual functioning of the dental system

12. "Small key" of occlusion is:

canines relation
incisors relation the Ratio of the incisors
the Ratio of the first pre molars
the Ratio of the second premolars
the Ratio of the first molars

13. Orthognatic bite differs from orthogenic in such plane relation:

vertical
sagittal
transverzal
horizontal
nasal

14. The incisors covering at orthognatic permanent occlusion is:
from 1/3 to 1/2 crown height
from 1/2 to 2/3 crown height
all crown height
more than all crown height
edge to edge contact

15. The anterior buccal cusp the upper first permanent molar at a physiological permanent occlusion is located as follows:
between mesial and distal buccal cusp of the same lower
above the buccal cusp of the same lower
between the cusp of lower first molar and second premolar
between the first and second lower molars
above the buccal cusp of second lower molar

16. The maxilla has the biggest size of:
dental arc
intermolar arc
alveolar arc
apikal arc
intercanine arc

17. The maxilla has the smallest size of:
apikal arc
dental arc
inter molar arc
alveolar arc
inter canine arc

18. The mandible has the biggest size of:
apikal arc
dental arc
intermolar arc
alveolar arc
intercanine arc

19. The mandible has the most smal size of:
dental arc
apikal arc
intermolar arc
alveolar arc
intercanine arc

20. Upper dental arc more than lower in transversal plane in following size:
size of buccal cusp
1 mm
size of buccal cusp and palatal cusp
2 mm
half of premolar crown

21. The I key by L. Andrews is:
correct cusp-fissure contact between the 6|6 teeth
correct angulation
correct torque
presence of dense contacts between teeth
concavity of Spee curve

22. The II key by L. Andrews is:
correct angulation
correct cusp-fissure contact between the 6|6 teeth
correct torque
presence of dense contacts between teeth
concavity of Spee curve

23. The III key by L. Andrews is:
correct torque
correct angulation
correct cusp-fissure contact between the 6|6 teeth
presence of dense contacts between teeth
concavity of Spee curve

24. The IV key by L. Andrews is:
absence of rotations
correct cusp-fissure contact between the 6|6 teeth
correct torque
presence of dense contacts between teeth
concavity of Shpee curve

25. The V key by L. Andrews is:
presence of dense contacts between teeth
absence of rotations
correct cusp-fissure contact between the 6|6 teeth
correct torque
concavity of Shpee curve

26. The VI key by L. Andrews is:
concavity of Spee curve

absence of rotations
correct cusp-fissure contact between the 6|6 teeth
correct torque
presence of dense contacts between teeth

27. The angulation (mesio-distal inclination) of teeth characterizes:
size of corner which appears at crossing of clinical crown axis of every tooth and perpendicular to the occlusal plane
size of corner which appears at crossing of tangent to the surface of clinical crown vestibular surfaces and perpendicular to the occlusal plane
size of corner which appears at crossing of axes of upper teeth and spinal plane
size of corner which appears at crossing of axes lower teeth and mandibular plane
size of corner which appears at crossing of upper and lower teeth axes

28. Correct torque (labio-oral inclination) teeth characterizes:
size of corner which appears at crossing of tangent to the surface of clinical crown vestibular surfaces and perpendicular to the occlusal plane
size of corner which appears at crossing of clinical crown axis of every tooth and perpendicular to the occlusal plane
size of corner which appears at crossing of axes of upper teeth and spinal plane
size of corner which appears at crossing of axes lower teeth and mandibular plane
size of corner which appears at crossing of upper and lower teeth axes

29. The pathological types of occlusion include:
distal
orthognathic
orthogenic
permanent
mixed

30. The pathological types of occlusion include:
mesial
orthognathic
orthogenic
permanent
mixed

31. The pathological types of occlusion include:
open
orthognathic
orthogenic
permanent
mixed

32.The pathological types of occlusion include:

deep
orthognatic
orthogenic
permanent
mixed

33.The pathological types of occlusion include:

cross
orthognatic
orthogenic
permanent
mixed

34.The pathological types of occlusion include:

prognathic
orthognatic
orthogenic
permanent
mixed

35.The pathological types of occlusion include:

progenic
orthognatic
orthogenic
permanent
mixed

Literature

Main:

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Additional:

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2. Google Scholar – Режим доступу: <https://scholar.google.com.ua/>
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5. Angle Orthodontist. – Mode of access: <http://www.angle.org/?code=angf-site>