



**THE MINISTRY OF HEALTH OF UKRAINE
ZAPORIZHZHIA STATE MEDICAL AND PHARMACUETICAL
UNIVERSITY**

**DEPARTMENT OF HUMAN ANATOMY, OPERATIVE SURGERY AND
TOPOGRAPHIC ANATOMY**



M. S. Shcherbakov, A. O. Svetlitsky, A. V. Chernavsky, T. M. Matvieishyna

**HUMAN ANATOMY
CENTRAL AND PERIPHERAL PART OF NERVOUS SYSTEM.
SENSE ORGANS**

TESTS

*for the 1st year students
Specialty 222 "Medicine"*

Zaporizhzhia
2024

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UDC 611(075.8)

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INTRODUCTION

Multiple Choice questions of CNS, CN and sense organs is compiled for the 1st year students of medical universities of the 4th accreditation level, Educational program 22 “Health care” Specialty 222 “Medicine” with English as a medium of instruction.

As the tests are designed for students who are beginning to master Human anatomy as a basic discipline, the tasks are not clinically oriented and are formulated in a concise way concerning the current International Anatomical Nomenclature.

The collection of test tasks on Human anatomy comprises tests on all topics of the 2nd semester, according to the work program in the sections “Central nervous system. Anatomy”, “Cranial nerves. Anatomy”, “Sensory organs. Anatomy”. The tasks are organized sequentially in congruence with the thematic plan of practical classes for the 1st year students of medical faculties at the Department of Human Anatomy, Operative Surgery and Topographic Anatomy of ZSMPhU. Thus, the collection fully covers all themes studied during the 2nd semester and contains 10-25 tests on each topic.

The presented tests are multiple choice tasks. There is one correct option and four distractors for each question.

The assignments are aimed to determine the initial level of students' knowledge and should be included in the integrated rating assessment.

The present paper is non-commercial and is developed for educational purposes only.

Shortening key:

a. – aa. (arteria – arteriae) – artery

v. – vv. (vena – venae) – vein

n. – nn. (nervus – nervi) – nerve

lig. – ligg. (ligamentum – ligamenta) – ligament

m. – mm. (musculus – musculi) – muscles

proc. – procc. (processus – processus) – process

r. – rr. (ramus – rami) – ramus

n. l. – nn. l. (nodus lymphoideus – nodi lymphoidei) – lymph node

art. – artt. (articulatio) – joint

ncl. – ncll. (nucleus – nuclei) – nucleus

gl. (glandula) – gland

ggl. (ganglion) – node

pl. (plexus) – plexus

ant. (anterior) – anterior

post. (posterior) – posterior

int. (internus) – internal

ext. (externus) – external

med. (medialis) – medial

lat. (lateralis) – lateral

sup. (superior) – superior

inf. (inferior) – inferior

prof. (profundus) – deep

supf. (superficialis) – superficial

dx. (dexter) – right

sin. (sinister) – left

ANS – Autonomic nervous system

CNS – Central nervous system

PNS – Peripheral nervous system

CHAPTER 1. CENTRAL NERVOUS SYSTEM

Spinal cord

1. Where does the spinal cord start and finish?

- A. It extends from the foramen magnum to L1–L2. +
- B. It extends from the foramen magnum to the sacrum.
- C. It starts at the superior part of the medulla oblongata and extends to the inferior part of the cauda equina.
- D. It extends from C7 to L5
- E. -

2. What do the descending tracts of the spinal cord contain?

- A. White matter and transmit sensory information
- B. White matter and transmit motor commands
- C. Grey matter and transmit sensory information
- D. Grey matter and transmit motor commands
- E. -

3. What differences of “grey matter” and “white matter”?

- A. Grey matter refers to the CNS, while white matter refers to the PNS.
- B. White matter makes up the autonomic nervous system; grey matter does not.
- C. Grey matter is found in the cerebrum, while white matter occurs in the cerebellum and the diencephalon.
- D. Grey matter contains the cell bodies of nerve cells; white matter contains axons.
- E. -

4. An image of the cross-section of a spinal cord would show “anterior (or ventral) horns”. What is in that region?

- A. Spinal nerves
- B. Ascending tracts
- C. Cell bodies of motor neurons
- D. White matter
- E. -

5. The ascending tracts of spinal cord, contain:

- A. White matter and transmit sensory information
- B. White matter and transmit motor commands
- C. Grey matter and transmit sensory information
- D. Grey matter and transmit motor commands
- E. -

6. In a cross-sectional view of the spinal cord, there is a butterfly-shaped structure. What would the posterior grey horn of this structure primarily consist of?

- A. The axons of motor neurons
- B. The cell bodies of interneurons
- C. The cell bodies of motor neurons
- D. The cell bodies of sensory neurons
- E. -

7. What statement about spinal reflexes is true?

- A. They cannot be inhibited or reinforced by the brain.
- B. They do not involve processing by the brain.

12. Which structure is indicated by number 1b (diagram №1)?

- A. Corticospinal anterior pathway
- B. Corticospinal lateral pathway
- C. Rubrospinal
- D. Reticulospinal
- E. Olivospinal

13. Which structure is indicated by number 2a (diagram №1)?

- A. Rubrospinal
- B. Corticospinal lateral pathway
- C. Corticospinal anterior pathway
- D. Reticulospinal
- E. Olivospinal

14. Which structure is indicated by number 2b (diagram №1)?

- A. Reticulospinal
- B. Rubrospinal
- C. Corticospinal lateral pathway
- D. Corticospinal anterior pathway
- E. Olivospinal

15. Which structure is indicated by number 2d (diagram №1)?

- A. Olivospinal
- B. Rubrospinal
- C. Corticospinal lateral pathway
- D. Corticospinal anterior pathway
- E. Reticulospinal

Spinal cord

Key to the test with explanation*

1	A	Spinal cord extends from the foramen magnum to L1–L2.
2	B	Descending tracts of the spinal cord contains white matter that transmits motor commands.
3	D	Grey matter consists of the bodies of neurons and white matter contains their branches.
4	C	Cell bodies of motor neurons are located in anterior horns of spinal cord.
5	A	Ascending tracts of spinal cord contains white matter and transmit sensory information.
6	B	Bodies of interneurons are located in the posterior horn of spinal cord.
7	B	Spinal reflexes are not processed by the brain.
8	A	Space between L3 and L4 can be used for safe lumbar puncture.
9	D	Left half of spinal cord responsible for deep sensitivity and movements of the right half of trunk because of decussations of pathways.
10	A	Motor nuclei are located in ventral horns of spinal cord.
11	A	That is lateral corticospinal pathway.
12	A	That is anterior corticospinal pathway.
13	A	That is rubrospinal pathway.
14	E	That is olivospinal pathway.
15	E	That is reticulospinal pathway.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 5-29.**

Brain. Rhombencephalon. External features of the medulla oblongata and pons. Cerebellum

1. Which of the following structures together make up the brainstem?

- A. Medulla oblongata, pons, midbrain, cerebellum
- B. Medulla oblongata, pons, midbrain
- C. Medulla oblongata, pons, midbrain, thalamus
- D. Medulla oblongata, pons, midbrain, pineal gland
- E. -

2. What part of the brain subconsciously provides precise timing for the movements of learned skeletal muscle contraction?

- A. Cerebrum
- B. Diencephalon
- C. Brainstem
- D. Cerebellum
- E. -

3. What part of the brain contains the midbrain, the pons and the medulla oblongata?

- A. The diencephalon
- B. The cerebrum
- C. The cerebellum
- D. The brainstem
- E. -

4. What is linked to the posterior grey horn of the spinal cord?

- A. The dorsal root of the spinal nerve that carries motor fibres
- B. The dorsal root of the spinal nerve that carries sensory fibres
- C. The ventral root of the spinal nerve that carries sensory fibres
- D. The ventral root of the spinal nerve that carries motor fibres
- E. -

5. In what part of the brain is the “decussation of the pyramids” found?

- A. Pons
- B. Medulla oblongata
- C. Midbrain
- D. Hypothalamus
- E. -

6. What is the primary function of the cerebellum?

- A. It regulates such things as body temperature, water balance and emotional responses.
- B. It refines/adjusts learned motor movements so that they are performed smoothly.
- C. It controls our automatic functions such as breathing, digestion and cardiovascular functions.
- D. It is the origin of our conscious thoughts and intellectual functions.
- E. -

7. What part of the brain subconsciously provides the appropriate pattern of smooth coordinated skeletal muscle contraction for movements that we have learned?

- A. The cerebellum
- B. The brainstem
- C. The cerebrum
- D. The diencephalon
- E. -

8. In what respect does “grey matter” differ from “white matter”?

- A. Grey matter refers to the CNS, while white matter refers to the PNS.
- B. White matter makes up the autonomic nervous system; grey matter does not.
- C. Grey matter is found in the cerebrum, while white matter occurs in the cerebellum and the diencephalon.
- D. Grey matter contains the cell bodies of nerve cells; white matter contains axons.
- E. -

9. Which part of the brain controls breathing, heart function, vasoconstriction and swallowing?

- A. Mesencephalon
- B. Cerebellum
- C. Diencephalon
- D. Brainstem
- E. -

10. Which parts of the brain are contained in the brainstem?

- A. Pons, midbrain, medulla oblongata
- B. Thalamus, hypothalamus, pituitary gland
- C. Cerebellum, cerebrum, limbic system
- D. Basal nuclei, caudate nuclei, metencephalon
- E. -

11. What is the function of the reticular formation (or reticular activating system) of the brain?

- A. It is the emotional or affective part of the brain.
- B. It allows emotion to override logic and vice versa.
- C. It controls our circadian rhythm.
- D. It receives and integrates all incoming sensory input.
- E. -

12. What is the function of the “corpora quadrigemina”?

- A. To relay sensory information to the basal nuclei of the cerebrum
- B. To be sensitive to chemical changes in the blood
- C. To process visual and auditory sensations
- D. To control reflex movements associated with eating
- E. -

Brain. Rhombencephalon. External features of the medulla oblongata and pons. Cerebellum

Key to the test with explanation*

1	A	Brainstem consists of medulla oblongata, pons and midbrain.
2	D	Cerebellum provides precise timing for the movements of learned skeletal muscle contraction.
3	D	Brainstem consists of medulla oblongata, pons and midbrain.
4	B	The dorsal root of the spinal nerve that carries sensory fibres are linked to the posterior grey horn of the spinal cord.
5	B	Decussation of the pyramids is located in myelencephalon.
6	B	Cerebellum adjusts learned motor movements.
7	A	Cerebellum adjusts learned motor movements.
8	D	Grey matter consists of the bodies of neurons and white matter contains their branches.
9	D	Reticular formation of the brainstem controls breathing, heart function, vasoconstriction and swallowing.
10	A	Brainstem consists of medulla oblongata, pons and midbrain.
11	C	Reticular formation controls our circadian rhythm.
12	C	Tectal lamina of midbrain process visual and auditory sensations.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 35-54.**

Internal features of the medulla oblongata and pons. IV ventricle. Rhomboid fossa. Topography of cranial nerves nuclei

1. Which of the following cranial nerves does NOT originate from the pons?

- A. CN IV – Trochlear
- B. CN V – Trigeminal
- C. CN VI – Abducens
- D. CN VII – Facial
- E. -

2. The pons develops from which part of the primitive brain?

- A. Telencephalon
- B. Diencephalon
- C. Mesencephalon
- D. Metencephalon
- E. -

3. Which of the following structures lies posteriorly to the pons?

- A. Cerebrum
- B. Midbrain
- C. Cerebellum
- D. Medulla
- E. -

4. The Pontine Nucleus can be identified on which brainstem cross-section?

- A. Superior (Rostral) Midbrain
- B. Inferior (Caudal) Midbrain
- C. Pons
- D. Superior (Rostral) Medulla
- E. Inferior (Caudal) Medulla

5. The Inferior Olivary Nucleus can be identified on which brainstem cross-section?

- A. Superior (Rostral) Midbrain
- B. Inferior (Caudal) Midbrain
- C. Pons
- D. Superior (Rostral) Medulla
- E. Inferior (Caudal) Medulla

6. The Middle Cerebellar Peduncle can be identified on which brainstem cross-section?

- A. Superior (Rostral) Midbrain
- B. Inferior (Caudal) Midbrain
- C. Pons
- D. Superior (Rostral) Medulla
- E. Inferior (Caudal) Medulla

7. The Pyramids can be identified on which brainstem cross-sections?

- A. Superior (Rostral) Midbrain
- B. Inferior (Caudal) Midbrain
- C. Pons
- D. Medulla oblongata
- E. Cerebellum

8. The Inferior Cerebellar Peduncle can be identified on which brainstem cross-section?

- A. Superior (Rostral) Midbrain
- B. Inferior (Caudal) Midbrain
- C. Pons
- D. Medulla oblongata
- E. Cerebellum

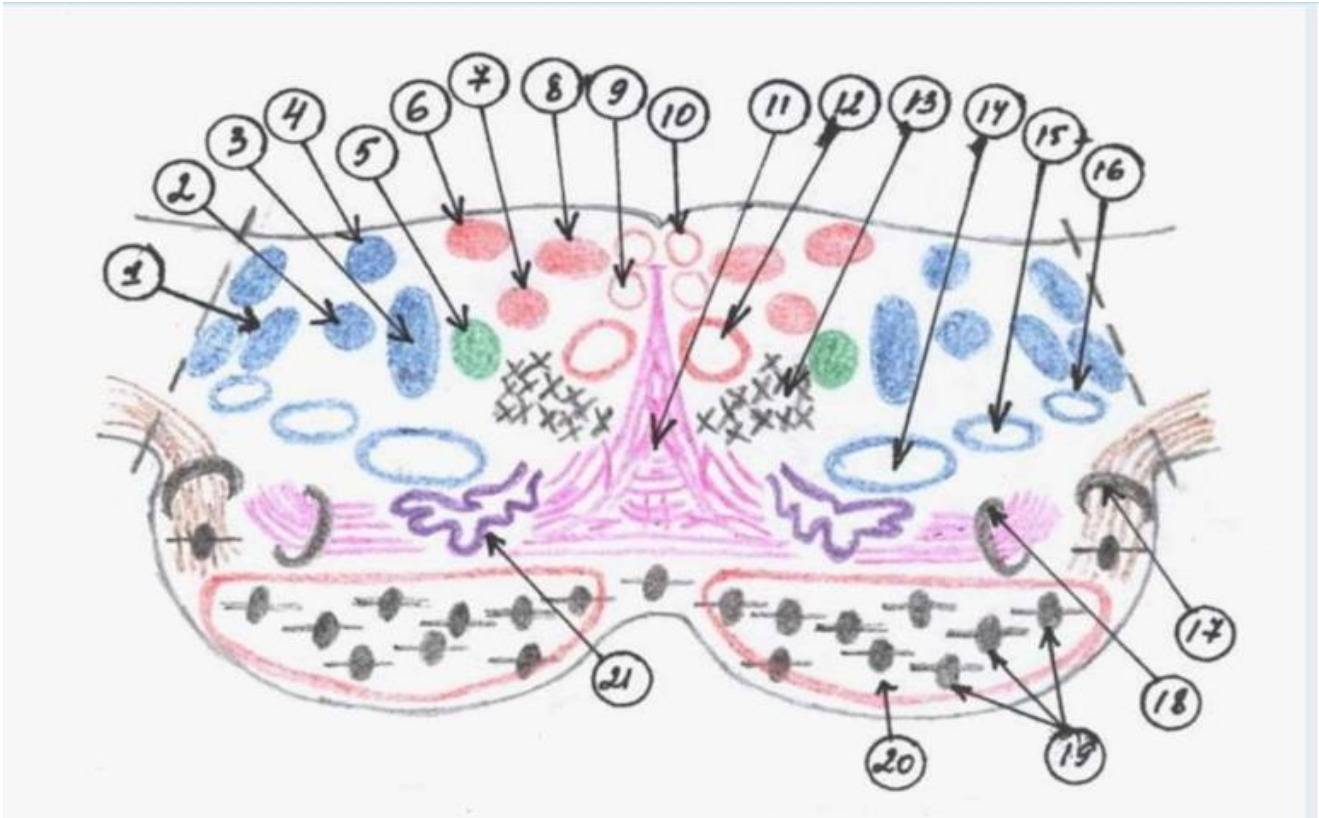


Diagram 2. The Pons cross-section is given (source - <https://studfile.net>).

9. Which structure is indicated by number 5 (diagram №2)?

- A. Nucleus salivatorius superior et nucleus lacrimalis
- B. Nucleus motorius nervi trigemini
- C. Corpus trapezoideum
- D. Tractus pyramidalis (fibrae corticospinales, corticonucleares et corticopontinae)
- E. Lemniscus trigeminalis

10. Which structure is indicated by number 6 (diagram №2)?

- A. Nucleus salivatorius superior et nucleus lacrimalis
- B. Nucleus motorius nervi trigemini

- C. Corpus trapezoideum
- D. Tractus pyramidalis (fibrae corticospinales, corticonucleares et corticopontinae)
- E. Lemniscus trigeminalis

11. Which structure is indicated by number 8 (diagram №2)?

- A. Nucleus salivatorius superior et nucleus lacrimalis
- B. Nucleus motorius nervi trigemini
- C. Corpus trapezoideum
- D. Nucleus nervi abducentis
- E. Lemniscus trigeminalis

12. Which structure is indicated by number 11(diagram №2)?

- A. Nucleus salivatorius superior et nucleus lacrimalis
- B. Nucleus motorius nervi trigemini
- C. Corpus trapezoideum
- D. Nucleus nervi abducentis
- E. Lemniscus trigeminalis

13. Which structure is indicated by number 13 (diagram №2)?

- A. Formatio reticularis
- B. Nucleus motorius nervi trigemini
- C. Tractus pyramidalis (fibrae corticospinales, corticonucleares et corticopontinae)
- D. nucleus nervi abducentis
- E. Lemniscus trigeminalis

14. Which structure is indicated by number 20 (diagram №2)?

- A. Nucleus salivatorius superior et nucleus lacrimalis
- B. Nucleus motorius nervi trigemini
- C. Tractus pyramidalis (fibrae corticospinales, corticonucleares et corticopontinae)
- D. Nucleus nervi abducentis
- E. Lemniscus trigeminalis

15. Which structure is indicated by number 4 (diagram №3)?

- A. Formatio reticularis
- B. Nucleus cuneatus
- C. Nucleus gracilis
- D. nucleus dorsalis nervi vagi
- E. nucleus olivaris inferior

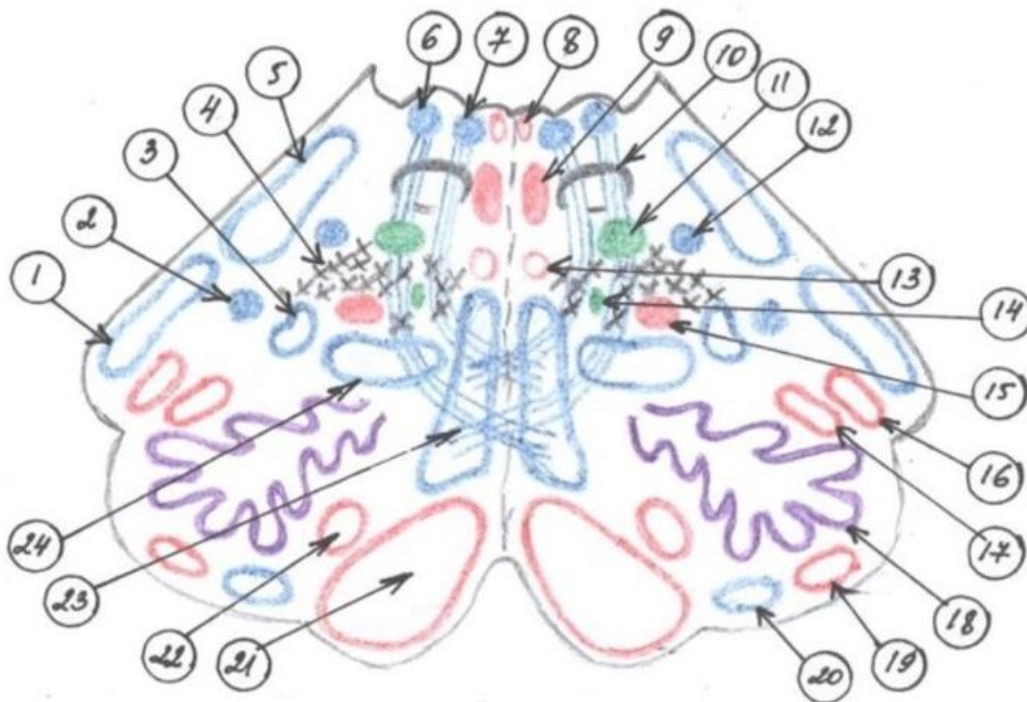


Diagram 3. The Medulla oblongata cross-section (source - <https://studfile.net>)

16. Which structure is indicated by number 6 (diagram №3)?

- A. Formatio reticularis
- B. Nucleus cuneatus
- C. Nucleus gracilis
- D. Nucleus dorsalis nervi vagi
- E. Nucleus olivaris inferior

17. Which structure is indicated by number 7 (diagram №3)?

- A. Formatio reticularis
- B. Nucleus cuneatus
- C. Nucleus gracilis
- D. Nucleus dorsalis nervi vagi
- E. Nucleus olivaris inferior

18. Which structure is indicated by number 11 (diagram №3)?

- A. Formatio reticularis
- B. Nucleus cuneatus
- C. Nucleus gracilis
- D. Nucleus dorsalis nervi vagi
- E. Nucleus olivaris inferior

19. Which structure is indicated by number 9 (diagram №3)?

- A. Formatio reticularis
- B. Nucleus cuneatus
- C. Nucleus gracilis

- D. Nucleus dorsalis nervi vagi
- E. Nucleus nervi hypoglossi

20. The patient has the dysfunction of brain cortex. It is caused by defeat of a neurones' network in a brain stem supporting cortex activity. What is the structure of brain struck?

- A. Reticular formation.
- B. Basal ganglia.
- C. Nuclei of cerebellum.
- D. Caudate nucleus.
- E. Nuclei of hypothalamus.

21. 60 years old patient has a prolonged sleep after a hemorrhage in a brain. What formation damage has resulted in this condition most probably?

- A. Reticular formation.
- B. Hippocampus.
- C. Cranial nerves' nuclei.
- D. Substantia nigra.
- E. Cortex of brain hemispheres

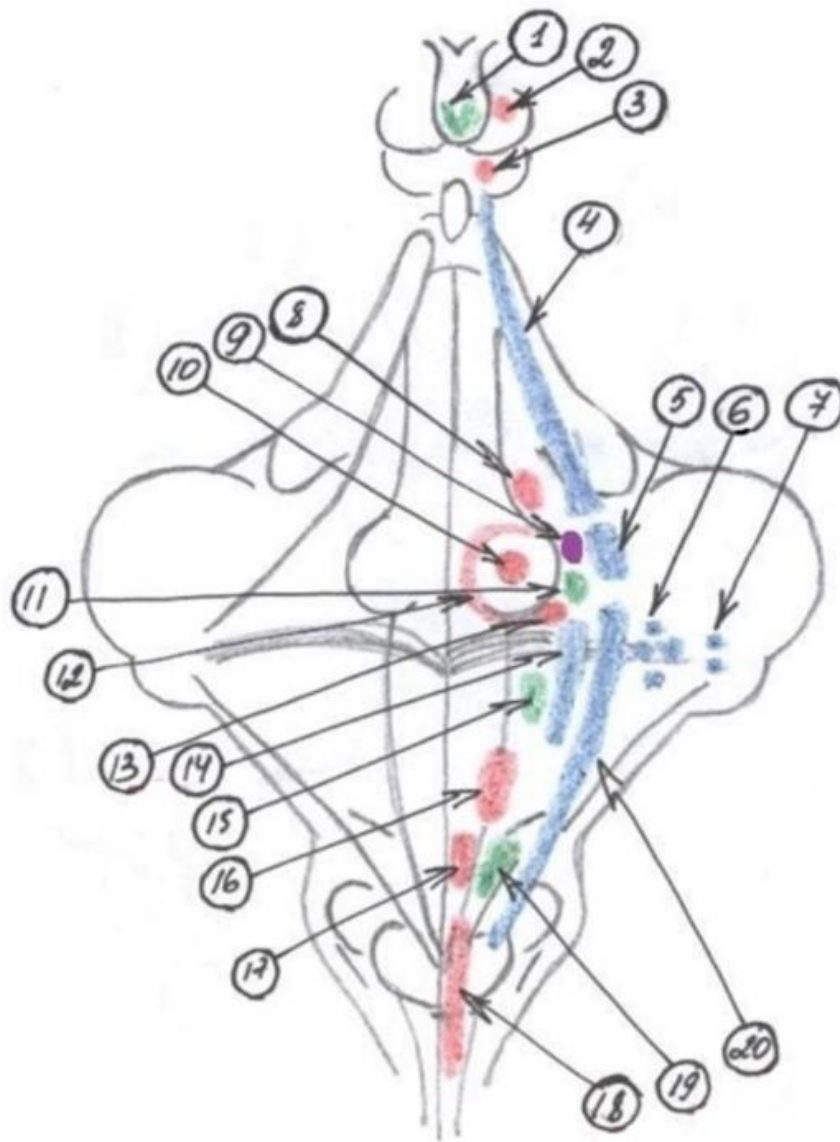


Diagram 4. Nuclei of CN. Topography (source - <https://studfile.net>)

22. Which structure is indicated by number 13 (diagram №4)?

- A. Nucleus motorius nervi trigemini
- B. Nucleus nervi abducentis
- C. Nucleus nervi facialis
- D. Nucleus nervi hypoglossi
- E. Nucleus ambiguus

23. Which structure is indicated by number 19 (diagram №4)?

- A. Nucleus motorius nervi trigemini
- B. Nucleus nervi abducentis
- C. Nucleus dorsalis nervi vagi
- D. Nucleus nervi hypoglossi
- E. Nucleus ambiguus

24. Which structure is indicated by number 16 (diagram №4)?

- A. Nucleus motorius nervi trigemini
- B. Nucleus nervi abducentis
- C. Nucleus nervi facialis
- D. Nucleus nervi hypoglossi
- E. Nucleus ambiguus

25. Which structure is indicated by number 8 (diagram №4)?

- A. Nucleus motorius nervi trigemini
- B. Nucleus nervi abducentis
- C. Nucleus nervi facialis
- D. Nucleus nervi hypoglossi
- E. Nucleus ambiguus

26. Which structure is indicated by number 17 (diagram №4)?

- A. Nucleus motorius nervi trigemini
- B. Nucleus nervi abducentis
- C. Nucleus nervi facialis
- D. Nucleus nervi hypoglossi
- E. Nucleus ambiguus

27. Which structure is indicated by number 14 (diagram №4)?

- A. Nucleus solitarius
- B. Nucleus nervi abducentis
- C. Nucleus nervi facialis
- D. Nucleus nervi hypoglossi
- E. Nucleus ambiguus

28. Which structure is indicated by number 6 and 7 (diagram №4)?

- A. Nucleus solitarius
- B. Nucleus nervi abducentis
- C. Nucleus nervi facialis

- D. Nuclei vestibulares et cochleares
- E. Nucleus ambiguus

29. Which structure is indicated by number 18 (diagram №4)?

- A. Nucleus solitarius
- B. Nucleus nervi abducentis
- C. Nucleus nervi facialis
- D. Nucleus spinalis nervi accessorii
- E. Nucleus ambiguus

**Internal features of the medulla oblongata and pons. IV ventricle.
Rhomboid fossa. Topography of cranial nerves nuclei**

Key to the test with explanation*

1	A	Trochlear nerve originated from the midbrain.
2	D	Pons develops from metencephalon.
3	C	Cerebellum is situated behind the pons.
4	C	The Pontine Nucleus is located in pons.
5	D	The Inferior Olivary Nucleus is located in superior medulla.
6	C	The Middle Cerebellar Peduncle is located in pons.
7	D	The Pyramids are located in medulla.
8	D	The Inferior Cerebellar Peduncle is located in medulla.
9	A	That is superior salivatory nucleus.
10	B	That is nucleus motorius nervi trigemini.
11	D	That is nucleus of abducens nerve
12	C	That is trapezoid body.
13	A	That is formatio reticularis.
14	C	That is pyramidal tracts.
15	A	That is formatio reticularis.
16	B	That is nucleus cuneatus.
17	C	That is nucleus gracilis.
18	D	That is nucleus dorsalis nervi vagi.
19	E	That is nucleus nervi hypoglossi.
20	A	Reticular formation is supporting cortex activity.
21	A	Reticular formation is responsible for waking up and falling asleep.
22	C	That is motor nucleus of facial nerve.
23	C	That is nucleus dorsalis nervi vagi.
24	E	That is nucleus ambiguus.
25	A	That is nucleus motorius nervi trigemini.
26	D	That is nucleus nervi hypoglossi.
27	A	That is nucleus solitarius.
28	D	That are nuclei vestibulares et cochleares.
29	D	That is nucleus spinalis nervi accessorii.

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Midbrain. Cerebral aqueduct

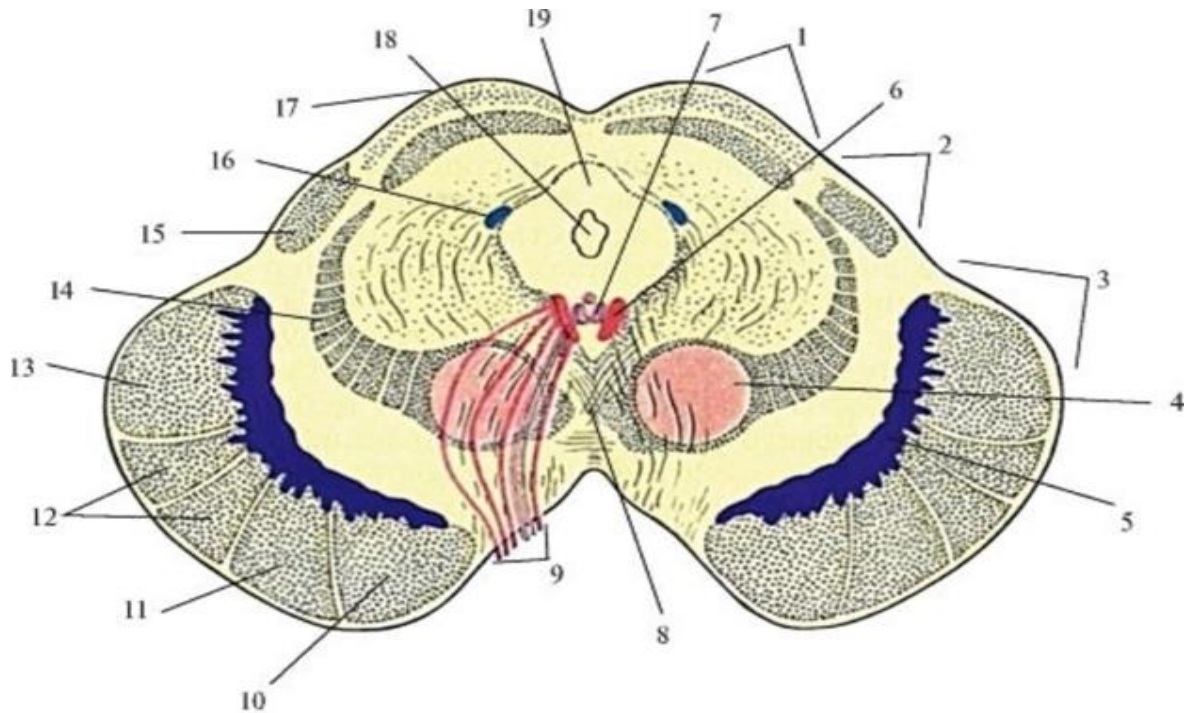


Diagram 5. Cross section of midbrain (source - <https://studfile.net>)

1. What is labelled with number 1 (diagram №5)?

- A. Tectum mesencephalicum
- B. Tegmentum mesencephalicum
- C. Pedunculus cerebri
- D. Nucleus ruber
- E. Substantia nigra

2. What is labelled with number 2 (diagram №5)?

- A. Tectum mesencephalicum
- B. Tegmentum mesencephalicum
- C. Pedunculus cerebri
- D. Nucleus ruber
- E. Substantia nigra

3. What is labelled with number 3 (diagram №5)?

- A. Tectum mesencephalicum
- B. Tegmentum mesencephalicum
- C. Pedunculus cerebri
- D. Nucleus ruber
- E. Substantia nigra

4. What is labelled with number 4 (diagram №5)?

- A. Tectum mesencephalicum
- B. Tegmentum mesencephalicum
- C. Pedunculus cerebri
- D. Nucleus ruber
- E. Substantia nigra

5. What is labelled with number 5 (diagram №5)?

- A. Tectum mesencephalicum
- B. Tegmentum mesencephalicum
- C. Pedunculus cerebri
- D. Nucleus ruber
- E. Substantia nigra

6. What is labelled with number 18 (diagram №5)?

- A. Tectum mesencephalicum
- B. Tegmentum mesencephalicum
- C. Substantia grisea centralis
- D. Aqueductus mesencephali
- E. Substantia nigra

7. What is labelled with number 19(diagram №5)?

- A. Tectum mesencephalicum
- B. Tegmentum mesencephalicum
- C. Substantia grisea centralis
- D. Aqueductus mesencephali
- E. Substantia nigra

8. What is labelled with number 6 (diagram №5)?

- A. Nucl. Motorius nervi oculomotorii
- B. Nucl. Accessorius nervi oculomotorii
- C. Decussationes tegmenti
- D. N. Oculomotorius
- E. Nucl. Ruber

9. What is labelled with number 7 (diagram №5)?

- A. Nucl. Motorius nervi oculomotorii
- B. Nucl. Accessorius nervi oculomotorii
- C. Decussationes tegmenti
- D. N. Oculomotorius
- E. Nucl. Ruber

10. What is labelled with number 8 (diagram №5)?

- A. Nucl. Motorius nervi oculomotorii
- B. Nucl. Accessorius nervi oculomotorii
- C. Decussationes tegmenti
- D. N. Oculomotorius
- E. Nucl. Ruber

11. What is labelled with number 9 (diagram №5)?

- A. Nucl. Motorius nervi oculomotorii

- B. Nucl. Accessorius nervi oculomotorii
- C. Decussationes tegmenti
- D. N. Oculomotorius
- E. Nucl. Ruber

12. What is labelled with number 16(diagram №5)?

- A. Nucl. Motorius nervi oculomotorii
- B. Nucl. Accessorius nervi oculomotorii
- C. Decussationes tegmenti
- D. Nucl. Mesencephalicus nervi trigemini
- E. Nucl. Ruber

13. What is labelled with number 10 (diagram №5)?

- A. Tr. Frontopontinus
- B. Tr. Corticonuclearis
- C. Tr. Corticospinalis
- D. Tr. Occipitotemporoparietopontinus
- E. Lemniscus medialis

14. What is labelled with number 11(diagram №5)?

- A. Tr. Frontopontinus
- B. Tr. Corticonuclearis
- C. Tr. Corticospinalis
- D. Tr. Occipitotemporoparietopontinus
- E. Lemniscus medialis

15. What is labelled with number 12(diagram №5)?

- A. Tr. Frontopontinus
- B. Tr. Corticonuclearis
- C. Tr. Corticospinalis
- D. Tr. Occipitotemporoparietopontinus
- E. Lemniscus medialis

16. What is labelled with number 13(diagram №5)?

- A. Tr. Frontopontinus
- B. Tr. Corticonuclearis
- C. Tr. Corticispinalis
- D. Tr. Occipitotemporoparietopontinus
- E. Lemniscus medialis

17. What is labelled with number 14(diagram №5)?

- A. Tr. Frontopontinus
- B. Tr. Corticonuclearis
- C. Tr. Corticispinalis
- D. Tr. Occipitotemporoparietopontinus
- E. Lemniscus medialis

18. What is labelled with number 17(diagram №5)?

- A. Colliculus superior
- B. Colliculus inferior

- C. Brachium colliculi
- D. Epiphysis
- E. Nucl. Nervi oculomotorii

19. Which cranial nerves nuclei are located in the midbrain

- A. I, ii
- B. Iii, iv
- C. Iii, iv, v (one of them)
- D. Iii, iv, vi
- E. Iii, iv, v (four of them)

20. What is the name of mesencephalic cavity

- A. Aqueductus
- B. I ventricle
- C. Iii ventricle
- D. Iv ventricle
- E. Cisterna

Midbrain. Cerebral aqueduct

Key to the test with explanation*

1	A	That is tectum mesencephalicum.
2	B	That is tegmentum mesencephalicum.
3	C	That is pedunculus cerebri.
4	D	That is nucleus ruber.
5	E	That is substantia nigra.
6	D	That is aqueductus mesencephali.
7	C	That is substantia grisea centralis.
8	A	That is nucleus motorius nervi oculomotorii.
9	B	That is nucleus accessorius nervi oculomotorii.
10	C	That is decussatio tegmenti dorsalis.
11	D	That is nervus oculomotorius.
12	D	That is nucleus mesencephalicus nervi trigemini
13	A	That is tractus frontopontinus
14	B	That is tractus corticonuclearis
15	C	That is tractus corticospinalis
16	D	That is tractus occipitotemporoparietopontinus
17	E	That is lemniscus medialis
18	A	That is colliculus superior
19	C	Oculomotorius, trochlear and 1 trigeminal nuclei are located in midbrain.
20	A	Cerebral aqueduct is the cavity of midbrain.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 51-54.**

Prosencephalon. Diencephalon. Third ventricle

1. What structure forms anterior wall of 3rd ventricle?

- A. Columna fornicis
- B. Corpus fornicis
- C. Corpus mamillaris
- D. Tela choroidea
- E. Tuber cinereum

2. What structure forms posterior wall of 3rd ventricle?

- A. Recessus pinealis
- B. Recessus infundibularis
- C. Recessus chiasmatis
- D. Tela choroidea
- E. Tuber cinereum

3. What structure forms inferior wall of 3rd ventricle?

- A. Recessus pinealis
- B. Recessus infundibularis
- C. Tela choroidea
- D. Lamina terminalis
- E. Habenula

4. What structure forms lateral wall of 3rd ventricle?

- A. Recessus pinealis
- B. Recessus infundibularis
- C. Tela choroidea
- D. Thalamus
- E. Habenula

5. What structure forms superior wall of 3rd ventricle?

- A. Recessus pinealis
- B. Tuber cinereum
- C. Tela choroidea
- D. Thalamus
- E. Habenula

6. What structure is a part of epithalamus?

- A. Habenula

- B. Corpus mamillaris
- C. Corpus geniculatum mediale
- D. Infundibulum
- E. Commissura cerebri anterior

7. What structure is a part of metathalamus?

- A. Habenula
- B. Corpus mamillaris
- C. Corpus geniculatum mediale
- D. Infundibulum
- E. Commissura cerebri posterior

8. What number of structures are part of metathalamus? (diagram №6)

- A. 2, 4
- B. 25, 26
- C. 24, 25
- D. 1, 2
- E. 5, 6

9. What number of structure is a part of epithalamus? (diagram №6)

- A. 27
- B. 25
- C. 26
- D. 28
- E. 24

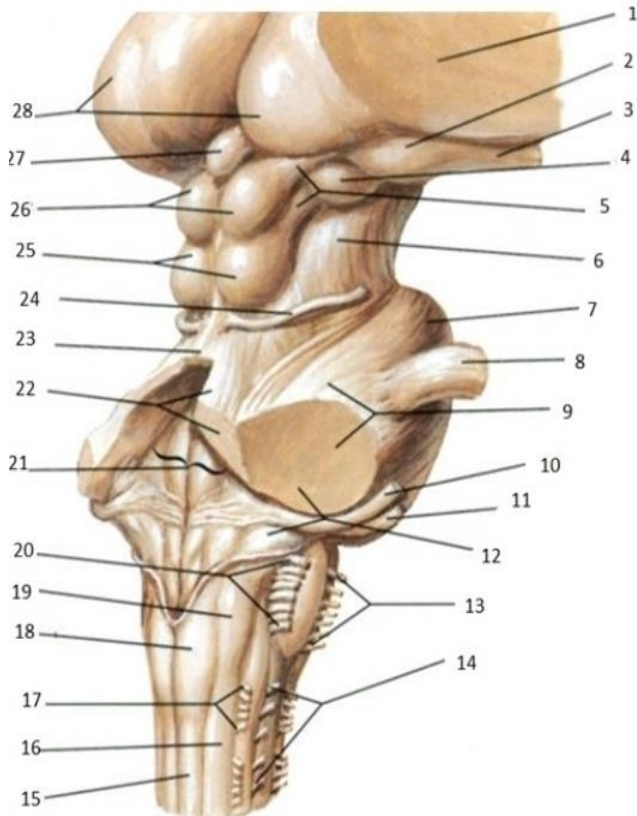


Diagram 6. Brainstem, midbrain, diencephalon Атлас анатомії людини: 7-е видання / Френк Г. Неттер (дві мови)/ Френк Г. Неттер; наукові редактори перекладу Л.Р. Матешук-Вацеба, І.Є. Герасимюк, В.В. Кривецький, О.Г. Попадинець. - Київ: «Медицина».- 2020 р.-736с.

10. What structure is a part of hypothalamus?

- A. Habenula
- B. Corpus mamillaris
- C. Corpus geniculatum laterale
- D. Corpus fornicis
- E. Commissura cerebri posterior

Prosencephalon. Diencephalon. Third ventricle

Key to the test with explanation*

1	A	Columna fornicis forms anterior wall of III ventricle.
2	A	Recessus pinealis forms posterior wall of III ventricle.
3	B	Recessus infundibularis forms inferior wall of III ventricle.
4	D	Thalamus forms lateral wall of III ventricle.
5	C	Tela choroidea forms superior wall of III ventricle.
6	A	Habenula is the part of epithalamus.
7	C	Corpus geniculatum mediale is the part of metathalamus.
8	A	2 & 4 are parts of metathalamus.
9	A	27 is a part of epithalamus.
10	B	Corpora mammillaria are a part of hypothalamus.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 55-60.**

Telencephalon. Hemispheres, lobes, gyri, and sulci. Limbic lobe. Cortical structure. Main cortical areas

1. After trauma, a 49-year-old patient loses the ability to recognize the shape of three-dimensional things by touch (stereognosia). In which areas of the cortex of the hemispheres is normally located the corresponding center (nucleus)?

- A. Upper parietal lobe
- B. Lower parietal lobe
- C. Superior margin
- D. Parietal gyrus
- E. Angular gyrus

2. The patient complains of inability to understand words (sensory aphasia), although he hears sounds. Which cortical analyzer is in trouble?

- A. Speech motion analyzer
- B. Auditory analyzer of oral speech
- C. Motor analyzer of written language
- D. Visual analyzer of written language
- E. Nucleus of the auditory analyzer

3. After traumatic brain injury, the patient loses the ability to perceive the written text, read (alexia). In which part of the cortex of the hemispheres is normally located the corresponding center?

- A. Gyrus supramarginalis
- B. Gyrus paracentralis
- C. Gyrus angularis
- D. Gyrus lingualis
- E. Pyrohypocampal gyrus

4. After trauma in a 48-year-old patient, there is a loss of ability to perform precise and subtle hand movements associated with the drawing of letters, signs and words (agraphia). In which areas of the cortex of the hemispheres is normally located the center (nucleus) corresponding to this function?

- A. Rear part of the upper frontal gyrus
- B. Frontal pole
- C. Posterior part of the middle frontal gyrus
- D. Angular gyrus
- E. Lower parietal lobe

5. After trauma, a 39-year-old patient lost the ability to pronounce words (motor aphasia). In which areas of the cortex of the hemispheres is normally located the appropriate center for this function?

- A. Front of the upper frontal gyrus
- B. Rear part of the upper frontal gyrus
- C. Orbital part
- D. Posterior part of the lower frontal gyrus
- E. Frontal pole

6. The patient after disruption of blood supply to the brain lost the ability to write letters and numbers. In which part of the brain did the pathology occur?

- A. Lobus occipitalis
- B. Lobus temporalis

- C. Lobus parietalis
- D. Insula
- E. Frontal lobe

7. The patient cannot speak, but understands the speech addressed to him. Which of the brain structures is in trouble?

- A. Gyrus frontalis superior
- B. Gyrus frontalis inferior
- C. Gyrus precentralis
- D. Gyrus postcentralis
- E. Gyrus temporalis superior

8. The patient lost the ability to recognize objects by their characteristic sounds (clock, bell, music). What part of the brain is damaged?

- A. Lobus occipitalis
- B. Temporal lobe
- C. Lobus frontalis
- D. Lobus parietalis
- E. Insula

9. The patient lost the ability to read (alexia). In which part of the brain is the lesion?

- A. Angular gyrus of the parietal lobe of the brain
- B. Medium frontal gyrus of the frontal lobe of the cerebrum
- C. Central gyrus of the parietal lobe of the cerebrum
- D. Central lobe of the frontal lobe of the cerebrum
- E. The upper temporal gyrus of the temporal lobe of the cerebrum

10. The 63-year-old patient complained to a neurologist that he could not perform carpentry work for three months, which required

precision, because his right hand made many unfocused movements. The study revealed that the patient was damaged:

- A. Gyrus supramarginalis.
- B. Gyrus precentralis.
- C. Gyrus postcentralis.
- D. Gyrus temporalis superior.
- E. Gyrus angularis.

11. After hemorrhage into the brain (hemorrhagic stroke), the patient began to say words with great effort, that is, there was motor aphasia. What convolution of the brain is damaged?

- A. Upper frontal.
- B. Medium frontal
- C. Lower frontal
- D. The upper temple
- E. Lower temple

12. The patient has reduced skin sensitivity due to traumatic brain injury. What part of the cerebral cortex can be affected?

- A. Posterior central gyrus
- B. Heximal area
- C. Lumbar gyrus
- D. Frontal cortex
- E. Front central gyrus

13. In women, a violation of tactile sensitivity. Which part of the brain is damaged?

- A. Front central gyrus of the cortex
- B. Brainstem.
- C. Cerebellum.
- D. Postcentral gyrus of the cortex.
- E. Lower temple area of the cortex.

14. The patient had a hemorrhage in the occipital region, in the area of the calcarine sulcus. What functions of the body are affected?

- A. No hearing
- B. No vision
- C. There is no sense of smell
- D. No movements
- E. All answers are correct

15. After a brain injury, a 47-year-old man complained of disorders of precise movements in the upper extremities: he could not fasten a button, light a match, pour water into a glass. Examination revealed that muscle strength, deep muscle sensation, and coordination mechanisms were preserved. Which part of the cerebral cortex is affected?

- A. Around the spur furrow
- B. Supra marginal gyrus
- C. Precentral gyrus
- D. Transverse temporal gyri
- E. Angular gyrus

16. In patient m., 62, a hematoma formed in the area of the gyrus angularis. The patient cannot read and understand what is written (alexia), but visual function is not impaired. Which analyzer nucleus was affected?

- A. the nucleus of the visual analyzer of written speech
- B. nucleus of the motor analyzer of written speech
- C. nucleus of the auditory analyzer of oral speech
- D. nucleus of the visual analyzer
- E. nucleus of the motor analyzer of oral speech

17. A patient who suffered a head injury three months ago hears the speech, understands it, but cannot name the object correctly. In what part of the cortex of the large hemispheres is there damage?

- A. Upper frontal
- B. The upper temple
- C. Medium frontal
- D. Lower frontal
- E. Medium temporal

18. A 82-year-old patient complains of loss of taste sensitivity. Which part of the bark is damaged?

- A. Uncus and hippocampus (seahorse)
- B. Lower frontal gyrus and submandibular field
- C. Angular gyrus and seahorse gyrus
- D. Subduct field and lumbar gyri
- E. Uncus and lower part of the postcentral gyrus

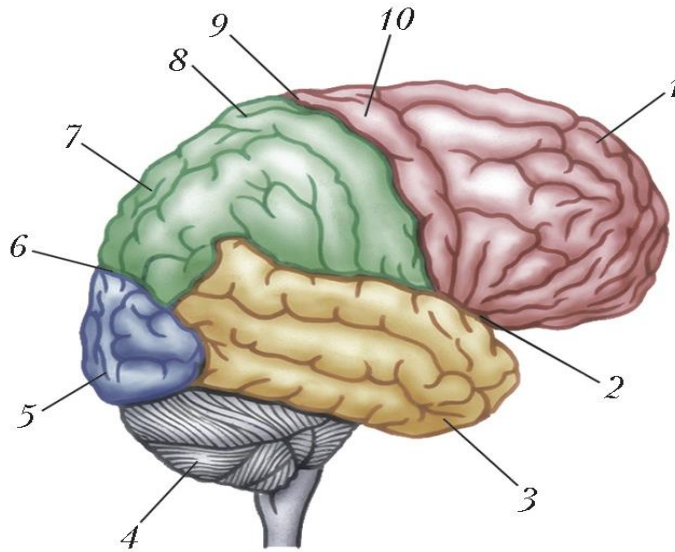


Diagram 7. External structures of cerebral hemispheres (source - <https://studfile.net>)

19. What structure is labeled as number 10? (diagram №7)

- A. Gyrus temporalis superior
- B. Gyrus supramarginalis.
- C. Gyrus postcentralis.
- D. Gyrus precentralis.
- E. Gyrus angularis.

20. A 35-year-old man with meningoencephalitis has a decrease in hearing. Examination excludes pathology of the auditory and auditory apparatus of the auditory organ. In which gyrus of the cerebral cortex pathological changes?

- A. Upper temporal
- B. Medium temporal
- C. Upper frontal
- D. Superior
- E. Angular

Telencephalon. Hemispheres, lobes, gyri and sulci. Limbic lobe. Cortical structure. Main cortical areas

Key to the test with explanation*

1	A	Stereognosis area located in upper parietal lobe.
2	B	Auditory analyzer of oral speech is responsible for understanding of the words.
3	C	Angular gyrus represents visual speech center.
4	C	Posterior part of the middle frontal gyrus is responsible for writing.
5	D	Anterior speech area resides in inferior frontal gyrus.
6	E	Posterior part of the middle frontal gyrus is responsible for writing.
7	B	Anterior speech area resides in inferior frontal gyrus.
8	B	Auditory cortex occupies transverse temporal gyri.
9	A	Angular gyrus represents visual speech center.
10	A	Gyrus supramarginalis is responsible for precise movements of hands.
11	C	Anterior speech area resides in inferior frontal gyrus.
12	A	Somatosensory cortex occupies postcentral gyrus.
13	D	Somatosensory cortex occupies postcentral gyrus.
14	B	Visual cortex occupies marginal areas of the calcarine sulcus of the occipital lobe.
15	B	Gyrus supramarginalis is responsible for precise movements of hands.
16	A	Angular gyrus represents visual speech center.
17	D	Anterior speech area resides in lower frontal gyrus.
18	E	Taste cortex occupies uncus and lower part of postcentral gyrus.
19	D	That is precentral gyrus.
20	A	Auditory cortex occupies superior temporal gyrus.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Kovichnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 78-82.**

Internal features of cerebrum. Basal nuclei, cerebral white matter, lateral ventricles

1. At the patient the pathological defect connecting the right and left lateral ventricles was formed. Damage of what anatomic structure of a brain has resulted in such condition?

- A. Septum pellucidum
- B. A falx cerebri
- C. Anterior cerebral commissure
- D. Posterior cerebral commissure
- E. A corpus callosum

2. The pathology is found out in telencephalon at the patient with the Parkinson's disease. Where is it?

- A. Supramarginal gyrus
- B. Angular gyrus.
- C. Lentiform nucleus
- D. Uncus of the hippocampal gyrus.
- E. Amygdaloid body.

3. The metal nail pierced squama of temporal bone and penetrated into substance of the left temporal lobe nearer to temporal pole. What of the basal nucleus is damaged?

- A. Lentiform nucleus.
- B. Caudate nucleus.
- C. Claustrum.
- D. Pallidum.
- E. Amygdaloid body

4. A chorea is diagnosed in the patient. Occurrence of the accompanying and compelled movements takes place at this disease. What structures of a brain are involved thus?

- A. Pulvinar thalamicus.
- B. Fasciculus longitudinalis medialis.

- C. Fasciculus longitudinalis posterior.
- D. Substantia nigra et corpus striatum.
- E. Nucleus ruber.

5. The damage of striopallidar system has resulted to development of an athetosis (rhythmic movements of extremities). What nucleus is damaged?

- A. Anterior nucleus of a hypothalamus.
- B. Corpus striatum
- C. Medial geniculate body.
- D. Lateral geniculate body.
- E. Posterior nucleus of a hypothalamus.

6. The patient has a hemorrhage in the right hemisphere. Thus associative fibers bridging a cortex of a frontal pole with a temporal pole have suffered. What the fascicle is this?

- A. Inferior longitudinal fascicle.
- B. Superior longitudinal fascicle.
- C. Arcuate fibers.
- D. Uncinate fascicle.
- E. Cingulum.

7. The patient has a tumor of the right hemisphere which compressed associative fibers of the white matter connecting a cortex of temporal and occipital lobes. Name these fibers.

- A. Inferior longitudinal fascicle.
- B. Superior longitudinal fascicle
- C. Uncinate fascicle.
- D. Arcuate fibers.
- E. Cingulum.

8. The corpus callosum was cut out for surgical treatment of epilepsy. What fibers were cut out?

- A. Commissural.
- B. Projection.
- C. Associative.
- D. Pyramidal.
- E. Extrapramidal.

9. A 64-year-old woman presents with disturbed fine motor function of her fingers, marked muscle rigidity, and tremor. The neurologist diagnosed her with. What brain structures are damaged resulting in this disease?

- A. Thalamus
- B. Red nuclei
- C. Cerebellum
- D. Substantia nigra
- E. Reticular formation

10. The roof of the central part of the lateral ventricle is formed by:

- A. The septum pellucidum and body of the fornix
- B. Superior surface of the thalamus, medially, and by the caudate nucleus laterally
- C. Hippocampus
- D. Trunk of the corpus callosum
- E. Optic chiasm

11. The medial wall of the central part of the lateral ventricle is formed by

- A. Trunk of the corpus callosum
- B. The septum pellucidum and body of the fornix
- C. Superior surface of the thalamus, medially, and by the caudate nucleus laterally
- D. Hippocampus

E. Optic chiasm

12. The floor of the central part of the lateral ventricle is formed by

- A. Trunk of the corpus callosum
- B. The septum pellucidum and body of the fornix
- C. Superior surface of the thalamus, medially, and by the caudate nucleus laterally
- D. Hippocampus
- E. Optic chiasm

13. The lateral wall of the inferior (temporal) horn of the lateral ventricle is formed by:

- A. Tapetum of the corpus callosum
- B. Cauda of the caudate nucleus
- C. Hippocampus
- D. Septum pellucidum
- E. Optic chiasm

14. The medial wall of the inferior (temporal) horn of the lateral ventricle is formed by:

- A. Tapetum of the corpus callosum
- B. Cauda of the caudate nucleus
- C. Hippocampus
- D. Septum pellucidum
- E. Optic chiasm

15. Floor of the anterior horn of the lateral ventricle is formed by

- A. Trunk of the corpus callosum
- B. Caudate nucleus
- C. Hippocampus
- D. Septum pellucidum
- E. Optic chiasm

16. Medial wall of the anterior horn of the lateral ventricle is formed by

- A. Trunk of the corpus callosum
- B. Caudate nucleus
- C. Hippocampus

- D. Septum pellucidum
- E. Optic chiasm

17. Roof of the anterior horn of the lateral ventricle is formed by

- A. Trunk of the corpus callosum
- B. Caudate nucleus
- C. Hippocampus
- D. Septum pellucidum
- E. Optic chiasm

18. Roof and lateral wall of the posterior horn of the lateral ventricle is formed by

- A. Tapetum of the corpus callosum
- B. Caudate nucleus
- C. Hippocampus
- D. Septum pellucidum
- E. Optic chiasm

19. What communicates lateral ventricle with the III ventricle?

- A. Aqueductus mesencephali
- B. Apertura lateralis
- C. Foramen interventricularis
Monroe
- D. Apertura mediana
- E. Central canal

Internal features of the cerebrum. Basal nuclei, cerebral white matter, lateral ventricles

Key to the test with explanation*

1	A	Septum pellucidum connects lateral ventricles.
2	C	Damage of the lentiform nucleus can cause the Parkinson's disease.
3	E	Amygdaloid body is situated near the temporal pole.
4	D	Substantia nigra and corpus striatum are involved in development of chorea.
5	B	Corpus striatum is a part of the striopallidar system.
6	D	Uncinate fascicle bridges frontal and temporal cortex.
7	A	Inferior longitudinal fascicle is connecting a cortex of temporal and occipital lobes.
8	A	Corpus callosum represents commissural fibers.
9	D	Damage of substantia nigra leads to muscle rigidity, and tremor.
10	D	Trunk of the corpus callosum forms superior wall of the central part of the lateral ventricle.
11	B	Body of the fornix bound central part of the lateral ventricle medially.
12	C	Superior surface of the thalamus and caudate nucleus are inferior wall central part of the lateral ventricle.
13	A	Tapetum of the corpus callosum forms lateral wall of the inferior horn of the lateral ventricle.
14	C	Hippocampus is located on the medial wall of the inferior horn of the lateral ventricle.
15	B	Inferior wall of the anterior horn of the lateral ventricle is formed by the head of the caudate nucleus.
16	D	Septum pellucidum is the medial wall of the anterior horn of the lateral ventricle.
17	A	Trunk of the corpus callosum bounds the anterior horn of the lateral ventricle superiorly.
18	A	Roof and lateral wall of the posterior horn of the lateral ventricle is formed by the tapetum of the corpus callosum.
19	C	Interventricular foramen connects lateral and III ventricles.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 67-76.**

Spinal and cranial meninges, circulation of cerebrospinal fluid

1. The falx cerebri is:

- A. Structure of the dura mater;
- B. Dorsolateral surface of the cerebral hemispheres
- C. The choroid plexus that feeds the brain
- D. A cavity filled with cerebrospinal fluid
- E. -

2. The rhomboid fossa refers to the cavity of:

- A. Spinal cord
- B. Medulla oblongata
- C. Midbrain
- D. Diencephalon
- E. Telencephalon

3. Sylvius aqueduct is a cavity:

- A. Spinal cord
- B. Medulla oblongata
- C. Pons
- D. Cerebellum
- E. Midbrain

4. The cavity of the diencephalon is:

- A. 1st ventricle
- B. 2nd ventricle
- C. 3rd ventricle
- D. 4th ventricle
- E. Aqueduct

5. The cavity of the neural tube during development does not form:

- A. Aqueduct
- B. IV ventricle
- C. Central canal
- D. Interpeduncular cistern
- E. III ventricle

6. The spinal cord has no coat:

- A. Serous
- B. Dura mater
- C. Piamater
- D. Arachnoid
- E. -

7. Through the aqueduct of the brain, the following cavities are communicating:

- A. Lateral ventricle with III ventricle
- B. III ventricle with IV ventricle
- C. IV ventricle with lateral ventricles
- D. IV ventricle with the central canal of the spinal cord
- E. 1 and 2 ventricles

8. The third ventricle communicates with the lateral ventricle by:

- A. Aqueduct of the brain
- B. Interventricular foramen
- C. Median aperture of the IV ventricle
- D. All correct
- E. All wrong

9. Indicate the rhombencephalon cavity

- A. Ventriculus primus
- B. Ventriculus secundus
- C. Ventriculus tertius
- D. Aqueductus cerebri
- E. Ventriculus quartus

10. The following intervertebral spaces can be used for lumbar puncture in an adult patient:

- A. T11-T12
- B. L3 – L4
- C. L4-L5
- D. S1 – S2
- E. L2 – L3

11. The lateral walls of the 3rd ventricle are

- A. Lateral surfaces of the thalamus
- B. Medial surfaces of the thalamus
- C. Visual tracts
- D. Thalamus pulvinar
- E. Hypothalamus

12. The lower wall of the 3rd ventricle is:

- A. Hypothalamic structures
- B. Pituitary
- C. Epiphysis
- D. Thalamus
- E. Thalamus pulvinar

13. The anterior wall of the 3rd ventricle is formed by:

- A. Terminal plate, fornix columns and anterior commissure
- B. Columns of the fornix
- C. Anterior commissure of the brain
- D. Pituitary gland
- E. Epiphysis

14. The interventricular opening communicates :

- A. The cavity of the 3rd ventricle with the 4th ventricle
- B. The cavity of the 3rd ventricle with the cavity of the medulla oblongata

- C. The cavity of the 1st and 2nd ventricles
- D. The cavity of the 3rd ventricle with lateral ventricles
- E. 4th ventricle and subarachnoid space

15. The posterior wall of the 3rd ventricle includes:

- A. Thalamus structures
- B. Hypothalamic structures
- C. Thalamus pulvinar
- D. Habenular commissure and posterior brain commissure
- E. Anterior commissure of the brain

16. The upper wall of the 3rd ventricle is formed:

- A. Epithelial plate
- B. Thalamus
- C. Vascular plate
- D. The structures of the epithalamus
- E. -

17. Sylvian aqueduct is a cavity of:

- A. Medulla spinalis
- B. Diencephalon
- C. Mesencephalon
- D. Telencephalon
- E. Medulla oblongata

18. Which sinus of the dura mater flows into the jugular vein?

- A. Sigmoid
- B. Transverse
- C. Straight
- D. Cavernous
- E. Occipital

19. Falx cerebri is between:

- A. Superior sagittal sinus and inferior sagittal sinus
- B. Straight and occipital sinuses
- C. Straight and transverse sinuses
- D. Anterior and posterior intercavernous sinus
- E. Superior and inferior petrosal sinus

20. The cerebellar falx is located between:

- A. Superior sagittal sinus and inferior sagittal sinus
- B. Straight and occipital sinus
- C. Straight and transverse sinuses
- D. Anterior and posterior intercavernous sinus
- E. Superior and inferior petrosal sinus

21. The diaphragm of the Turkish saddle is between:

- A. Superior sagittal sinus and inferior sagittal sinus
- B. Straight and occipital sinus
- C. Straight and transverse sinus
- D. Anterior and posterior intercavernous sinus

E. Superior and inferior petrosal sinus

22. Which of the sinuses of the dura mater does not directly flow into the confluence sinum?

- A. Superior sagittal
- B. Transverse
- C. Straight
- D. Cavernous
- E. Occipital

23. Which of the sinuses of the dura mater is connected to the confluence sinum through the straight sinus

- A. Inferior sagittal
- B. Transverse
- C. Intercavernous
- D. Cavernous
- E. Occipital

24. In which of the sinuses fluid flows from the subarachnoid space?

- A. Superior sagittal
- B. Transverse
- C. Straight
- D. Cavernous
- E. Occipital

Spinal and cranial meninges, circulation of cerebrospinal fluid

Key to the test with explanation*

1	A	Falx cerebri is part of dura mater
2	B	Rhomboid fossa is posterior surface of pons and medulla.
3	E	Cerebral aqueduct is located in midbrain.
4	C	III ventricle is the cavity of the diencephalon.
5	D	Neural tube does not form interpeduncular cistern.
6	A	Serous coat do not cover nervous system.
7	B	Cerebral aqueduct connects III and IV ventricles.
8	B	Interventricular foramen connects lateral and III ventricles.
9	E	IV ventricle is the cavity of the rhombencephalon.
10	B	Space between L3 and L4 can be used for safe lumbar puncture.
11	B	Medial surface of thalamus forms lateral wall of III ventricle.
12	A	Hypothalamus forms inferior wall of III ventricle.
13	A	Terminal plate, fornix columns and anterior commissure forms anterior wall of III ventricle.
14	D	Interventricular foramen connects lateral and III ventricles.
15	D	Habenular commissure and posterior brain commissure forms posterior wall of III ventricle.
16	C	Vascular plexus forms superior wall of III ventricle.
17	C	Cerebral aqueduct is located in midbrain.
18	A	Internal jugular vein is continuation of the sigmoid sinus.
19	A	Falx cerebri is located between superior sagittal sinus and inferior sagittal sinus.
20	B	The cerebellar falx is located between straight and occipital sinus.
21	D	Diaphragma sellae is located between anterior and posterior intercavernous sinus.
22	D	Sinus cavernosus does not flow directly into the confluence of sinuses.
23	A	Straight sinus connects confluence of sinuses with inferior sagittal sinus.
24		Cerebrospinal fluid drains into the superior sagittal sinus.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 90-94.**

CHAPTER 2. CRANIAL NERVES

Trigeminal nerve (V). Ophthalmic nerve, maxillary nerve

1. A 52-year-old patient comes to a neurologist with complaints of loss sensitivity of the skin of the right half of the face in the lower eyelid, back of the nose and upper lip area. Specify which branch of which nerve is damaged:

- A. Chorda tympani of the facial nerve
- B. Greater petrosal nerve of the facial nerve
- C. The ophthalmic nerve of the trigeminal nerve
- D. The mandibular nerve of the trigeminal nerve
- E. The maxillary trigeminal nerve

2. After a getting cold, the patient developed numbness in the right half of the face. The examination revealed a violation of pain and temperature sensitivity of the forehead in the area of glabella. Which nerve is damaged?

- A. Block
- B. Facial
- C. Mental
- D. Supratrochlear
- E. External nasal

3. The patient has an acute pain in the skin of the face in the cheeks and chin. Which nerve is affected?

- A. Glosso-pharyngeal
- B. Facial
- C. Oculomotor
- D. Vagus
- E. Trigeminal

4. Patient A. was admitted to the neurology department with complaints of pain in the right half

of the face. The examination revealed a decrease in the sensitivity of the skin in these areas, pain when pressed in the supra- and suborbital points, chin. Which nerve is affected?

- A. Accessorial
- B. Facial
- C. Sublingual
- D. Trigeminal
- E. Cutaneous branches of the humeral plexus

5. During inspection of the 36 y.o. patient by the neuropathologist loss of sensitivity of skin and pain of supraorbital areas of a forehead, a zygomatic arch and a chin on the right was revealed. Which nerve function is impaired?

- A. N. trochlearis
- B. N. facialis
- C. N. oculomotorius
- D. N. trigeminus
- E. N. abducens

6. A 54-year-old man was admitted to the neurosurgical department with complaints of lack of sensitivity of the skin of the lower eyelid, lateral outer surface of the nose, upper lip. The doctor during the examination establishes inflammation of the second branch of the trigeminal nerve. Through what hole does this branch come out of the skull?

- A. Lacerum
- B. Rotundum
- C. Ovale
- D. Spinosum
- E. Fissura orbitalis superior

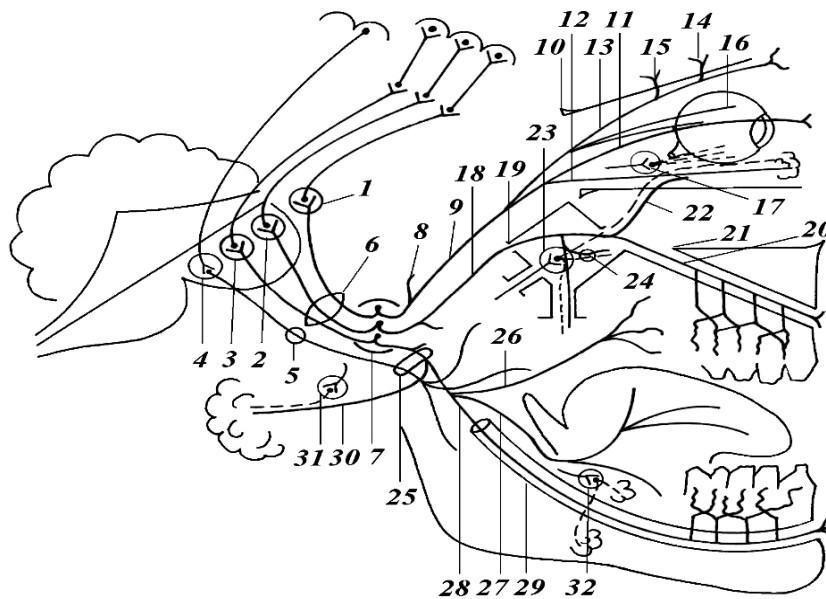


Diagram 8. Trigeminal nerve scheme (source - <https://studfile.net>)

7. A 40-year-old man with an orbita injury and ophthalmic nerve dysfunction was admitted to the neurosurgical department. What is the structure of the orbit is probably damaged

- A. Canalis opticus
- B. Fissura orbitalis superior
- C. Foramen ethmoidale anterior
- D. Foramen posterior anterior
- E. Fissura orbitalis inferior

8. In a patient with an injury to the upper wall of the orbit, there is a loss of sensitivity of the skin of the forehead and root of the nose. Which of the nerves is damaged

- A. N. trochlearis
- B. N. facialis
- C. N. frontalis
- D. N. zygomaticus
- E. N. abducens

9. Which of the nerves gives the outer and inner nasal branches:

- A. N. trochlearis
- B. N. frontalis

- C. N. supraorbitalis
- D. N. zygomaticus
- E. N. infraorbitalis

10. Which of the nerves forms the "little goose foot (pes anserina minor)":

- A. N. trochlearis
- B. N. frontalis
- C. N. supraorbitalis
- D. N. zygomaticus
- E. N. infraorbitalis

11. Which structure is indicated by number 7 (diagram №8)?

- A. Trigeminal ganglion
- B. Ciliar ganglion
- C. Pterygopalatine ganglion
- D. Otic ganglion
- E. Submandibular ganglion

12. Which structure is indicated by number 17 (diagram №8)?

- A. Ciliary ganglion
- B. Trigeminal ganglion
- C. Pterygopalatine ganglion
- D. Otic ganglion

E. Submandibular ganglion

13. Which structure is indicated by number 23 (diagram №8)?

- A. Trigeminal ganglion
- B. Ciliar ganglion
- C. Pterygopalatine ganglion
- D. Otic ganglion
- E. Submandibular ganglion

14. Which structure is indicated by number 18 (diagram №8)?

- A. Maxillary nerve
- B. Ophthalmic nerve
- C. Frontal nerve
- D. Nasocilliary nerve
- E. Zygomatic nerve

15. Which structure is indicated by number 9 (diagram №8)?

- A. Maxillary nerve
- B. Ophthalmic nerve
- C. Frontal nerve
- D. Nasocilliary nerve
- E. Zygomatic nerve

Trigeminal nerve (V). Ophthalmic nerve, maxillary nerve

Key to the test with explanation*

1	E	The maxillary nerve innervates the skin of the lower eyelid, back of the nose and upper lip area.
2	D	Supratrochlear nerve innervates the skin in glabella area.
3	E	Trigeminal nerve innervates the skin of the face.
4	D	Trigeminal nerve innervates the skin of the face.
5	D	Trigeminal nerve innervates the skin of the face.
6	B	The maxillary nerve goes through the foramen rotundum.
7	B	The ophthalmic nerve goes through the fissura orbitalis superior.
8	C	The frontalis nerve innervates the skin of the forehead and root of the nose.
9	E	The infraorbital nerve gives outer and inner nasal branches.
10	E	Pes anserinus minor is formed by the branches of the infraorbital nerve.
11	A	That is trigeminal ganglion.
12	A	That is ciliary ganglion.
13	C	That is pterygopalatine ganglion.
14	A	That is maxillary nerve.
15	B	That is ophthalmic nerve.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 102-107.**

Trigeminal nerve (V). Mandibular nerve

1. In a patient with a mandibular injury, the sensitivity of the skin of the chin and lower lip is impaired, which nerve is probably damaged?

- A. N. mentalis
- B. N. facialis
- C. N. maxillaris
- D. N. trigeminus
- E. N. Accessories

2. Through which hole r. meningeus n. mandibularis enters the skull.

- A. Lacerum
- B. Rotundum
- C. Ovale
- D. Spinosum
- E. Fissura orbitalis superior

3. At the initial examination, of patient no general sensitivity of the front 2/3 of the tongue was found. Taste sensitivity is preserved. Which nerve is affected?

- A. The glosso-pharyngeal nerve.
- B. Sublingual nerve.
- C. The lingual branch of the trigeminal nerve after its connection with the chorda tympani.
- D. Chorda tympani of the facial nerve.
- E. The lingual branch of the trigeminal nerve before its connection with the chorda tympani.

4. At the initial examination, of patient no taste sensitivity of the front 2/3 of the tongue was found. The overall sensitivity is preserved. Which nerve is affected?

- A. The lingual branch of the trigeminal nerve after its connection with the chorda tympani.
- B. Sublingual nerve.
- C. Chorda tympani of the facial nerve.
- D. The lingual branch of the trigeminal nerve before its connection with the chorda tympani.
- E. The glosso-pharyngeal nerve.

5. At the initial examination, the patient no general and taste sensitivity of the front 2/3 of the tongue was found. Which nerve is affected?

- A. Sublingual nerve.
- B. The lingual branch of the trigeminal nerve after its connection with the chorda tympani
- C. The lingual branch of the trigeminal nerve before its connection with the chorda tympani.
- D. Chorda tympani of the facial nerve.
- E. The glosso-pharyngeal nerve.

6. The patient had impaired masticatory muscles. Which nerve is affected?

- A. The buccal nerve
- B. The lingual nerve
- C. The auriculo-temporal nerve
- D. The mandibular nerve
- E. Maxillary nerve

7. The patient has a complicated tight closure of the jaws when chewing. The doctor determined a partial atrophy of the masticatory muscles, which are located below the chin arch. Which branches of these nerves innervate these muscles?

- A. N. infraorbitalis
- B. N. maxillaris
- C. N. inferior alveolaris
- D. Nn. superior alveoli
- E. N. mandibularis

8. When swallowing food, the patient noted difficulties associated with paralysis of the soft palate. Which nerve is damaged?

- A. Sublingual nerve.
- B. Facial nerve.
- C. I branch of the trigeminal nerve.
- D. II branch of the trigeminal nerve.
- E. III branch of the trigeminal nerve.

9. At the patient inspection by the neurologist, acute pain of skin of a chin at touch was found. Which inflammation of a nerve gives such symptomatology?

- A. N. mentalis
- B. N. facialis
- C. N. maxillaris
- D. N. infraorbitalis
- E. N. Accessories

10. The mandibular nerve does not innervate:

- A. Mm. pterygoidei lat. and medialis
- B. M. masseter
- C. M. buccinator
- D. M. temporalis profundus

E. M. mylohyoideus

11. Which structure is indicated by number 32 (diagram №8)?

- A. Submandibular ganglion
- B. Trigeminal ganglion
- C. Ciliar ganglion
- D. Pterygopalatine ganglion
- E. Otic ganglion

12. Which structure is indicated by number 25 (diagram №8)?

- A. Oval opening
- B. Round opening
- C. Spinous opening
- D. Superior orbital fissure
- E. Inferior orbital fissure

Trigeminal nerve (V). Mandibular nerve

Key to the test with explanation*

1	A	Mental nerve innervates the skin of the chin and lower lip.
2	D	Meningeal branch of the mandibular nerve enters the skull through the spinous opening.
3	E	General sensitivity of the anterior 2/3 of the tongue is provided by the lingual branch of the trigeminal nerve before its connection with the chorda tympani.
4	C	Taste sensitivity of the anterior 2/3 of the tongue is provided by the chorda tympani of the facial nerve.
5	B	The lingual branch of the trigeminal nerve and chorda tympani are providing general and taste sensitivity of the front 2/3 of the tongue.
6	D	The mandibular nerve innervates masticatory muscles.
7	E	The mandibular nerve innervates masticatory muscles.
8	E	The mandibular nerve innervates palatal muscles.
9	A	Mental nerve innervates the skin of the chin and lower lip.
10	C	The mandibular nerve does not innervate buccinator muscle.
11	A	That is submandibular ganglion.
12	A	That is foramen ovale.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 107-111.**

Facial nerve (VII). Pterygopalatine, submandibular and sublingual autonomic ganglia of the head

1. A patient with mumps has paralysis of facial muscles, lowering of the right corner of the mouth.

What complication is observed?

- A. Left trigeminal neuritis
- B. Left neuritis of the facial nerve
- C. Right-sided trigeminal neuritis
- D. Right-sided neuritis of the facial nerve
- E. Right neuritis of the oculomotor nerve

2. The patient has asymmetry of the face, especially when trying to actively contract the facial muscles. Which nerve function is impaired?

- A. Sublingual
- B. Trigeminal – I branches.
- C. Trigeminal – II branch.
- D. Trigeminal – III branches.
- E. Facial (his motor portion).

3. A patient with purulent otitis media complains of taste disorders on the front 2/3 of the tongue, and salivation disorders. Which nerve is affected?

- A. Stapedius
- B. Tympanic chord
- C. Great petrosal nerve
- D. Lesser petrosal nerve
- E. Lingual

4. The patient after a cold developed a violation of tearing. Which vegetative node suffered the most?

- A. Submandibular

- B. Ciliary
- C. Otic
- D. Pterygopalatine
- E. Sublingual

5. The patient lost the taste sensations of the front of two thirds of the tongue. Which nerve dysfunction can be assumed?

- A. The lingual-pharyngeal nerve
- B. Tympanic chord
- C. The vagus nerve
- D. Sublingual nerve
- E. Accessory nerve

6. The patient was diagnosed with facial nerve damage. At what level is the nerve damaged if the patient has the following combination of clinical symptoms: paralysis of facial muscles, impaired taste sensitivity of the front of the tongue, dry mouth (decreased salivation)? There is no decrease in tearing.

- A. In the canal of the facial nerve below the knee, after the discharge of the great petrosal nerve.
- B. Based on the brain.
- C. In the canal of the facial nerve, near the discharge of the great petrosal nerve.
- D. After the nerve exits the canal.
- E. In the parotid gland.

7. Examination of the patient, who went to the neurological department, revealed smoothing of the frontal folds, inability to squint, the corner of the mouth is lowered, "sails" the cheek. Which nerve is damaged?

- A. Additional
- B. Oculomotor
- C. Trigeminal
- D. Vagus
- E. Facial

8. Which nerve is affected if the patient's right nasolabial fold is smoothed, dilated right orbit (it can not be closed during closing (because the eyelids do not close), there are difficulties in talking and eating (food is stuck between the cheek and teeth)?

- A. N. glossopharyngeus sinister
- B. N. abduceus dexter
- C. N. facialis dexter
- D. N. vagus dexter
- E. N. trigeminus dexter

9. Due to the dislocation of the lower jaw, the patient has a lack of taste in the front of the tongue and tearing. Which nerve is it irritated by?

- A. Tympanic chord
- B. Sublingual
- C. Mandibular
- D. Vagus
- E. Facial

10. The 52-year-old patient suddenly developed facial asymmetry. The entire affected half of the face is inviolable, the nasolabial fold is smoothed, the orbit is widened; the eye is not closed, the corner of the mouth is lowered. This syndrome is caused by damage to the following nerve:

- A. Trigeminal
- B. Glossopharyngeal
- C. Facial.
- D. Additional.
- E. Sublingual

Facial nerve (VII). Pterygopalatine, submandibular and sublingual autonomic ganglia of the head

Key to the test with explanation*

1	D	Facial nerve innervates facial muscles.
2	E	Facial nerve innervates facial muscles.
3	B	Taste sensitivity of the anterior 2/3 of the tongue is provided by the chorda tympani of the facial nerve.
4	D	Vegetative innervation of the lacrimal gland is provided by pterygopalatine ganglion.
5	B	Taste sensitivity of the anterior 2/3 of the tongue is provided by the chorda tympani of the facial nerve.
6	A	The great petrosal nerve provides tearing.
7	E	Facial nerve innervates facial muscles.
8	C	Facial nerve innervates facial muscles.
9	A	Taste sensitivity of the anterior 2/3 of the tongue is provided by the chorda tympani of the facial nerve.
10	C	Facial nerve innervates facial muscles.

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Glossopharyngeal nerve (IX). Otic ganglion. Hypoglossal nerve (XII)

1. A 45-year-old man went to the clinic with complaints to loss of sensitivity in the posterior 1/3 of the tongue. Which pair of cranial nerves is impaired?

- A. IX
- B. X
- C. VIII
- D. V
- E. XII

2. During the patient examination, the deviation of tip tongue to the left is observed. Motor innervation of which cranial nerve is disturbed in this case?

- A. N. glossopharyngeus dexter.
- B. N. vagus dexter.
- C. N. trigeminus sinister.
- D. N. hypoglossus dexter.
- E. N. facialis sinister

3. The patient admitted to the neurological department, the examination revealed a deviation of the tongue to the side when protruding, atrophic changes in half of the tongue, speech disorders, difficulty swallowing. Which nerve is damaged?

- A. Sublingual
- B. Hypoglossal
- C. Tympanic chord
- D. Glossopharyngeal
- E. Vagus

4. It is difficult for a 60-year-old patient to form and swallow a food, it interferes with the feeding process. The tongue is motionless, it is impossible to lift. The reason for this could be damage:

- A. Sublingual
- B. Hypoglossal
- C. Tympanic chord
- D. Glossopharyngeal
- E. Vagus

5. The patient has impaired motor function of the tongue. Which nerve pathology is related to?

- A. Vagus
- B. Glossopharyngeal
- C. Facial
- D. Accessory
- E. Hypoglossal

6. At an intracerebral hemorrhage at the patient constant indistinct language. Sound production of the larynx and movements of the lower jaw are preserved. Which nerve nuclei are affected?

- A. Nuclei n. trigemini
- B. Nuclei n. hypoglossi
- C. Nuclei n. accessorii
- D. Nuclei n. facialis
- E. Nuclei n. glossopharyngeus

7. Which nerve consists of parasympathetic preganglionic fibers to the otic ganglion?

- A. Stapedius
- B. Tympanic chord
- C. Great petrosal nerve
- D. Lesser petrosal nerve
- E. Lingual

8. What sensitive branches are not present in N. glossopharyngeus?

- A. R. Lingualis
- B. Rr. Pharyngeal
- C. R. Carotid sinus
- D. Rr. Tonsils
- E. Rr. Sublinguales

9. Which motor branch is present in N. glossopharyngeus?

- A. R. Stylopharyngeal muscle
- B. R. Mylohyosdei muscles
- C. R. muscle masseter
- D. R. tensoris tympanic muscles
- E. Rr. musculi pterygoidei lat. Et med.

10. Which of the N. Glossopharyngeus branches has parasympathetic fibers?

- A. R. lingualis
- B. Rr. pharyngeal
- C. R. carotid sinus
- D. N. tympanicus
- E. Rr. sublinguales

Glossopharyngeal (IX) nerve. Otic ganglion. Hypoglossal (XII) nerve.

Key to the test with explanation*

1	A	Taste and general sensitivity of the posterior 2/3 of the tongue is provided by the lingual branches of the glossopharyngeal nerve.
2	D	Hypoglossal nerve provides innervation of the lingual muscles.
3	B	Hypoglossal nerve provides innervation of the lingual muscles.
4	B	Hypoglossal nerve provides innervation of the lingual muscles.
5	E	Hypoglossal nerve provides innervation of the lingual muscles.
6	B	Hypoglossal nerve provides innervation of the lingual muscles.
7	D	Parasympathetic preganglionic fibers delivered to the otic ganglion by the lesser petrosal nerve.
8	E	Glossopharyngeal nerve gives no sublinguals branches.
9	A	Glossopharyngeal nerve innervates stylopharyngeal muscle.
10	D	Tympanic nerve contains parasympathetic fibers.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 116-117, 124.**

Vagus nerve (X) and accessory nerve (XI)

1. Examination of the patient shows atrophy of the SCM muscle and upper edge of the trapezius muscles. Complicated turning of the head in the opposite direction. Which nerve is affected?

- A. Accessory
- B. Vagus
- C. Intercostal
- D. The brachial plexus
- E. Hypoglossal

2. A patient with an aneurysm of the right subclavian artery has hoarseness. Which nerve irritation can this be related to?

- A. N. laryngeus superior dexter
- B. N. laryngeus recurrens dexter
- C. N. laryngeal recurrens sinister
- D. N. laryngeal superior sinister
- E. N. inferior sinister larynx

3. The patient after subtotal subfascial resection of the thyroid gland. In the postoperative period, hoarseness persists for a long time. Which nerve is damaged during surgery?

- A. Superior laryngeal nerve
- B. Hypoglossal nerve
- C. Recurrent laryngeal nerve
- D. Lingual nerve
- E. Mandibular nerve

4. Identify the branches of the vagus nerve (X) head part

- A. Meningeal branch, auricular branch
- B. Tonsillar branches
- C. Lingual branches
- D. Pharyngeal branches
- E. Esophageal branches

5. Indicate the area of innervation of the auricular branch of the vagus nerve [X]

- A. Mucous membrane of the tympanic cavity
- B. Mucous membrane of the eustachian tube
- C. Skin of the external auditory canal and auricle
- D. Skin of the back of the head
- E. Skin of the temporal area

6. Indicate the branches of the vagus nerve neck part [X]

- A. Aortic branch
- B. Superior laryngeal nerve
- C. Recurrent laryngeal nerve
- D. Esophageal branches
- E. Bronchial branches

7. Indicate the muscles that are innervated by the motor fibers of the pharyngeal branches of the vagus nerve [X]

- A. M. tensor tympani, m. uvulae
- B. M. levator veli palatine, m. uvulae
- C. M. palatoglossus
- D. M. palatopharyngeus
- E. M. stylopharyngeus

8. Specify muscles innervated by motor nerve fibers of the upper laryngeal nerve

- A. Crycothyroid, lower pharyngeal constrictor
- B. Upper pharyngeal constrictor, middle pharyngeal constrictor
- C. Crycoarytenoid, thyroarytenoid
- D. Thyroepiglottic, vocal
- E. Arytenoepiglottic, transverse arytenoid

9. Indicate branches that do not belong to the thoracic part of vagus nerve [X]

- A. Recurrent laryngeal nerve
- B. Bronchial branches
- C. Thoracic cardiac branches
- D. Esophageal branch
- E. Aortic branches

10. Indicate muscles innervated by accessory nerve [XI]

- A. Rhomboid muscles, SCM muscle
- B. SCM muscle, trapezius muscle
- C. Platyzma, trapezius muscle
- D. Suprahyoid
- E. Infrahyoid

Vagus nerve (X) and accessory nerve (XI)

Key to the test with explanation*

1	A	Accessory nerve innervates sternocleidomastoid and trapezius muscles.
2	B	Right laryngeal recurrent nerve wraps around the right subclavian artery.
3	C	Recurrent laryngeal nerve goes behind the thyroid gland.
4	A	The cranial part of vagus nerve gives meningeal and auricular branches.
5	C	The auricular branch of the vagus innervates the skin of the external auditory canal and auricle.
6	B	Superior laryngeal nerve is the branch of the the cervical part of vagus nerve.
7	B	Pharyngeal branches of the vagus nerve innervate m. levator veli palatini, m. uvulae.
8	A	Superior laryngeal nerve innervates crycothyroid, inferoir pharyngeal constrictor.
9	E	Vagus nerve gives no aortic branches.
10	B	Accessory nerve innervates sternocleidomastoid and trapezius muscles.

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CHAPTER 3. PERIPHERAL NERVOUS SYSTEM

Spinal nerves. General information

1. Spinal nerves comes under which part of nervous system?

- A. Peripheral nervous system
- B. Central nervous system
- C. Somatic nervous system
- D. Autonomic nervous system
- E. -

2. How many pairs of spinal nerves are present in the body?

- A. 31
- B. 12
- C. 15
- D. 30
- E. 33

3. Which of the following is a branch of lumbar plexus?

- A. Femoral nerve
- B. Ilioinguinal nerve
- C. Obturator nerve
- D. All of the above
- E. None of the above

4. Anterior root contains which kind of nerve fiber?

- A. Sensory fibers
- B. Motor fibers
- C. Mixed fibers
- D. Does not contain nerve fibers
- E. -

5. Which branch supplies the lower and upper limbs?

- A. Anterior rami
- B. Posterior rami
- C. Meningeal rami
- D. Rami communicantes

E. -

6. Which of the following statement is true?

- A. Posterior rami supply lower limb
- B. Spinal nerves are part of CNS
- C. Branches of spinal nerves occur after reaches body structure
- D. All spinal nerves are mixed nerves
- E. -

7. Through which structure, the spinal nerves leave the vertebral canal?

- A. Intervertebral foramen
- B. Intervertebral ligaments
- C. Grey matter of spinal cord
- D. White matter of spinal cord
- E. -

8. Clusters of nerve cell bodies inside the PNS are called:

- A. Ganglia
- B. Tracts
- C. Nerves
- D. Nuclei
- E. Tracts or ganglia

9. Impulse conduction is fastest in neurons that are:

- A. Myelinated
- B. Unmyelinated
- C. Sensory
- D. Motor
- E. Cerebral

10. Preparing the body for “fight-or-flight” response during threatening situations is the role of the:

- A. Sympathetic nervous system
- B. Cerebrum

- C. Parasympathetic nervous system
- D. Somatic nervous system
- E. Afferent nervous system

Roots of Spinal nerve

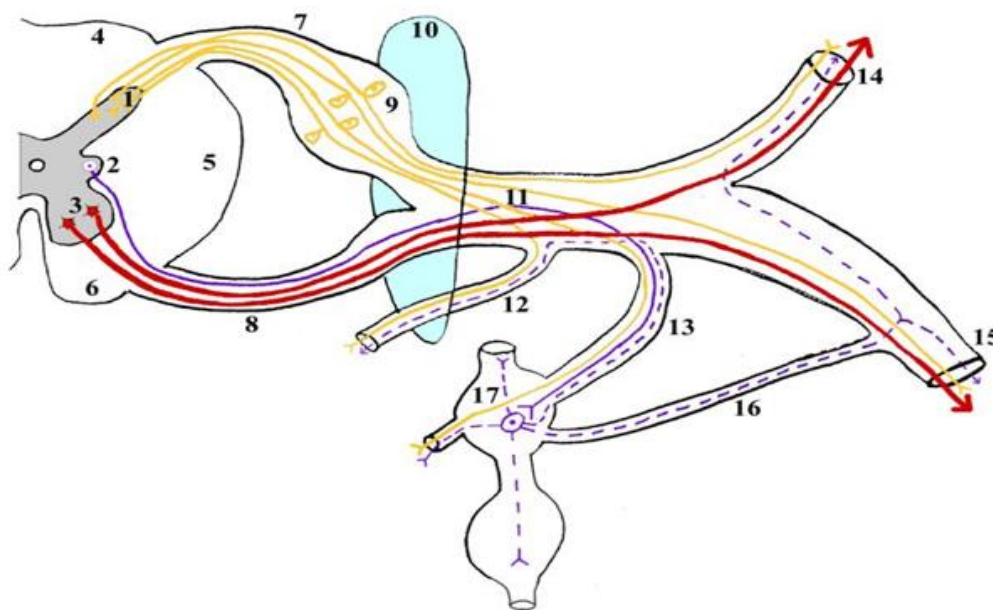


Diagram 1. Scheme of spinal nerve (source <https://slideplayer.com/slide/5920435/>)

11. Which structure is indicated by number 9 (diagram №1)?

- A. Spinal ganglion
- B. Trigeminal ganglion
- C. Otic ganglion
- D. Sympathetic trunk ganglion
- E. Parasympathetic ganglion

13. Which structure is indicated by number 12 (diagram №1)?

- A. Meningeal branch
- B. Anterior branch
- C. Posterior branch
- D. Gray communicant branch
- E. White communicant branch

12. Which structure is indicated by number 17 (diagram №1)?

- A. Spinal ganglion
- B. Trigeminal ganglion
- C. Otic ganglion
- D. Sympathetic trunk ganglion
- E. Parasympathetic ganglion

14. Which structure is indicated by number 13 (diagram №1)?

- A. Meningeal branch
- B. Anterior branch
- C. Posterior branch
- D. Gray communicant branch
- E. White communicant branch

15. Which structure is indicated by number 16 (diagram №1)?

- A. Meningeal branch
- B. Anterior branch
- C. Posterior branch
- D. Gray communicant branch
- E. White communicant branch

16. Which structure is indicated by number 15 (diagram №1)?

- A. Meningeal branch
- B. Anterior branch
- C. Posterior branch
- D. Gray communicant branch
- E. White communicant branch

17. Which structure is indicated by number 14 (diagram №1)?

- A. Meningeal branch
- B. Anterior branch
- C. Posterior branch
- D. Gray communicant branch
- E. White communicant branch

18. Which structure is indicated by number 7 (diagram №1)?

- A. Anterior root
- B. Posterior root
- C. Trunk of spinal nerve
- D. Anterior branch
- E. Posterior branch

19. Which structure is indicated by number 8 (diagram №1)?

- A. Anterior root
- B. Posterior root
- C. Trunk of spinal nerve
- D. Anterior branch
- E. Posterior branch

20. Which structure is indicated by number 11 (diagram №1)?

- A. Anterior root
- B. Posterior root
- C. Trunk of spinal nerve
- D. Anterior branch
- E. Posterior branch

21. Which structure is indicated by number 10 (diagram №1)?

- A. Intravertebral opening
- B. Vertebral opening
- C. Transverse foramen
- D. Sacral canal
- E. Sacral hiatus

Spinal nerves. General information.

Key to the test with explanation*

1	A	Spinal nerves related to peripheral nervous system.
2	A	There are 31 pairs of spinal nerves.
3	D	Femoral, ilioinguinal and obturator nerves are branches of lumbar plexus.
4	C	Anterior roots contain motor and vegetative fibers.
5	A	Anterior branches of spinal nerves innervate lower and upper limbs.
6	D	All spinal nerves contain mixed fibers.
7	A	Spinal nerves leave the vertebral canal through the intervertebral openings.
8	A	Ganglion is the aggregation of the neuron's bodies in PNS.
9	A	Myelin provides fast conduction of the neural impulse.
10	A	Sympathetic is "fight-or-flight" system.
11	A	That is spinal ganglion.
12	D	That is sympathetic trunk ganglion.
13	A	That is meningeal branch.
14	E	That is white ramus communicans.
15	D	That is gray ramus communicans.
16	B	That is anterior branch.
17	C	That is posterior branch.
18	B	That is posterior root.
19	A	That is anterior root.
20	C	That is the trunk of spinal nerve.
21	A	That is intravertebral opening.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 126-128.**

Cervical nerves and plexus

1. All of the nerves below innervate the skin and exit from under the posterior edge of the sternocleidomastoid muscle, with the exception of

- A. Small occipital.
- B. Large auricular.
- C. Transverse cervical nerve.
- D. Supraclavicular.
- E. Temporal.

2. Which of the following nerves innervate the muscles that lie below the hyoid bone

- A. Vagus nerve.
- B. Subclavian loop
- C. Facial nerve.
- D. Glossopharyngeal nerve.
- E. Cervical loop.

3. When isolating the subclavian artery (a. subclavia) in the intermuscular space, crossing the anterior scalenus muscle (m. scalenus anterior), it is necessary to remember about:

- A. Star-like ganglion of sympathetic trunk.
- B. C7-spinal nerve.
- C. Phrenic nerve
- D. Accessory nerve.
- E. Hyoid nerve.

4. What nerves belong to the skin branches of the cervical plexus:

- A. N. auricularis magnus
- B. N. transversus coli
- C. Nn. supraclaviculares
- D. All of the above
- E. None of the above

5. Which branch does not belong to the cervical plexus:

- A. Branch to m. mylohyoideus

- B. Branch to m. longus coli,
- C. Branch to m. longus capitis,
- D. Branch up to mm. scaleni,
- E. Branch up to mm. Recti capitis anterior et lateralis,

6. Which branches do not belong to n. phrenicus:

- A. Motor branches to the diaphragm
- B. Sensitive to the transverse colon
- C. Sensitive to the pleura of the pericardium,
- D. Sensitive to the parietal peritoneum
- E. Sensitive to the fibrous capsule of the liver

7. A 43-year-old man with a cut wound of neck was taken to the hospital. After examination, the doctor of the admission department found nerve damage and a decrease in the mobility of the diaphragm. Which nerve is damaged?

- A. Ansa cervicalis
- B. Vagus nerve
- C. Lingual-pharyngeal nerve
- D. Phrenic nerve
- E. Accessory nerve

8. In the postoperative period, a 36-year-old man had convulsive contractions of the diaphragm. The doctor blocked one of the branches of the cervical plexus, which eliminated this complication. Which branch of the cervical plexus was blocked by a doctor?

- A. N. phrenicus
- B. N. transversus coli
- C. N. occipitalis minor
- D. Nn. supraclaviculares
- E. Ansa cervicalis

9. A 50-year-old man who was hospitalized with a stab wound to the neck, as a result of damage to the skin branch of the cervical plexus, there is no sensitivity of the skin in the anterior triangle of the neck. Which branch of the cervical plexus is damaged?

- A. Transverse cervical nerve.
- B. The great auricular nerve.
- C. Small occipital nerve.
- D. Supraclavicular nerves

10. After examining a 48-year-old woman, a neurologist found damage to the anterior root of the 5th cervical spinal nerve. Which axons are damaged by function?

- A. Only somato-motor
- B. Only sensitive pseudounipolar
- C. Sensitive pseudounipolar and somato-motor
- D. Sensitive pseudounipolar and vegetative
- E. Somato-motor and autonomic

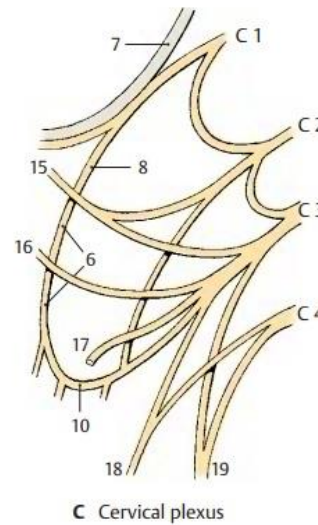
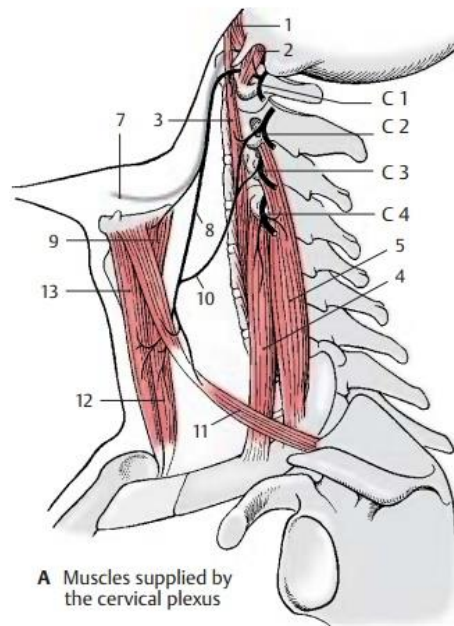


Diagram 2 (A, C). Scheme of cervical plexus (3 сайту [https://www.brainkart.com/article/Cervical-Plexus-\(C1-C4\)-Peripheral-Nerves_14764/](https://www.brainkart.com/article/Cervical-Plexus-(C1-C4)-Peripheral-Nerves_14764/))

E. Ansa cervicalis

11. Which structure is indicated by number 10 (diagram №2 A)?

- A. Inferior root of ansa cervicalis
- B. Superior root of ansa cervicalis
- C. Hypoglossal nerve
- D. Vagus nerve
- E. Phrenic nerve

12. Which structure is indicated by number 8 (diagram №2 A)?

- A. Inferior root of ansa cervicalis
- B. Superior root of ansa cervicales
- C. Hypoglossal nerve
- D. Vagus nerve
- E. Phrenic nerve

13. Which structure is indicated by number 7 (diagram №2 A)?

- A. Inferior root of ansa cervicalis
- B. Superior root of ansa cervicalis
- C. Hypoglossal nerve
- D. Vagus nerve
- E. Phrenic nerve

14. Which structure is indicated by number 19 (diagram №2 C)?

- A. Inferior root of ansa cervicalis
- B. Superior root of ansa cervicalis
- C. Hypoglossal nerve
- D. Vagus nerve
- E. Phrenic nerve

15. Which structure is indicated by number 3 (diagram №2 A)?

- A. muscular branches for the Long cervical muscle
- B. muscular branches for the Medial scalene muscle
- C. muscular branches for the Anterior scalene muscle
- D. muscular branches for the Omohyoid muscle
- E. muscular branches for the Thyrohyoid muscle

16. Which structure is indicated by number 5 (diagram №2 A)?

- A. muscular branches for the Long cervical muscle
- B. muscular branches for the Medial scalene muscle
- C. muscular branches for the Anterior scalene muscle
- D. muscular branches for the Omohyoid muscle
- E. muscular branches for the Thyrohyoid muscle

17. Which structure is indicated by number 4 (diagram №2 A)?

- A. muscular branches for the Long cervical muscle
- B. muscular branches for the Medial scalene muscle
- C. muscular branches for the Anterior scalene muscle
- D. muscular branches for the Omohyoid muscle
- E. muscular branches for the Thyrohyoid muscle

18. Which structure is indicated by number 11 (diagram №2 A)?

- A. muscular branches for the Long cervical muscle
- B. muscular branches for the Medial scalene muscle
- C. muscular branches for the Anterior scalene muscle
- D. muscular branches for the Omohyoid muscle
- E. muscular branches for the Thyrohyoid muscle

19. Which structure is indicated by number 9 (diagram №2 A)?

- A. muscular branches for the Long cervical muscle
- B. muscular branches for the Medial scalene muscle
- C. muscular branches for the Anterior scalene muscle
- D. muscular branches for the Omohyoid muscle
- E. muscular branches for the Thyrohyoid muscle

20. Which structure is indicated by number 15 (diagram №2 C)?

- A. Lesser occipital nerve
- B. Greater auricular nerve
- C. Transverse cervical nerve
- D. Supraclavicular nerves
- E. Phrenic nerve

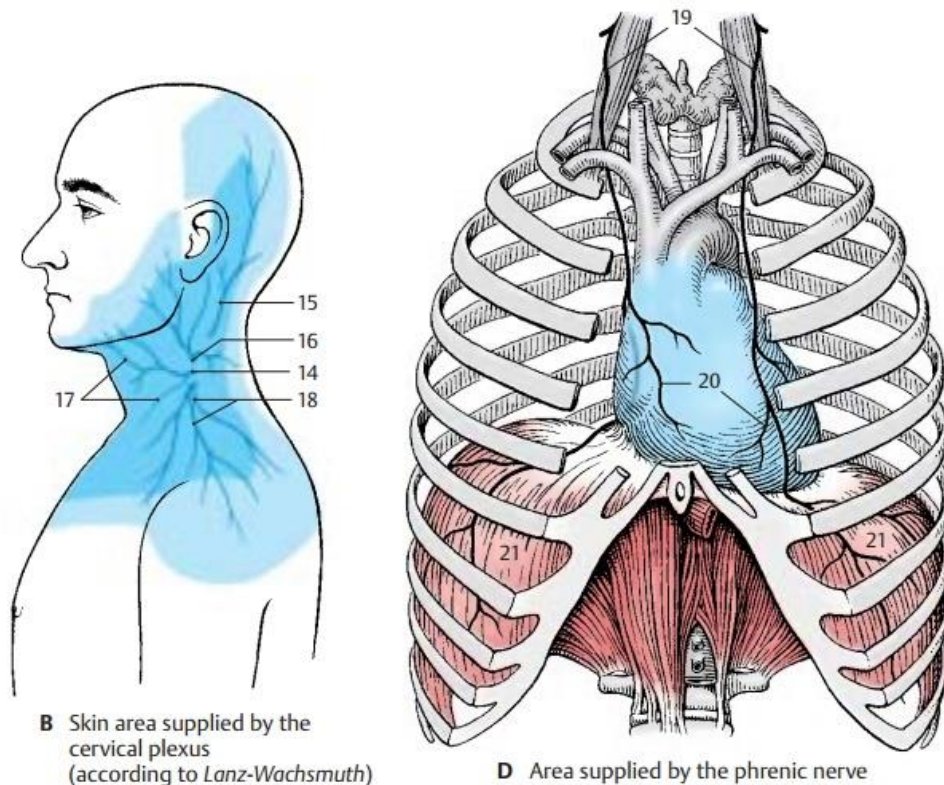


Diagram 2 (B, D). Scheme of cervical plexus (з сайту [https://www.brainkart.com/article/Cervical-Plexus-\(C1---C4\)---Peripheral-Nerves_14764/](https://www.brainkart.com/article/Cervical-Plexus-(C1---C4)---Peripheral-Nerves_14764/))

21. Which structure is indicated by number 15 (diagram №2 B)?

- A. Lesser occipital nerve
- B. Greater auricular nerve
- C. Transverse cervical nerve
- D. Supraclavicular nerves
- E. Phrenic nerve

22. Which structure is indicated by number 16 (diagram №2 B)?

- A. Lesser occipital nerve
- B. Greater auricular nerve
- C. Transverse cervical nerve
- D. Supraclavicular nerves
- E. Phrenic nerve

23. Which structure is indicated by number 17 (diagram №2 B)?

- A. Lesser occipital nerve
- B. Greater auricular nerve
- C. Transverse cervical nerve
- D. Supraclavicular nerves
- E. Phrenic nerve

24. Which structure is indicated by number 18 (diagram №2 B)?

- A. Lesser occipital nerve
- B. Greater auricular nerve
- C. Transverse cervical nerve
- D. Supraclavicular nerves
- E. Phrenic nerve

25. Which structure is indicated by number 19 (diagram №2 D)?

- A. Lesser occipital nerve
- B. Greater auricular nerve
- C. Transverse cervical nerve
- D. Supraclavicular nerves
- E. Phrenic nerve

Cervical nerves and plexus

Key to the test with explanation*

1	E	Temporal nerve do not goes behind sternocleidomastoid muscle.
2	E	Cervical loop innervates infrahyoid muscles.
3	C	Phrenic nerve goes behind the anterior scalenus muscle.
4	D	Auricular magnus, transverse coli and supraclavicular nerves are skin branches of the cervical plexus.
5	A	Mylohyoid branch does not belong to the cervical plexus.
6	B	Phrenic nerve does not give sensitive branches to the transverse colon.
7	D	Phrenic nerve innervates the diaphragm.
8	A	Phrenic nerve innervates the diaphragm.
9	A	Transverse cervical nerve innervates the skin of the anterior triangle of the neck.
10	A	Anterior root of the 5th cervical spinal nerve contains only motor fibers.
11	A	That is inferior root of ansa cervicalis.
12	B	That is superior root of ansa cervicalis.
13	C	That is hypoglossal nerve.
14	E	That is phrenic nerve.
15	A	That is muscular branch to the longus coli muscle.
16	B	That is muscular branch to the medial scalene muscle.
17	C	That is muscular branch to the anterior scalene muscle.
18	D	That is muscular branch to the omohyoid muscle.
19	E	That is muscular branch to the thyrohyoid muscle.
20	A	That is lesser occipital nerve.
21	A	That is lesser occipital nerve.
22	B	That is great auricular nerve.
23	C	That is transversus coli nerve.
24	D	That is supraclavicular nerves.
25	E	That is phrenic nerve.

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Brachial plexus: supraclavicular part and posterior fasciculus

1. What structure does the axillary nerve pass through?

- A. Foramen trilaterum
- B. Incisura scapulae
- C. Foramen quadrilaterum
- D. Canalis spiralis
- E. Fossa cubitalis

2. What artery accompanies the radial nerve in the humeromuscular canal?

- A. A. profunda brachii
- B. A. radialis
- C. A. ulnaris
- D. A. brachialis
- E. A. axillaris

3. In what space are the trunks of the brachial plexus?

- A. Spatium prescalenum
- B. Spatium postscalenum
- C. Spatium interscalenum
- D. Spatium antescalenum
- E. None of them

4. What artery accompanies the long pectoral nerve?

- A. A. thoracoacromialis
- B. A. thoracica lateralis
- C. A. thoracica superior
- D. A. thoracica inferior
- E. A. thoracica interna

5. What nerve innervates the rhomboid muscles?

- A. N. suprascapularis
- B. N. subscapularis
- C. N. thoracodorsalis
- D. N. thoracicus longus
- E. N. dorsalis scapulae

6. Which nerve innervates the muscle with the same name?

- A. N. dorsalis scapulae
- B. N. suprascapularis
- C. N. subscapularis
- D. N. thoracodorsalis
- E. N. thoracicus longus

7. What muscle does the thoracic nerve innervate?

- A. M. latissimus dorsi
- B. M. deltoideus
- C. M. serratus anterior
- D. M. rhomboideus
- E. M. trapezius

8. Which nerve runs to the incisura scapulae?

- A. N. suprascapularis
- B. N. subscapularis
- C. N. subclavius
- D. N. dorsalis scapulae
- E. N. thoracicus longus

9. What muscle is not innervated by the radial nerve?

- A. M. supinator
- B. M. brachioradialis
- C. M. extensor carpi ulnaris
- D. M. extensor carpi radialis
- E. M. flexor carpi radialis

10. What muscle is innervated by the radial nerve?

- A. M. abductor pollicis longus
- B. M. abductor pollicis brevis
- C. M. adductor pollicis
- D. M. flexor pollicis brevis
- E. M. opponens pollicis

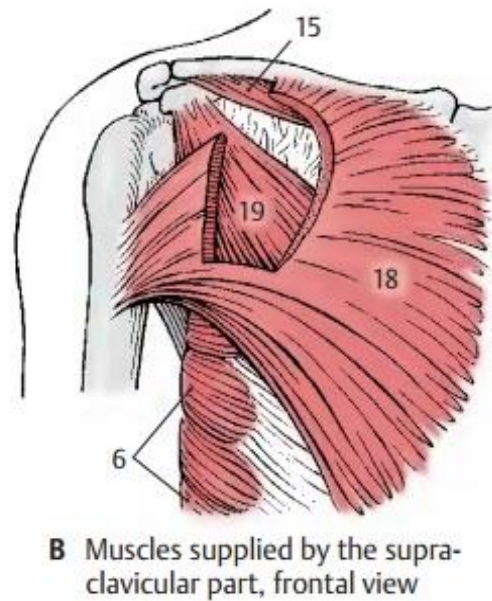
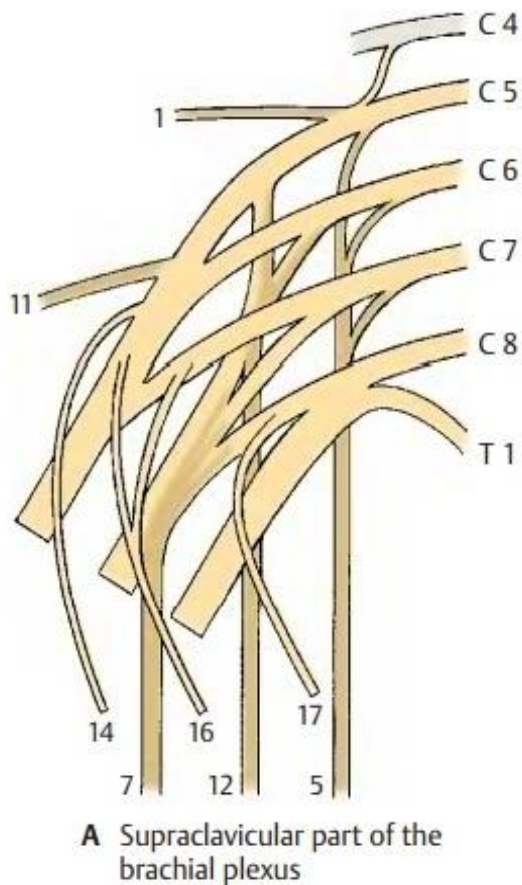


Diagram 3 (A, B). Scheme of supraclavicular part of brachial plexus (source <https://www.brainkart.com/article/>)

11. Which structure is indicated by number 7 (diagram №3 A)?

- A. Thoracodorsal nerve
- B. Dorsal scapular nerve
- C. Long thoracic nerve
- D. Suprascapular nerve
- E. Subscapular nerve

12. Which structure is indicated by number 1 (diagram №3 a)?

- A. Thoracodorsal nerve
- B. Dorsal scapular nerve
- C. Long thoracic nerve
- D. Suprascapular nerve
- E. Subscapular nerve

13. Which structure is indicated by number 5 (diagram №3 a)?

- A. Thoracodorsal nerve
- B. Dorsal scapular nerve
- C. Long thoracic nerve
- D. Suprascapular nerve
- E. Subscapular nerve

14. Which structure is indicated by number 11 (diagram №3 a)?

- A. Thoracodorsal nerve
- B. Dorsal scapular nerve
- C. Long thoracic nerve
- D. Suprascapular nerve
- E. Subscapular nerve

15. Which structure is indicated by number 12 (diagram №3 A)?

- A. Thoracodorsal nerve
- B. Dorsal scapular nerve
- C. Long thoracic nerve
- D. Suprascapular nerve
- E. Subscapular nerve

16. Which structure is indicated by number 14 (diagram №3 a)?

- A. Subclavius nerve
- B. Lateral pectoral nerve
- C. Medial pectoral nerve
- D. Suprascapular nerve
- E. Long thoracic nerve

17. Which structure is indicated by number 16 (diagram №3 a)?

- A. Subclavius nerve
- B. Lateral pectoral nerve
- C. Medial pectoral nerve
- D. Suprascapular nerve
- E. Long thoracic nerve

18. Which structure is indicated by number 17 (diagram №3 a)?

- A. Subclavius nerve
- B. Lateral pectoral nerve
- C. Medial pectoral nerve
- D. Suprascapular nerve
- E. Long thoracic nerve

19. Which structure is indicated by number 6 (diagram №3 b)?

- A. Anterior serratus muscle
- B. Subclavius muscle
- C. Greater pectoral muscles.
- D. Lesser pectoral muscles.
- E. Latissimus dorsi muscle

20. Which structure is indicated by number 15 (diagram №3 b)?

- A. Anterior serratus muscle
- B. Subclavius muscle
- C. Greater pectoral muscles
- D. Lesser pectoral muscles
- E. Latissimus dorsi muscle

21. Which structure is indicated by number 6 (diagram №3 b)?

- A. Anterior serratus muscle
- B. Subclavius muscle
- C. Greater pectoral muscles
- D. Lesser pectoral muscles
- E. Latissimus dorsi muscle

22. What spinal segments brachial plexus starts from?

- A. C₄-th
- B. C₁- th₁
- C. C₄-C₈
- D. C₁-C₄
- E. C₈-th₂

23. Which structure is indicated by number 1 (diagram №4 c)?

- A. Superficial branch of radial nerve
- B. Lesser teres muscle of radial nerve
- C. Deep branch
- D. Dorsal digital nerves
- E. Posterior cutaneous nerve of the arm

24. Which structure is indicated by number 10 (diagram №4 c)?

- A. Superficial branch of radial nerve
- B. Teres minor muscle of radial nerve
- C. Deep branch
- D. Dorsal digital nerves

Posterior cutaneous nerve of the arm

25. Which structure is indicated by number 13 (diagram №4 C)?

- A. Superficial branch of radial nerve
- B. Lesser teres muscle of radial nerve
- C. Deep branch
- D. Dorsal digital nerves
- E. Posterior cutaneous nerve of the arm

26. Which structure is indicated by number 11 (diagram №4 C)?

- A. Superficial branch of radial nerve
- B. Lesser teres muscle of radial nerve
- C. Deep branch
- D. Dorsal digital nerves
- E. Posterior cutaneous nerve of the arm

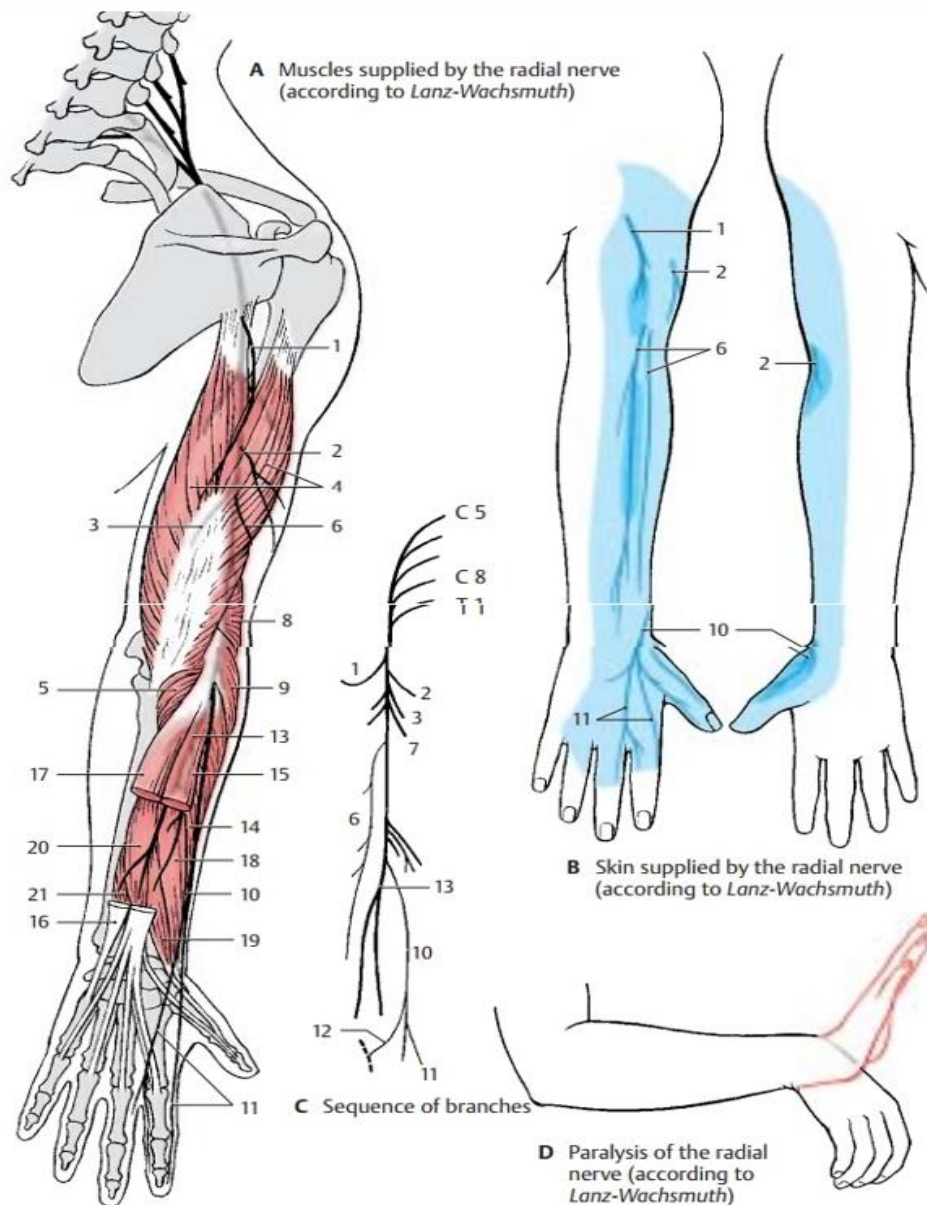


Diagram 4 (A-D). Scheme of infraclavicular part (posterior fasciculus) of brachial plexus (з сайту <https://www.brainkart.com/>)

Brachial plexus: supraclavicular part and posterior fasciculus

Key to the test with explanation*

1	C	Axillary nerve goes through the quadrilaterum foramen.
2	A	Arteria profunda brachii accompanies the radial nerve in the humeromuscular canal.
3	C	Trunks of the brachial plexus are situated in the interscalene space.
4	B	Arteria thoracica lateralis accompanies the long pectoral nerve.
5	E	Dorsalis scapulae nerve innervates rhomboid muscles
6	C	Subscapular muscle is innervated by eponymous nerve.
7	C	Serratus anterior muscle is innervated by the long thoracic nerve.
8	A	Suprascapular nerve goes through scapular notch.
9	E	Flexor carpi radialis muscle is not innervated by radial nerve.
10	A	Abductor pollicis longus muscle is innervated by radial nerve.
11	A	That is dorsal thoracic nerve.
12	B	That is dorsal scapular nerve.
13	C	That is long thoracic nerve.
14	D	That is suprascapular nerve.
15	E	That is subscapular nerve.
16	A	That is subclavius nerve.
17	B	That is lateral pectoral nerve.
18	C	That is medial pectoral nerve.
19	A	That is anterior serratus muscle.
20	B	That is subclavius muscle.
21	D	That is lesser pectoral muscle.
22	A	Brachial plexus arises from anterior branches of C ₄ -Th ₁ spinal nerves.
23	E	That is posterior cutaneous nerve of the arm.
24	A	That is superficial branch of radial nerve.
25	C	That is deep branch of radial nerve.
26	D	That are dorsal digital nerves.

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Lateral and medial fasciculi of the brachial plexus

1. If, as a result of a deep incision in the lower 1/3 of the forearm, flexion of the IV and V fingers of the hand is impaired, all types of sensitivity on the inner dorsal and palmar surfaces of the hand and skin of the IV finger are reduced, which nerve is injured.

- A. Radial.
- B. Median.
- C. Musculocutaneous.
- D. Axillary.
- E. Ulnar.

2. What are the long branches of the brachial plexus?

- A. Subscapularis, axillary, median, ulnar, radial.
- B. Long thoracic, ulnar, radial, median.
- C. Ulnar, radial, median, musculocutaneous, cutaneous medial nerve of the shoulder and forearm
- D. Thoracic medial and lateral, ulnar, radial, median.
- E. Posterior scapular, long thoracic, axillary, ulnar, radial.

3. In case of a lesion, which nerve is the "ape's wrist" observed?

- A. Ulnar.
- B. Radial.
- C. Axillary.
- D. Musculocutaneous.
- E. Median.

4. In case of a lesion, which nerve is the "claw-like" hand?

- A. Radial.
- B. Ulnar.
- C. Median.
- D. Axillary
- E. Musculocutaneous.

5. The flexor muscles of the forearm innervate the nerves:

- A. Ulnar and median
- B. Axillary and radial
- C. Musculocutaneous
- D. Radial and median
- E. None of the above

6. Which nerve innervates the anterior shoulder muscle group?

- A. Ulnar.
- B. Musculocutaneous.
- C. Radial.
- D. Median.
- E. Axillary.

7. Which nerve innervates the skin of the palmar surface of both sides of I, II, III and the radial side of the IV fingers?

- A. Ulnar.
- B. Radial.
- C. Musculocutaneous.
- D. Median.
- E. Axillary.

8. Which nerve innervates the skin of the palmar surface of the V and half of the IV fingers and the dorsum of the V, IV and half of the III fingers?

- A. Median.
- B. Radial.
- C. Ulnar.
- D. Intestinal dermal.
- E. Cutaneous medial nerve of the forearm.

9. Which nerve innervates the III-IV vermiform muscles and all the interosseous muscles?

- A. Ulnar.
- B. Radial.
- C. Median.

- D. Musculocutaneous.
- E. Cutaneous medial nerve of the forearm

10. Which structure is indicated by number 11 (diagram №5 C)?

- A. Palmar branch of the median nerve
- B. Muscular branches
- C. Common palmar digital nerves I – III
- D. Proper palmar digital nerves
- E. Anterior interosseous nerve of the forearm

11. Which structure is indicated by number 8 (diagram №5 c)?

- A. Muscular branches
- B. Common palmar digital nerves I – III
- C. Proper palmar digital nerves
- D. Anterior interosseous nerve of the forearm
- E. Palmar branch of the median nerve

12. Which structure is indicated by number 13 (diagram №5 c)?

- A. Muscular branches
- B. Common palmar digital nerves I – III
- C. Proper palmar digital nerves
- D. Anterior interosseous nerve of the forearm
- E. Palmar branch of the median nerve

13. Which structure is indicated by number 12 (diagram №5 c)?

- A. Muscular branches
- B. Common palmar digital nerves I – III
- C. Proper palmar digital nerves
- D. Anterior interosseous nerve of the forearm

- E. Palmar branch of the median nerve

14. Which structure is indicated by number 2 (diagram №5 c)?

- A. Muscular branches
- B. Common palmar digital nerves I – III
- C. Proper palmar digital nerves
- D. Anterior interosseous nerve of the forearm
- E. Palmar branch of the median nerve

15. Which structure is indicated by number 9 (diagram №6 c)?

- A. Deep branch of ulnar nerve
- B. Common palmar digital nerve iv
- C. Proper palmar digital nerves
- D. Dorsal branch of the ulnar nerve
- E. Palmar branch of the ulnar nerve

16. Which structure is indicated by number 6 (diagram №6 c)?

- A. Deep branch of ulnar nerve
- B. Common palmar digital nerve iv
- C. Proper palmar digital nerves
- D. Dorsal branch of the ulnar nerve
- E. Palmar branch of the ulnar nerve

17. Which structure is indicated by number 7 (diagram №6 c)?

- A. Deep branch of ulnar nerve
- B. Common palmar digital nerve iv
- C. Proper palmar digital nerves
- D. Dorsal branch of the ulnar nerve
- E. Palmar branch of the ulnar nerve

18. Which structure is indicated by number 4 (diagram №6 c)?

- A. Deep branch of ulnar nerve
- B. Common palmar digital nerve iv
- C. Proper palmar digital nerves
- D. Dorsal branch of the ulnar nerve
- E. Palmar branch of the ulnar nerve

20. Which structure is indicated by number 5 (diagram №6 c)?

- A. Deep branch of ulnar nerve
- B. Common palmar digital nerve iv

- C. Proper palmar digital nerves
- D. Dorsal branch of the ulnar nerve
- E. Palmar branch of the ulnar nerve

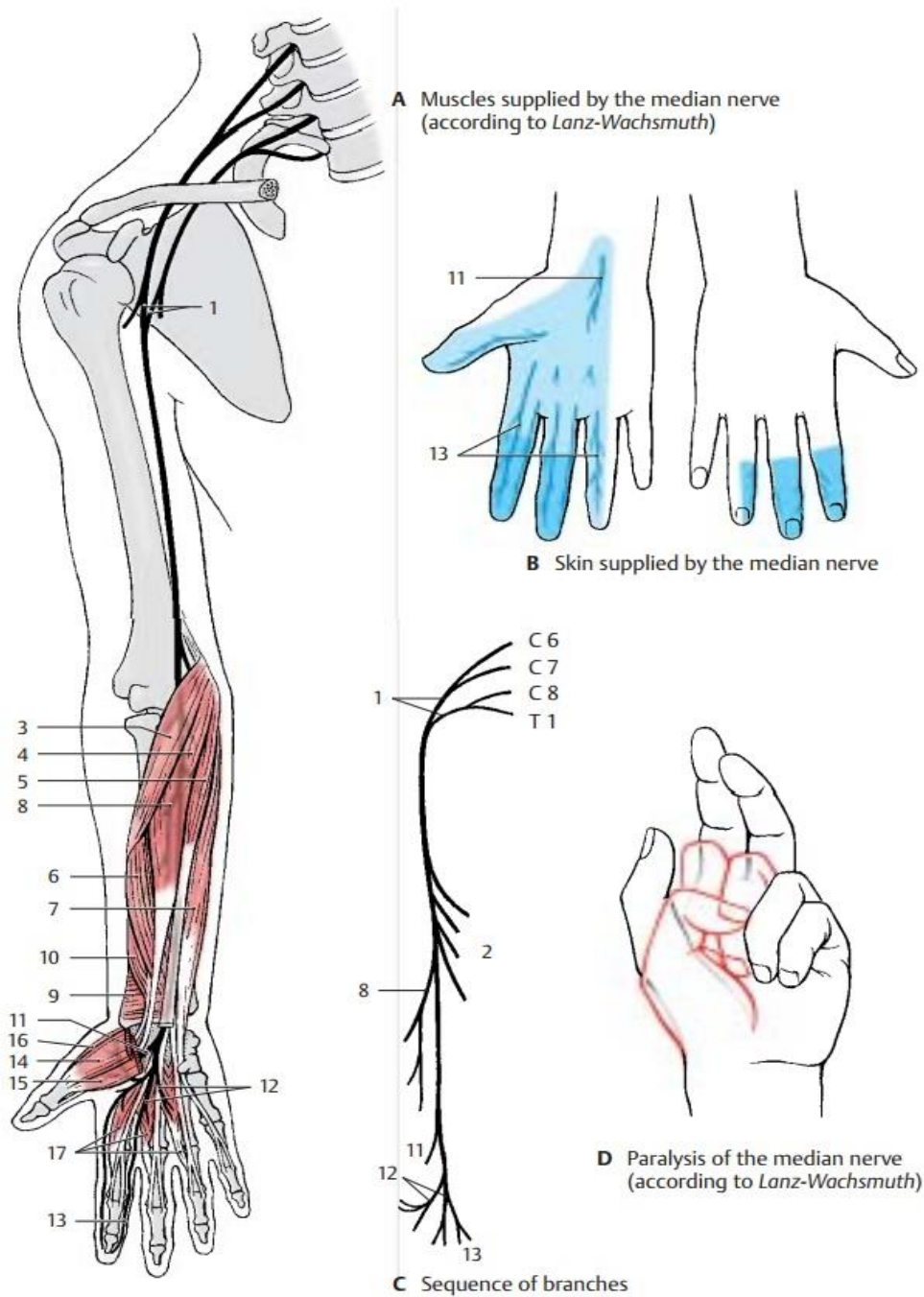


Diagram 5 (A-D). Scheme of infraclavicular part (Lateral fasciculus) of brachial plexus (source <https://www.brainkart.com/>)

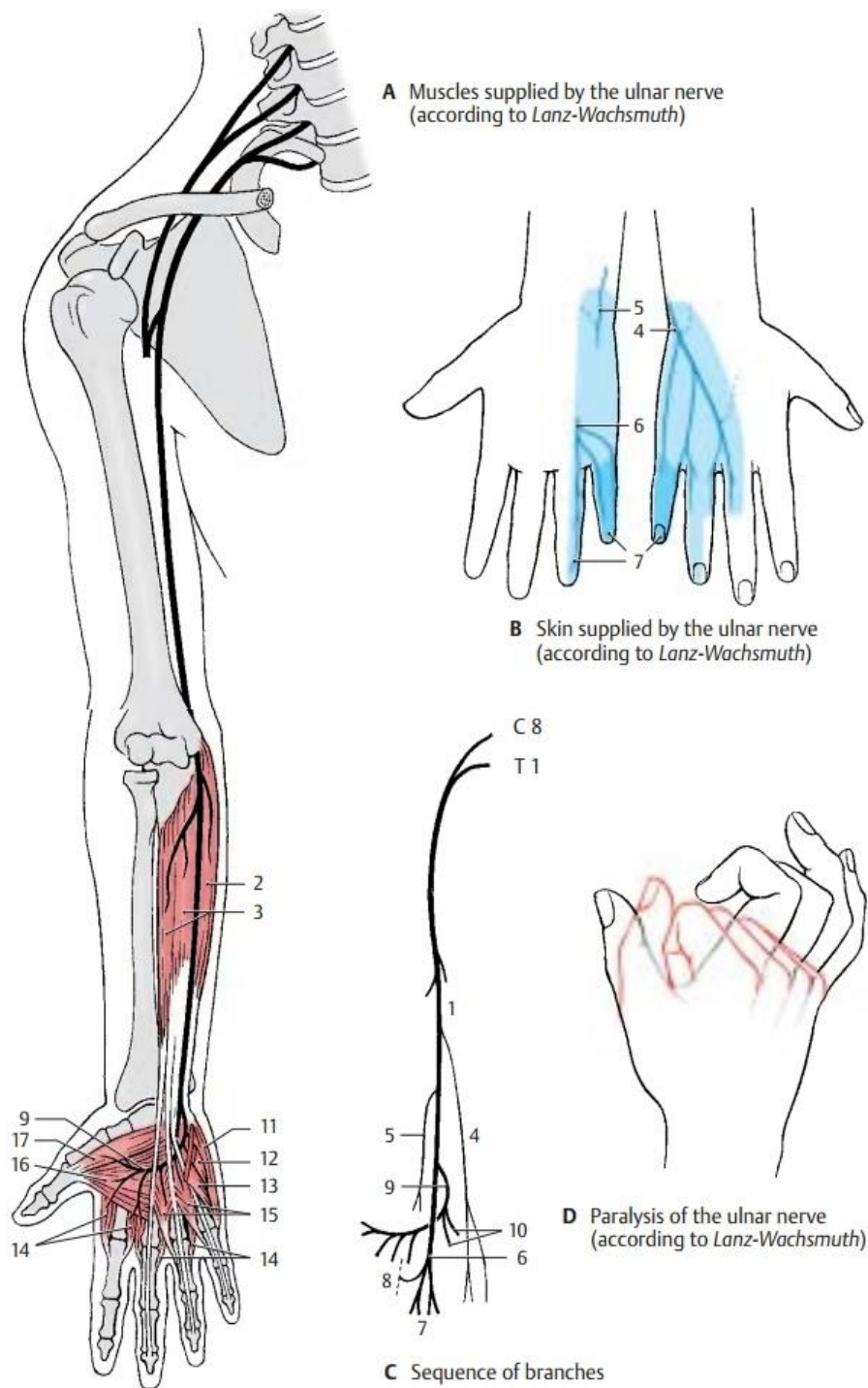


Diagram 6 (A-D). Scheme of infraclavicular part (Medial fasciculus) of brachial plexus (3 сайты <https://www.brainkart.com/>)

Lateral and medial fasciculi of the brachial plexus

Key to the test with explanation*

1	E	Ulnar nerve innervates the skin of medial marge of the hand and fifth finger.
2	C	Ulnar, radial, median, musculocutaneous and cutaneous medial nerve of the shoulder and forearm are the long branches of the brachial plexus.
3	E	Injury to the median nerve results in atrophy of the thenar muscles, that looks like “ape hand”.
4	B	Injury to the ulnar nerve results in prevailing of extensors and paralysis of interossei muscles that looks like claw hand.
5	A	Ulnar and median innervates flexor muscles of the forearm.
6	B	Musculocutaneous nerve innervates anterior shoulder muscles.
7	D	Median nerve innervates the skin of the palmar surface of both sides of I, II, III and the radial side of the IV fingers.
8	C	Ulnar nerve innervates the skin of the palmar surface of the V and half of the IV fingers and the dorsum of the V, IV and half of the III fingers.
9	A	Ulnar nerve innervates the III-IV vermiform muscles and all the interosseous muscles.
10	A	That is palmar branch of the median nerve.
11	D	That is anterior interosseous nerve of the forearm.
12	C	That is proper palmar digital nerves.
13	B	That is common palmar digital nerves I – III.
14	A	That is muscular branches.
15	A	That is deep branch of ulnar nerve.
16	B	That is common palmar digital nerve IV.
17	C	That is proper palmar digital nerves.
18	D	That is dorsal branch of the ulnar nerve.
19	E	That is palmar branch of the ulnar nerve.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 131-135.**

Thoracic and lumbar nerves. Lumbar plexus

1. The skin of the lateral surface of the thigh is innervated by . . .

- A. Femoral branch of the femoral-genital nerve
- B. Saphenous nerve
- C. Lateral cutaneous nerve of the thigh
- D. Femoral nerve
- E. Obturator nerve

2. The skin of the anterior abdominal wall, pubic and groin area are innervated by:

- A. Obturator nerves
- B. Subcostal nerves
- C. Genital nerves
- D. Intercostal nerves
- E. Iliohypogastric nerve

3. The transverse abdominal muscle and the internal oblique muscle of the abdomen are innervated. . .

- A. Obturator nerves
- B. Iliohypogastric nerves
- C. Subcostal nerve
- D. Femoral nerves
- E. Intercostal nerves

4. The rectus abdominis muscle is innervated by. . .

- A. Femoral nerves
- B. Obturator nerves
- C. Iliopsoas nerves
- D. Subcostal nerves
- E. Intercostal nerves

5. The external and internal oblique muscles of the abdomen are innervated by. . .

- A. Obturator nerves
- B. Iliac nerves

- C. Subcostal nerves
- D. Intercostal nerves
- E. Genitofemoral nerves

6. The next nerve passes through the obturator canal. . .

- A. Iliac-inguinal nerve
- B. Subcutaneous nerve
- C. Femoral branch of the genitofemoral nerve
- D. Femoral nerve
- E. Obturator nerve

7. The next nerve passes through the inguinal canal. . .

- A. Femoral nerve
- B. Iliac-inguinal nerve
- C. Obturator nerve
- D. Femoral branch of the femoral-genital nerve
- E. Sciatic nerve

8. The cremaster muscle, the skin of the scrotum and the fleshy membrane (round ligament of the uterus, the skin of the labia majora in women) are innervated. . .

- A. Genital branch of the genitofemoral nerve
- B. Iliopsoas nerve
- C. Obturator nerve
- D. Femoral branch of the femoral-genital nerve
- E. Iliac-inguinal nerve

9. The adductor muscles of the thigh are innervated by . . .

- A. Iliohypogastric nerve
- B. Iliac-inguinal nerve
- C. Obturator nerve
- D. Femoral branch of the genitourinary nerve
- E. Femoral nerve

10. The lateral cutaneous nerve of the thigh is not. . .

- A. Goes to the thigh under the broad fascia of the thigh
- B. Innervates the skin of the lateral surface of the thigh
- C. Goes to the thigh under the inguinal ligament
- D. A branch of the sacral plexus
- E. A branch of the lumbar plexus

11. Which structure is indicated by number 7 (diagram №7 A)?

- A. Subcostal nerve
- B. iliohypogastric nerve
- C. Ilioinguinal nerve
- D. Genitofemoral nerve
- E. Lateral cutaneous nerve of femur.

12. Which structure is indicated by number 8 (diagram №7 a)?

- A. Subcostal nerve
- B. Iliohypogastric nerve
- C. Ilioinguinal nerve
- D. Genitofemoral nerve
- E. Lateral cutaneous nerve of femur

13. Which structure is indicated by number 9 (diagram №7 a)?

- A. Subcostal nerve
- B. Iliohypogastric nerve
- C. Ilioinguinal nerve
- D. Genitofemoral nerve
- E. Lateral cutaneous nerve of femur

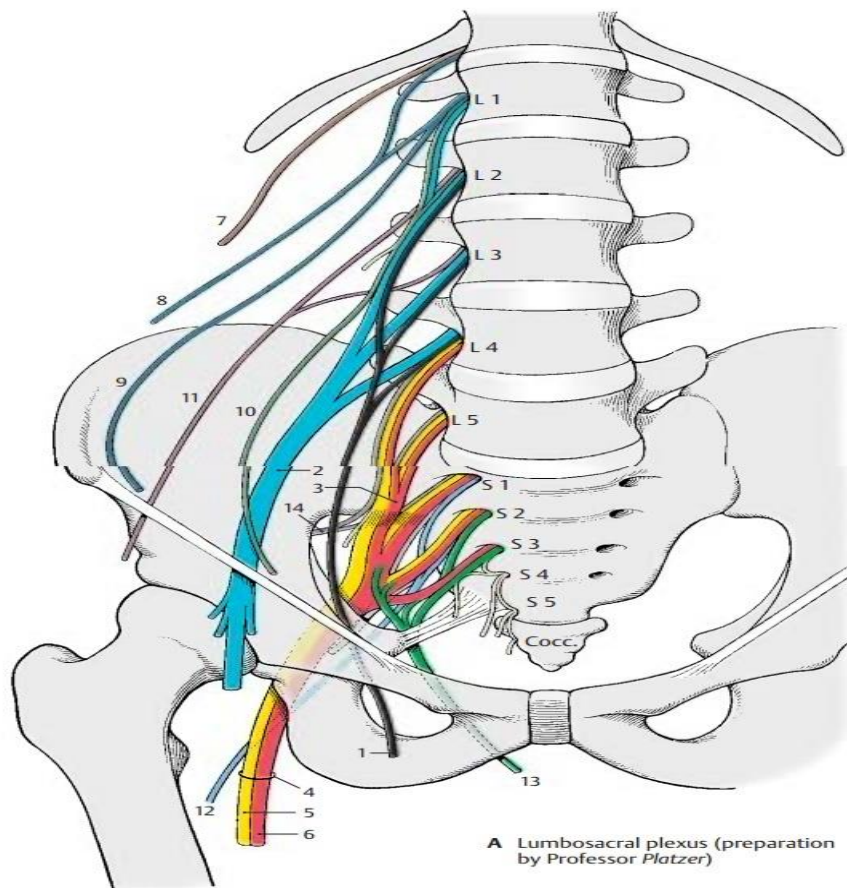


Diagram 7 (A). Scheme of lumbosacral plexus plexus (3 сайты <https://www.brainkart.com/>)

14. Which structure is indicated by number 10 (diagram №7 a)?

- A. Subcostal nerve
- B. Iliohypogastric nerve
- C. Ilioinguinal nerve
- D. Genitofemoral nerve
- E. Lateral cutaneous nerve of femur

15. Which structure is indicated by number 11 (diagram №7 a)?

- A. Subcostal nerve
- B. Iliohypogastric nerve
- C. Ilioinguinal nerve
- D. Genitofemoral nerve
- E. Lateral cutaneous nerve of femur

16. Which structure is indicated by number 12 (diagram №7 a)?

- A. Lateral cutaneous nerve of femur.
- B. Posterior cutaneous nerve of femur.
- C. Pudendal nerve.
- D. Superior gluteal nerve.
- E. Ilioinguinal nerve

17. Which structure is indicated by number 13 (diagram №7 a)?

- A. Lateral cutaneous nerve of femur.
- B. Posterior cutaneous nerve of femur.
- C. Pudendal nerve.
- D. Superior gluteal nerve.
- E. Ilioinguinal nerve

18. Which structure is indicated by number 14 (diagram №7 a)?

- A. Lateral cutaneous nerve of femur.
- B. Posterior cutaneous nerve of femur.
- C. Pudendal nerve.
- D. Superior gluteal nerve.
- E. Ilioinguinal nerve

19. Which structure is indicated by number 2 (diagram №7d)?

- A. Saphenous nerve
- B. Infrapatellar branch
- C. Muscular branches for the sartorius
- D. Muscular branches for rectus femoris muscle
- E. Muscular branches for the lateral vastus muscle

20. Which structure is indicated by number 9 (diagram №7b)?

- A. Saphenous nerve
- B. Infrapatellar branch
- C. Muscular branches for the sartorius muscle
- D. Muscular branches for rectus femoris muscle
- E. Muscular branches for the lateral vastus muscle

21. Which structure is indicated by number 15 (diagram №7d)?

- A. Saphenous nerve
- B. Infrapatellar branch
- C. Muscular branches for the sartorius muscle
- D. Muscular branches for rectus femoris muscle
- E. Muscular branches for the lateral vastus muscle

22. Which structure is indicated by number 10 (diagram №7b)?

- A. Saphenous nerve
- B. Infrapatellar branch
- C. Muscular branches for the sartorius muscle
- D. Muscular branches for rectus femoris muscle
- E. Muscular branches for the lateral vastus muscle

23. Which structure is indicated by number 11 (diagram №7d)?

- A. Saphenous nerve
- B. Infrapatellar branch
- C. Muscular branches for the sartorius muscle
- D. Muscular branches for rectus femoris muscle
- E. Muscular branches for the lateral vastus muscle

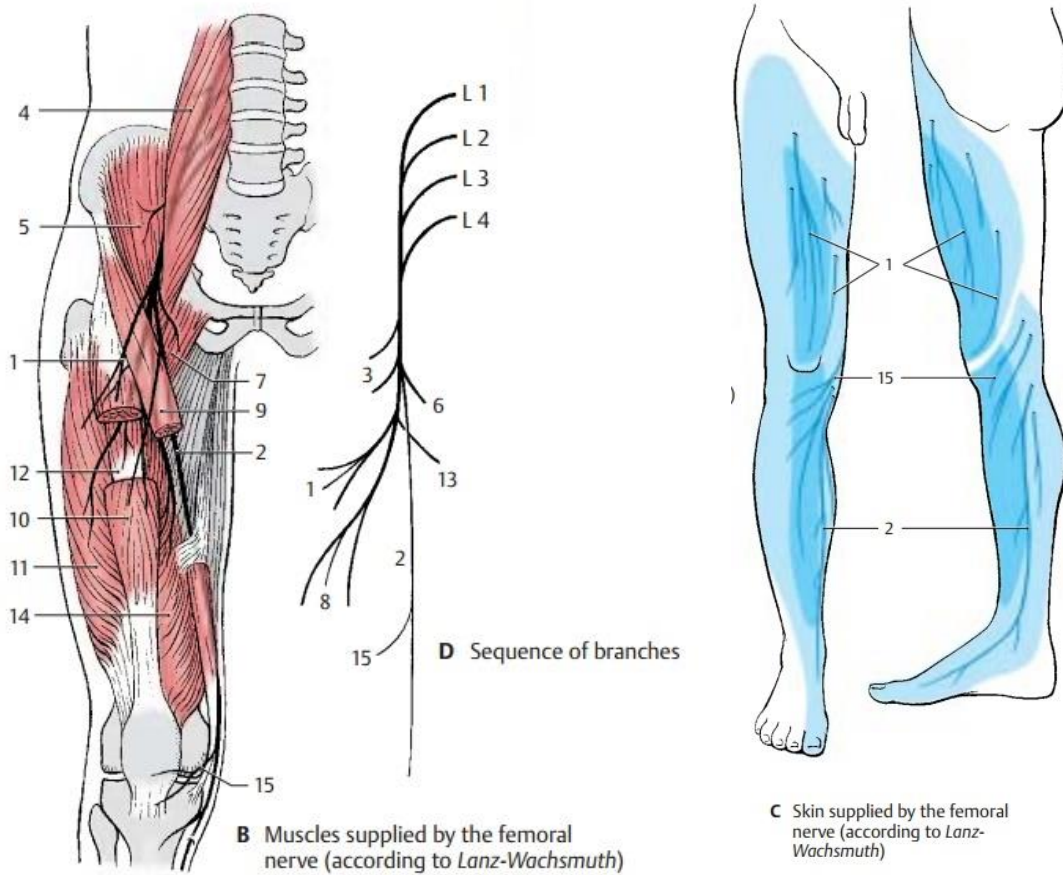


Diagram 7 (B-D). Scheme of femoral and saphenous nerve (з сайту <https://www.brainkart.com/>)

24. Which structure is indicated by number 8 (diagram №7-2A)?

- A. Lateral cutaneous branches
- B. Anterior cutaneous branches
- C. Intercostobrachial nerve
- D. Intercostal nerves
- E. Lateral branches of the posterior branches

25. Which structure is indicated by number 9 (diagram №7-2a)?

- A. Lateral cutaneous branches
- B. Anterior cutaneous branches
- C. Intercostobrachial nerve
- D. Intercostal nerves
- E. Lateral branches of the posterior branches

26. Which structure is indicated by number 14 (diagram №7-2b)?

- A. Lateral cutaneous branches
- B. Anterior cutaneous branches
- C. Intercostobrachial nerve
- D. Intercostal nerves
- E. Lateral branches of the posterior branches

27. Which structure is indicated by number 2 (diagram №7-2a)?

- A. Lateral cutaneous branches
- B. Anterior cutaneous branches
- C. Intercostobrachial nerve
- D. Intercostal nerves
- E. Lateral branches of the posterior branches

28. Which structure is indicated by number 3 (diagram №7-2a)?

- A. Lateral cutaneous branches
- B. Anterior cutaneous branches
- C. Intercostobrachial nerve
- D. Intercostal nerves
- E. Lateral branches of the posterior branches

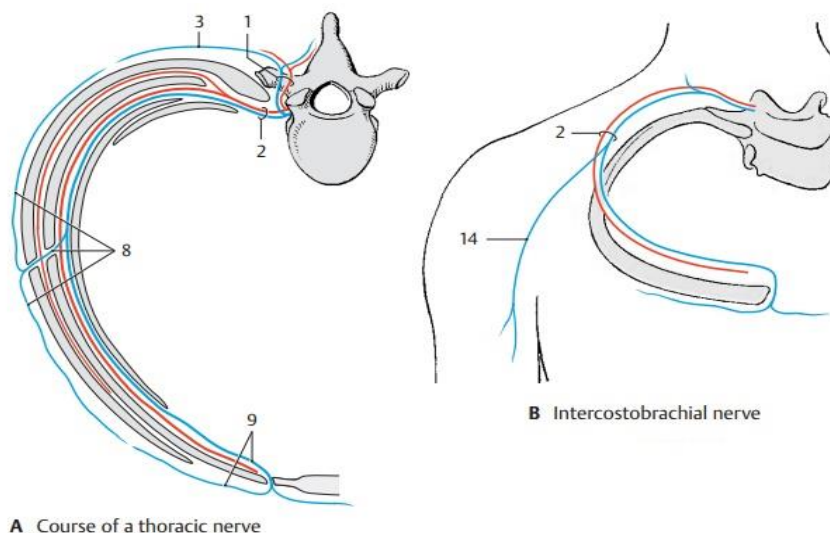


Diagram 7-2(A-B) Scheme of thoracic nerve (source <https://www.brainkart.com/>)

Thoracic and lumbar nerves. Lumbar plexus

Key to the test with explanation*

1	C	Lateral cutaneous nerve of the thigh innervates the skin of the lateral surface of the thigh.
2	E	Iliohypogastric nerve innervates the skin of the anterior abdominal wall, pubic and groin area.
3	B	Iliohypogastric nerve innervates the transverse abdominal muscle and the internal oblique muscle of the abdomen.
4	E	Intercostal nerves innervate the rectus abdominis muscle.
5	D	Intercostal nerves innervate the external and internal oblique muscles of the abdomen.
6	E	Obturator nerve goes through the eponymous canal.
7	B	Ilio-inguinal nerve passes through the inguinal canal.
8	A	Genital branch of the genitofemoral nerve innervates the cremaster muscle, the skin of the scrotum and the fleshy membrane.
9	C	Obturator nerve innervates adductors of thigh.
10	D	The lateral cutaneous nerve of the thigh is a branch of the lumbar plexus.
11	A	That is subcostal nerve.
12	B	That is iliohypogastric nerve.
13	C	That is ilioinguinal nerve.
14	D	That is genitofemoral nerve.
15	E	That is lateral cutaneous nerve of femur.
16	B	That is posterior cutaneous nerve of femur.
17	C	That is pudendal nerve.
18	D	That is superior gluteal nerve.
19	A	That is saphenous nerve.
20	C	That is muscular branches for the sartorius muscle.
21	B	That is infrapatellar branch.
22	D	That is muscular branches for rectus femoris muscle.
23	E	That is muscular branches for the lateral vastus muscle.
24	A	That is lateral cutaneous branches.
25	B	That is anterior cutaneous branches.
26	C	That is intercostobrachial nerve.
27	D	That is intercostal nerve.
28	E	That is lateral branches of the posterior branches.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 137-142.**

Sacral and coccygeal nerves and plexus

1. A 40-year-old patient complained to the doctor that the skin on the medial surface of the right leg was less sensitive and colder than on the left leg. The examination revealed damage of ...

- A. Saphenus nerve.
- B. Tibial nerve.
- C. Tibial common nerve.
- D. Sural nerve.
- E. Superficial branch of the tibial nerve.

2. Examination of a patient with a cut wound in the area of the popliteal fossa revealed a lack of sensitivity of the lateral part of the posterior surface of the skin of the leg. Which nerve is damaged?

- A. Medial cutaneous sural nerve
- B. Lateral cutaneous sural nerve
- C. Tibial nerve
- D. Tibial nerve
- E. Calf nerve

3. Due to the injury of the groin area, the patient lost the sensitivity of the skin in the lower part of the medial side of the thigh and the ability to move the thigh up. Which of the nerves is damaged?

- A. N. femoralis
- B. N. genitofemoralis
- C. N. ilio-inguinalis
- D. N. obturatorius
- E. Ramus femoralis n. genitofemoralis

4. The patient has characteristic changes in gait, the so-called "waddling gait" (duck-like walk): during walking the patient sways to the side. In addition, it is impossible to bring the thigh. Which nerve is affected?

- A. Inferior gluteal
- B. Obturatorius
- C. Femoral
- D. Tibial
- E. Superior gluteal

5. After falling on the back while walking on ice, the patient, 67 years old, went to a neurologist with complaints of pain in the muscles of the backside of the thigh, loss of skin sensitivity in this area. Which nerve function is impaired?

- A. N. cutaneus femoris posterior
- B. N. tibialis
- C. N. ischiadicus
- D. N. peroneus communis
- E. N. inferior gluteus

6. After injection into the outer upper quadrant of gluteal muscle, the patient developed pain when abducting the thigh. Which nerve is damaged when a needle is inserted into the buttocks?

- A. Internal oburator nerve
- B. Inferior gluteal nerve
- C. Genital nerve
- D. Superior gluteal nerve
- E. The sciatic nerve

7. The patient has atrophy of the posterior group of leg muscles. Which nerve is affected?

- A. Tibial
- B. Femoral
- C. Deep tibial
- D. Superficial tibial
- E. Sural

8. The patient has a "heel foot". Which nerve is affected?

- A. Deep fibular
- B. Tibial
- C. Superficial fibular
- D. Superior gluteal
- E. Inferior gluteal

9. An 18-year-old patient complained to a neurologist about the impossibility of getting on his sock. Examination revealed atrophy of the calf muscle, impaired skin sensitivity in the sole area. Which nerve function of the leg is impaired?

- A. N. fibularis
- B. N. femoralis
- C. N. cutaneus femoris lateralis
- D. N. tibialis

E. N. saphenus

10. Which structure is indicated by number 4 (diagram №8A)?

- A. Superficial peroneal nerve
- B. Deep peroneal nerve
- C. Lateral suralcutaneous nerve
- D. Fibular communicating branch
- E. Intermediate dorsal cutaneous nerve

11. Which structure is indicated by number 5 (diagram №8a)?

- A. Superficial peroneal nerve
- B. Deep peroneal nerve
- C. Lateral suralcutaneous nerve
- D. Fibular communicating branch
- E. Intermediate dorsal cutaneous nerve

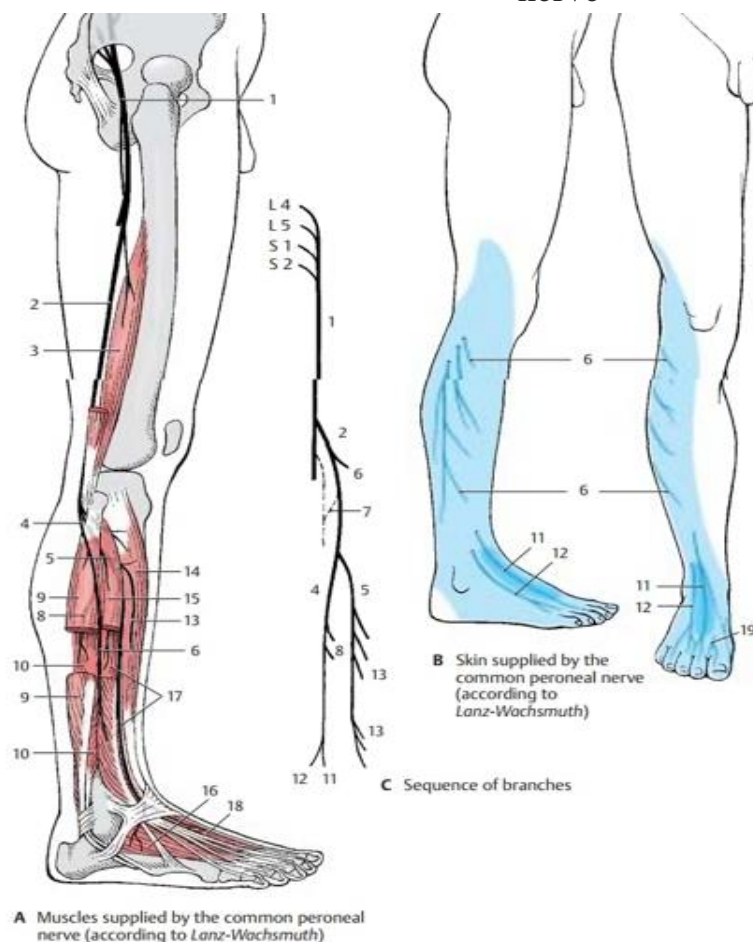


Diagram 8 (A-C). Scheme of sciatic nerve (source <https://www.brainkart.com/>)

12. Which structure is indicated by number 6 (diagram №8b)?

- A. Superficial peroneal nerve
- B. Deep peroneal nerve
- C. Lateral sural cutaneous nerve
- D. fibular communicating branch
- E. Intermediate dorsal cutaneous nerve

13. Which structure is indicated by number 12 (diagram №8b)?

- A. Superficial peroneal nerve
- B. Deep peroneal nerve
- C. Lateral suralcutaneous nerve
- D. Fibular communicating branch
- E. Intermediate dorsal cutaneous nerve

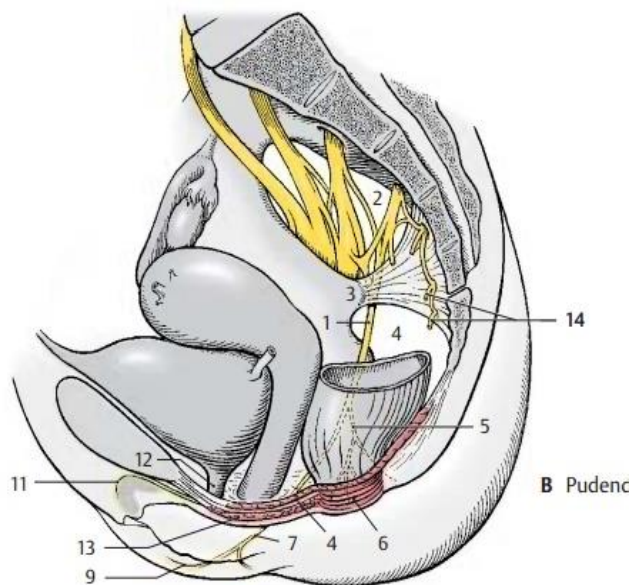
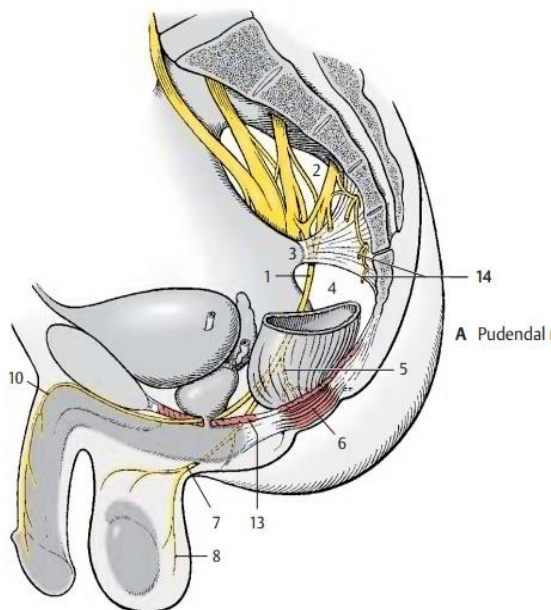


Diagram 9 (A-B). Scheme of pudendal nerve (з сайту <https://www.brainkart.com/>)

14. Which structure is indicated by number 10 (diagram №9a)?

- A. Dorsal nerve of the penis
- B. Dorsal nerve of the clitoris
- C. Perineal nerves
- D. Posterior scrotal nerves
- E. Posterior labial nerves

16. Which structure is indicated by number 7 (diagram №9a)?

- A. Dorsal nerve of the penis
- B. Dorsal nerve of the clitoris
- C. Perineal nerves
- D. Posterior scrotal nerves
- E. Posterior labial nerves

15. Which structure is indicated by number 11 (diagram №9b)?

- A. Dorsal nerve of the penis
- B. Dorsal nerve of the clitoris
- C. Perineal nerves
- D. Posterior scrotal nerves
- E. Posterior labial nerves

17. Which structure is indicated by number 8 (diagram №9a)?

- A. Dorsal nerve of the penis
- B. Dorsal nerve of the clitoris
- C. Perineal nerves
- D. Posterior scrotal nerves
- E. Posterior labial nerves

18. Which structure is indicated by number 9 (diagram №9b)?

- A. Dorsal nerve of the penis
- B. Dorsal nerve of the clitoris
- C. Perineal nerves
- D. Posterior scrotal nerves
- E. Posterior labial nerves

19. Which structure is indicated by number 6 (diagram №9a)?

- A. Pudendal nerve
- B. Dorsal nerve of the clitoris
- C. Perineal nerves
- D. Posterior scrotal nerves
- E. Posterior labial nerves

20. Which structure is indicated by number 5 (diagram №9a)?

- A. Dorsal nerve of the clitoris
- B. Perineal nerves
- C. Posterior scrotal nerves
- D. Inferior rectal nerve
- E. Posterior labial nerves

Sacral and coccygeal nerves and plexus.

Key to the test with explanation*

1	A	Saphenus nerve innervates the skin on the medial surface of the leg.
2	B	Lateral cutaneous sural nerve innervates the lateral part of the posterior surface of the skin of the leg.
3	D	Obturator nerve innervates the skin in the lower part of the medial side of the thigh.
4	E	Damage of the superior gluteal nerve results in atrophy of the gluteal muscles and gait became duck-like.
5	A	N. cutaneus femoris posterior innervates the skin of posterior surface of the thigh.
6	D	Superior gluteal nerve innervates abductors of the thigh.
7	A	Tibial nerve innervates the posterior group of leg muscles.
8	A	Damage of the deep fibular nerve results in paralysis of extensors that will looks like heel foot.
9	D	Tibial nerve innervates the calf muscle.
10	A	That is superficial peroneal nerve.
11	B	That is deep peroneal nerve.
12	C	That is lateral sural cutaneous nerve.
13	E	That is intermediate dorsal cutaneous nerve.
14	A	That is dorsal nerve of the penis.
15	B	That is dorsal nerve of the clitoris.
16	C	That are perineal nerves.
17	D	That are posterior scrotal nerves.
18	E	That are posterior labial nerves.
19	A	That is pudendal nerve.
20	D	That is inferior rectal nerve.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 142-147.**

Peripheral part of the autonomic nervous system. Parasympathetic division of the ANS

1. The doctor found in 60-year-old woman a disorder of one of the centers of the parasympathetic division of the autonomic nervous system with the following symptoms: increased acidity of gastric juice, increased peristalsis of the stomach and intestines, nausea. In which department of the CNS of a woman did the doctor find a disturbed center?

- A. In the cerebrum.
- B. In the cerebellum.
- C. In the brainstem.
- D. In the diencephalon.
- E. In the thoracic spinal cord

2. 60 years old man, after the injury. The doctor found a violation of the sacral parasympathetic center, from which the parasympathetic fibers come from the anterior roots of the spinal nerves. In the composition of which spinal nerves are these parasympathetic fibers?

- A. Th2-L2
- B. L3-L5
- C. L4-S5
- D. S2-S4
- E. S3-S5

3. A doctor found in a man, 40 years old complaints of coprostasis, urinary incontinence found irritation by osteophytes of the anterior branches of the spinal nerves, which have parasympathetic fibers. Which spinal nerves have parasympathetic fibers?

- A. C4-C8.
- B. Th8-Th12.
- C. L1-L3.

- D. S2-S4.
- E. Th1-Th5.

4. Which nerve contains preganglionic parasympathetic fibers to the pterygopalatine node?

- A. N. petrosus major
- B. N. petrosus minor
- C. N. petrosus profundus
- D. N. petrosus superior
- E. N. petrosus inferior

5. In the composition of which nerve are preganglionic parasympathetic fibers to the submandibular node?

- A. Chorda tympani
- B. N. petrosus minor
- C. N. petrosus profundus
- D. N. mentalis
- E. N. hypoglossus

6. Which structures do not have parasympathetic innervation?

- A. Vessels
- B. Lungs
- C. Liver
- D. Small intestine
- E. Colon

7. The parasympathetic system provides:

- A. Catabolism
- B. Active condition
- C. Fast energy consumption
- D. State of rest, anabolism, energy conservation
- E. Slow energy loss

8. The reflex of narrowing of the pupils and bronchi is carried out by the system:

- A. Somatic
- B. Sympathetic
- C. Parasympathetic

D. Metasympathetic

E. -

9. The centers of the parasympathetic nervous system are located in

- A. The medulla oblongata and midbrain
- B. Thoracic spinal cord
- C. Brain and sacral spinal cord
- D. Lumbar spinal cord
- E. Cervical spinal cord

10. What nerves a parasympathetic?

- A. Nervi splanchnici pelvini
- B. Nervus splanchnicus major
- C. Nervi splanchnici sacrales
- D. Nervi splanchnici lumbales
- E. Nervus splanchnicus imus

11. What formations are the intramural parasympathetic nervous system?

- A. Plexus renalis et sacralis
- B. Plexus intermesentericus
- C. Plexus renalis et aorticus
- D. Plexus lumbalis et sacralis
- E. Plexus myentericus et submucosus

12. Parasympathetic are the following of these plexuses:

- A. Paravertebral
- B. Cervical
- C. Coeliac
- D. Sacral
- E. Intramural

13. What is the function of parasympathetic innervation of the eye?

- A. Narrowing and widening of the pupil
- B. Narrowing of the pupil
- C. Widening of the pupil
- D. Raising the upper eyelid
- E. Lowering the upper eyelid

14. Determine the location of the first sensitive neuron of the autonomic reflex arc.

- A. Anterior horns of the spinal cord
- B. Posterior horns of the spinal cord
- C. Lateral horns of the spinal cord
- D. Spinal node
- E. Autonomic nerve nodes

15. The patient complains to extra salivary discharge to stomatologist. What vegetative ganglion stimulation can hyperproduction of a serous saliva cause

- A. Ganglion oticum
- B. Ganglion pterygopalatinum
- C. Ganglion submandibulare
- D. Ganglion ciliare
- E. Ganglion sublingual

16. Parasympathetic fibers of the oculomotor nerve are interrupted in:

- A. Ganglion oticum
- B. Ganglion pterygopalatinum
- C. Ganglion submandibulare
- D. Ganglion ciliare
- E. Ganglion sublinguale

17. Where does the submandibular salivary gland get its secretory innervation?

- A. Superior salivary nucleus
- B. Inferior salivary nucleus
- C. Accessory nuclei of oculomotor nerve
- D. From the lower cervical node of the sympathetic trunk
- E. Motor nucleus of facial nerve

18. From which nerve does the lacrimal gland receive parasympathetic innervation?

- A. N. oculomotorius
- B. N. intermedius
- C. N. glossopharyngeus
- D. N. vagus
- E. N. maxillaris

19. Damage of what brainstem nucleus will decrease function of the submandibular and sublingual salivary glands?

- A. Inferior salivary
- B. Superior salivary
- C. Nucleus accessorius n. oculomotorii
- D. N. tr. solitarii
- E. Dorsal nuclei of vagus

20. The patient has increased secretion of the parotid gland. What nucleus stimulation can cause this?

- A. Nucleus solitarius
- B. Nucleus salivatorius superior
- C. Nucleus salivatorius inferior
- D. Nucleus ambiguus
- E. Nucleus dorsalis n. vagi

21. The patient has an infringement of function of the parotid gland. What nerve provides secretion of the parotid gland?

- A. N. petrosus minor
- B. N. auricularis major
- C. N. petrosus major
- D. N. petrosus profundus

22. What types of fibres are situated in visceral branches of thoracic and abdominal parts of vagus nerve?

- A. Parasympathetic preganglionic and sensory
- B. Sensory, parasympathetic and motor
- C. Sensory, sympathetic and motor
- D. Parasympathetic preganglionic and motor
- E. Sensory and parasympathetic postganglionic

23. The patient has increased secretion of the sublingual gland. What nucleus stimulation can cause this?

- A. Nucleus salivatorius inferior
- B. Nucleus solitarius
- C. Nucleus salivatorius superior
- D. Nucleus ambiguus
- E. Nucleus dorsalis n. vagi

24. The patient has increased secretion of the parotid gland. What ganglion stimulation can cause this?

- A. Ciliare
- B. Pterygopalatinum
- C. Oticum
- D. Submandibulare
- E. Sublingual

25. Which ganglion is indicated by number 7 (diagram №9A)?

- A. Ciliare
- B. Pterygopalatinum
- C. Oticum
- D. Submandibulare
- E. Sublingual

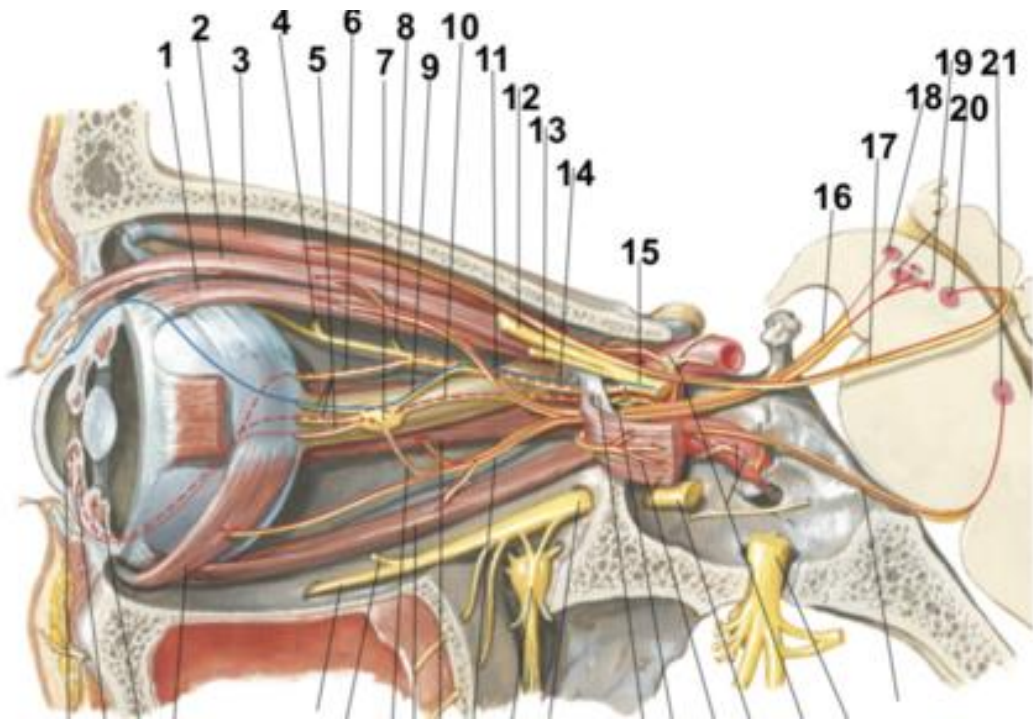


Diagram 10. Innervation of eye (за Неггером Ф.)

Parasympathetic division of the ANS

Key to the test with explanation*

1	C	Vagus nerve controls secretion of gastric juice and peristaltics of the stomach and intestines. Vagus nuclei situated in brainstem.
2	D	Sacral parasympathetic center located in S2-S4 spinal segments.
3	D	Sacral parasympathetic center located in S2-S4 spinal segments.
4	A	N. petrosus major carries preganglionic parasympathetic fibers to the pterygopalatine node.
5	A	Chorda tympani carries preganglionic parasympathetic fibers to the submandibular node.
6	A	Vessels have no parasympathetic innervation.
7	D	The parasympathetic system provides state of rest, anabolism, energy conservation.
8	C	Parasympathetic system provides the narrowing of the pupils and bronchi.
9	C	The centers of the parasympathetic nervous system are located in brainstem and spinal cord.
10	A	Nervi splanchnici pelvini consist of parasympathetic fibers.
11	E	Myentericus and submucosus plexuses are intramural formations.
12	E	Parasympathetic system forms intramural plexuses.
13	B	Parasympathetic system narrows the pupil.
14	D	First neuron of the autonomic reflex arc is situated in spinal ganglia.
15	A	Ganglion oticum innervates parotid gland that produces serous saliva.
16	D	Parasympathetic fibers of the oculomotor nerve transmit impulses in ciliary ganglion.
17	A	Submandibular salivary gland gets secretory innervation from superior salivary nucleus.
18	B	Lacrimal glands receive parasympathetic innervation from intermedius nerve.
19	B	Submandibular and sublingual salivary glands get secretory innervation from superior salivary nucleus.
20	C	Nucleus salivatorius superior innervates parotid gland.
21	A	Nervus petrosus minor innervates parotid gland.
22	A	Parasympathetic preganglionic and sensory fibers are located in visceral branches of thoracic and abdominal parts of vagus nerve.
23	C	Submandibular salivary gland gets secretory innervation from superior salivary nucleus.
24	C	Ganglion oticum innervates parotid gland.
25	A	That is ciliary ganglion.

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Autonomic nerve supply to the head, neck, thorax and upper limb

1. Indicate the branches that extend from the middle cervical node:

- A. Middle cervical cardiac nerve
- B. Jugular nerve, n. Jugularis,
- C. Laryngeal-pharyngeal branches
- D. External carotid nerves
- E. Internal carotid nerve

2. Indicate the branches that extend from the sympathetic trunk:

- A. White connecting branches
- B. Meningeal branches
- C. Gray connecting branches
- D. Deep petrosal nerve
- E. Superior laryngeal nerve

3. Specify which nerves contain preganglionic sympathetic fibers:

- A. Gray connecting branches
- B. White connecting branches
- C. Deep petrosal nerve
- D. Internal carotid nerve
- E. External carotid nerves

4. Indicate the branches that extend from the upper cervical node:

- A. White connecting branches
- B. Superior laryngeal nerve
- C. Vertebral nerve
- D. Internal carotid nerve
- E. Deep petrosal nerve

5. Specify the branches that extend from the cervicothoracic (stellate) node:

- A. Vertebral nerve
- B. Superior cervical cardiac nerve
- C. External carotid nerves
- D. Laryngopharyngeal branches
- E. Internal carotid nerve

6. Specify the branches extending from the internal carotid plexus:

- A. Greater petrosal nerve
- B. Tympanic nerve

- C. Deep petrosal nerve
- D. Lesser petrosal nerve`
- E. Nerve of the pterygoid canal

7. Specify the branches of the thoracic part of the sympathetic trunk:

- A. Grater splanchnic nerve
- B. Phrenic nerve
- C. Renal branches
- D. Sacral plexus
- E. Recurrent laryngeal nerve

8. Specify the composition of the fibers of the lesser and greater splanchnic nerves:

- A. Postganglionic sympathetic fibers
- B. Sympathetic fibers
- C. Somato-motor fibers
- D. Sensitive fibers
- E. Preganglionic sympathetic fibers

9. Which autonomic plexus is paired?

- A. Plexus hypogastricus inferior
- B. Plexus hypogastricus superior
- C. Plexus intermesentericus
- D. Plexus mesentericus inferior
- E. Plexus coeliacus

10. Which autonomic ganglion is unpaired?

- A. Ganglion aortorenalis
- B. Ganglion mesentericus superior
- C. Ganglion coeliacus
- D. Ganglion oticum
- E. Ganglion ciliare

11. Where is the thoracic part of the sympathetic trunk?

- A. On the bodies of the thoracic vertebrae.
- B. On the costal furrows under the pleura.

- C. On the lateral surface between the ribs under the pleura.
- D. On the bodies of the thoracic vertebrae above the pleura.
- E. In front of the necks of the ribs behind the parietal pleura.

12. Which nerve fibers depart from the thoracic sympathetic trunk?

- A. Somatic.
- B. Secretory and sensitive.
- C. Parasympathetic and sensitive.
- D. Motor somatic.
- E. White and gray connecting branches.

13. Which nerves depart from the thoracic sympathetic trunk to innervate the abdominal organs?

- A. Intercostales et thoracici.
- B. Aortici and bronchiales.
- C. Anterior et posterior thoracici.
- D. Intercostales et oesophageales.
- E. Splanchnici major et minor.

14. How many nerve nodes does the lumbar sympathetic trunk have?

- A. 1-2
- B. 5-6
- C. 2-3
- D. 4-5
- E. 6-7

15. What vegetative nodes form the coeliac plexus?

- A. Coeliac, upper mesenteric
- B. Lumbar, sacral, coeliac
- C. Upper and lower mesenteric
- D. Pelvic, sacral, coeliac
- E. Lumbar, lower mesenteric

16. What plexus forms by the sacral division of the sympathetic trunk?

- A. Upper mesenteric.

- B. Iliac.
- C. Aortic.
- D. Lower mesentery.
- E. Lower hypogastric

17. Which branches extend from the nodes of the sacral sympathetic trunk to the spinal nerves of the lower extremity?

- A. White rami communicantes
- B. Gray rami communicantes
- C. Somatic
- D. Rear
- E. Front

18. How many nerve nodes does the thoracic sympathetic trunk have?

- A. 7-8
- B. 9-10
- C. 10-12
- D. 13
- E. 8-9

19. Sympathetic innervation of the stomach is carried out by nerves:

- A. From the lower mesenteric plexus
- B. From white vertebrate sympathetic nodes
- C. Vagus
- D. From the solar plexus
- E. From the upper mesenteric plexus

20. The following plexuses are sympathetic:

- A. Prevertebral
- B. Intramural and prevertebral
- C. Lumbar and sacral
- D. Brachial and cervical
- E. Gastric and splenic

21. What is the role of sympathetic innervation of the heart?

- A. Accelerates heart rate and narrows coronary vessels
- B. Slows the heart rate and dilates coronary vessels
- C. Does not affect the rhythm, but narrows the coronary vessels
- D. Slows the heart rate and narrows the coronary vessels
- E. Accelerates heart rate and dilates coronary vessels

22. The patient complains to extra salivary discharge to dentist. What vegetative ganglion stimulation can hypoproduction of a serous saliva cause

- A. Ganglion submandibulare.
- B. Ganglion sublinguale.
- C. Superior cervical ganglion of sympathetic trunk
- D. Inferior cervical ganglion of sympathetic trunk
- E. Ganglion trigeminale

23. Sympathetic fibers of the superior cervical cardiac nerve are interrupted in:

- A. Superior cervical ganglion of sympathetic trunk
- B. Medius cervical ganglion of sympathetic trunk
- C. Ganglion submandibulare
- D. Deep cardiac plexus
- E. Superficial cardiac plexus

24. Where does the submandibular salivary gland get its sympathetic innervation from?

- A. From the lower cervical node of the sympathetic trunk
- B. From the upper cervical node of the sympathetic trunk
- C. From the medius cervical node of the sympathetic trunk
- D. From the inferior salivary nucleus
- E. From the superior salivary nucleus

25. At the patient the right superior ganglion of sympathetic trunk was involved in tumoral process. What symptom will be observed?

- A. Constriction the right pupil.
- B. Accommodation disorder at the left
- C. A paralysis of a medial rectus muscle of the right eyeball.
- D. Mydriasis (dilation of pupil) at the right.
- E. Disorder of a lacrimation at the right.

26. The patient complains to dryness in a mouth, reduction of salivation. What nerves are injured?

- A. Parasympathetic fibers of glossopharyngeal nerve
- B. Motor fibers of hypoglossal nerve.
- C. Sensory fibers of lingual nerve.
- D. Parasympathetic fibers of vagus nerve.
- E. Sympathetic fibers of sympathetic trunk.

Autonomic nerve supply to the head, neck, thorax and upper limb

Key to the test with explanation*

1	A	Middle cervical cardiac nerve begins from the middle cervical node.
2	C	Gray rami communicans begins from the sympathetic trunk.
3	B	White rami communicans contain preganglionic sympathetic fibers.
4	D	Internal carotid nerve begins from the upper cervical node.
5	A	Cervicothoracic node gives vertebral nerve.
6	C	Deep petrosal nerve begins from the internal carotid plexus.
7	A	Grater splanchnic nerve is a branch of the thoracic part of the sympathetic trunk.
8	E	Lesser and greater splanchnic nerves contain mostly preganglionic fibers.
9	A	There are two plexus hypogastricus inferior.
10	B	There is single superior mesenteric ganglion.
11	E	Thoracic part of the sympathetic trunk situated in front of the necks of the ribs behind the parietal pleura.
12	B	Thoracic sympathetic ganglia give secretory and sensitive nerves.
13	E	Splanchnic major et minor nerves innervate the abdominal organs.
14	D	There are 4-5 lumbar nodes in sympathetic trunk.
15	A	Coeliac plexus is formed by coeliac, upper mesenteric and aorticorenal ganglia.
16	E	Inferior hypogastric plexus is formed by the nerves of sacral sympathetic ganglia.
17	B	Gray rami communicans join sacral spinal nerves.
18	C	Thoracic sympathetic trunk comprises 10-12 ganglia.
19	D	Stomach get sympathetic innervation from solar plexus.
20	E	Gastric and splenic plexuses are sympathetic.
21	A	Sympathetic system accelerates heart rate and narrows coronary vessels.
22	C	Superior cervical ganglion of sympathetic trunk gives nerves that decrease salivation.
23	A	Superior cervical cardiac nerve is a branch of the superior cervical ganglion.
24	B	Superior cervical ganglion nerves bring sympathetic innervation to the submandibular salivary gland.
25	D	Sympathetic system dilate the pupil.
26	E	Irritation of sympathetic fibers results in reduction of salivation.

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Autonomic nerve supply to the abdomen, pelvic and lower limb

1. Specify the vegetative nodes that are part of the celiac plexus (pl. coeliacus):

- A. Superior mesenteric node, celiac nodes
- B. Inferior mesenteric node
- C. Superior cervical node
- D. Lower cervical node
- E. 11-12 thoracic sympathetic nodes

2. Indicate the nerves not involved in the formation of the celiac plexus (pl. coeliacus):

- A. Vagus nerve anterior trunk
- B. Vagus nerve posterior trunk
- C. Phrenic nerve
- D. Grater visceral nerve
- E. Pelvic visceral nerves

3. What does the celiac plexus innervate?

- A. Innervates the glands and musculature of the vessels of the diaphragm, gastrointestinal tract, spleen, kidneys with adrenal glands.
- B. Innervates the musculature of the vessels of the lungs
- C. Innervates the musculature of the heart
- D. Innervates the musculature of the vessels of the pelvic organs
- E. Innervates the musculature of the vessels of the lower extremities

4. Which of the following nodes are part of the lower hypogastric plexus (plexus hypogastricus inferior):

- A. Coeliac nodes
- B. Inferior mesenteric node

- C. Sacral nodes of the sympathetic trunk
- D. Periorganic pelvic nodes
- E. 11-12 chest sympathetic nodes

5. Indicate which nerves and plexuses are involved in the formation of the lower hypogastric plexus (plexus hypogastricus inferior):

- A. Sacral visceral nerves
- B. Pelvic visceral nerves
- C. Inferior mesenteric plexus
- D. Branches of the vagus nerve
- E. Phrenic nerve

6. Indicate which of the listed nodes are parasympathetic:

- A. Otic node, pterygopalatine node
- B. 11-12 thoracic sympathetic nodes
- C. Coeliac nodes
- D. Superior mesenteric node, celiac nodes
- E. Superior cervical node

7. Plexus hypogastricus superior located on:

- A. On the anterior surface of the last lumbar vertebra and promontory
- B. On the lateral surface of the last lumbar vertebra and promontory
- C. On the anterior surface of 1-4 lumbar vertebra
- D. On the anterior surface of the 12 thoracic and 1 lumbar vertebra
- E. On the anterior surface of the sacral vertebrae

8. Inferior mesenteric plexus located:

- A. Around a. Mesenterica inferior
- B. Around a. Mesenterica superior
- C. Around the aorta abdominalis
- D. Around a. Iliaca communis
- E. Around a. Iliaca interna

9. Plexus rectalis superior starts from

- A. Plexus mesentericus inferior
- B. Plexus coeliacus
- C. Plexus cardiacus
- D. Plexus hypogastricus superior
- E. Plexus hypogastricus inferior

10. Plexus suprarenalis starts from

- A. Plexus mesentericus inferior
- B. Plexus coeliacus
- C. Plexus cardiacus
- D. Plexus hypogastricus superior
- E. Plexus hypogastricus inferior

Autonomic nerve supply to the abdomen, pelvic and lower limb.

Key to the test with explanation*

1	A	Coeliac plexus is formed by coeliac, superior mesenteric and aorticorenal ganglia.
2	E	Pelvic visceral nerves do not involve in formation of the celiac plexus.
3	A	Celiac plexus innervates the glands and musculature of the vessels of the abdominal internal organs.
4	D	Periorganic pelvic nodes can be present in plexus hypogastricus inferior.
5	A	Sacral splanchnic nerves involved in formation of the plexus hypogastricus inferior.
6	A	Otic and pterygopalatine ganglia are parasympathetic.
7	A	Plexus hypogastricus superior is located on the anterior surface of the last lumbar vertebra and promontory.
8	E	Inferior mesenteric plexus is located next to the internal iliac artery.
9	A	Plexus rectalis superior starts from inferior mesenteric plexus.
10	B	Plexus suprarenalis starts from celiac plexus.

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Survey of internal organs innervation

1. The patient with chronic disease of the liver has a positive phrenic symptom. What muscle a diaphragmatic nerve has been compressed to for verification of the symptom?

- A. Anterior scalene muscle
- B. Middle scalene muscle
- C. Subclavian muscle
- D. Posterior scalene muscle
- E. Sternocleidomastoid muscle

2. The impossibility to hand pronation is exposed in the patient with cutting wound in the left axillary region. What nerve is damaged?

- A. N. medianus
- B. N. ulnaris
- C. N. radialis
- D. N. cutaneus brachii medialis
- E. N. cutaneus antebrachii medialis

3. The damage of posterior fascicles of brachial plexus is revealed at the victim. What muscles group functions will be broken at the upper limb?

- A. Muscles of posterior group of forearm
- B. Anterior group of forearm muscles
- C. Muscles of thenar
- D. Muscles of hypothenar
- E. Anterior group of shoulder muscles

4. The patient has breach of function of lateral group flexor muscles after a trauma of a forearm. What nerve is damaged?

- A. N. medianus.
- B. N. ulnaris.

- C. N. Radialis.
- D. N. musculocutaneus.
- E. N. cutaneus antebrachii.

5. The victim has damage of the vessel which passes together with n. axillaris through the foramen quadrilaterum. What is the vessel?

- A. A. circumflexa humeri posterior.
- B. A. brachialis.
- C. A. circumflexa humeri anterior.
- D. A. profunda brachii.
- E. A. circumflexa scapulae.

6. The patient has "ape's wrist". What nerve is damaged?

- A. Median.
- B. Musculocutaneus.
- C. Radial.
- D. Axillary.
- E. Ulnar.

7. The patient has neuritis of the femoral nerve. What movement cannot be carried out?

- A. Extension of a knee joint.
- B. Plantar flexion of foot.
- C. Flexion of a knee joint.
- D. Dorsal flexion of foot.
- E. Pronation of foot.

8. The patient with a neuritis of a femoral nerve flexion of a hip and an extension of a leg in a knee joint is broken. Which muscle function is broken?

- A. Musculus quadriceps femoris.
- B. Semitendinous muscle.
- C. Triceps femoris muscle.
- D. Semimembranosus muscle.
- E. Musculus biceps femoris.

9. The skin sensitivity is absent on the medial surface of a thigh and there is impossibility of adduction of right lower extremity to the midline.

What nerve is injured?

- A. N. obturatorius.
- B. N. ischiadicus.
- C. N. femoralis.
- D. N. genitofemoralis.
- E. N. ilioinguinalis.

10. The victim has a deep wound on an external surface of a right leg. The impossibility of extension the foot is revealed. What nerve is damaged?

- A. N. peroneus profundus.
- B. N. peroneus superficialis.
- C. N. peroneus communis.
- D. N. peroneus longus.
- E. N. peroneus brevis.

11. The infringement of skin sensitivity on a posterior surface of upper leg is revealed in a patient. What nerve is damaged?

- A. Sciatic nerve.
- B. Posterior cutaneous nerve of thigh.
- C. Femoral nerve.
- D. Obturator nerve.
- E. Inferior gluteal nerve.

12. After a knife wound of an external surface of a right knee joint below the head of fibula foot hangs down, the dorsal flexion is impossible. What nerve is damaged?

- A. N. peroneus communis.
- B. N. tibialis.
- C. N. cutaneus surae lateralis.
- D. N. peroneus superficialis.
- E. N. peroneus profundus.

13. The diagnosis neuritis of the tibial nerve is put to patient. What of the listed functions will be broken?

- A. Plantar flexion of foot.
- B. Dorsal flexion of the foot.
- C. Extension in a knee joint.
- D. Rotation in a knee joint.
- E. Extension of toes.

14. The diagnosis neuritis of the common fibular nerve is put to patient. What of the listed functions will be broken?

- A. Dorsal flexion of foot.
- B. Plantar flexion of foot.
- C. Extension in a knee joint.
- D. Flexion in a knee joint.
- E. Extension of toes.

15. The palpation around of the anus and the external sphincter of a rectum is painful at the patient. What nerve is damaged?

- A. N. pudendus.
- B. N. ischiadicus.
- C. N. femoralis.
- D. N. tibialis.
- E. N. obturatorius.

16. The victim with broken function of extension in a hip joint is delivered to the traumatology department. What nerve is injured at the victim most likely?

- A. Superior gluteal.
- B. Sciatic.
- C. Obturator.
- D. Pudendal.
- E. Femoral.

17. At the patient the right superior ganglion of sympathetic trunk was involved in tumoral process. What symptom will be observed?

- A. Constriction the right pupil.
- B. Accommodation disorder at the left
- C. A paralysis of a medial rectus muscle of the right eyeball.
- D. Mydriasis (dilation of pupil) at the right.
- E. Disorder of a lacrimation at the right.

18. The patient has impossible flexion a forearm in a position of supination, the absence of cutaneous sensitivity on a anterolateral surface of the forearm. What nerve is damaged?

- A. Musculocutaneus.
- B. Ulnar.
- C. Radial.
- D. Median.
- E. Axillary.

19. The active extension of a leg in a knee joint is absolutely impossible at the patient. The looseness of patella was appeared. What nerve damage is possible?

- A. Femoral.
- B. Obturator.
- C. Sciatic.
- D. Superior gluteal.
- E. Inferior gluteal.

20. The patient complains to disorder of the skin sensitivity on a medial part of a dorsal and palmar surface of a hand. What nerve is damaged?

- A. N. ulnaris
- B. N. medianus
- C. N. musculocutaneus
- D. N. cutaneus antebrachii medialis
- E. N. radialis

21. Regular excursions of a diaphragm were broken because of an operational trauma of soft tissues of a neck on the right side. What nerve has suffered?

- A. N. phrenicus dexter.
- B. N. intercostales.
- C. N. vagus
- D. N. accessorius
- E. Rr. dorsales nervi spinalis

22. The patient has lost an opportunity to flex a forearm in elbow joint. The skin sensitivity of anterolateral surface of a forearm was broken. What nerve was damaged?

- A. N. musculocutaneus.
- B. N. radialis.
- C. N. ulnaris.
- D. N. medianus.
- E. N. axillaris.

23. The patient had a chills on a medial surface of the forearm after a trauma of a posteriomedial surface of the humerus. Which of nerves is damaged?

- A. N. cutaneus autebrachii medialis.
- B. N. musculocutaneus.
- C. N. dorsalis scapularis.
- D. N. subscapularis.
- E. N. radialis

24. The patient complains to the increased pain of a skin of an auricle and an external acoustic meatus. Which of nerves is damaged?

- A. N. auricularis magnus.
- B. N. occipitalis minor.
- C. Nn. supraclaviculares.
- D. N. vagus.
- E. N. transversus colli.

25. The sensitivity of a skin of anterior and lateral surfaces of a neck is reduced at the patient after the operation. What nerve does the sensitivity of this area of a neck provide?

- A. N. transversus colli
- B. N. auricularis magnus
- C. Nn. supraclaviculares
- D. N. occipitalis minor
- E. N. phrenicus

Survey of internal organs innervation

Key to the test with explanation*

1	E	Phrenic symptom checked between crus of the sternocleidomastoid muscle.
2	A	Nervus medianus innervates pronator quadratus and teres muscles.
3	A	Radial nerve is branch of posterior fascicle of brachial plexus. Nervus radialis innervates posterior forearm muscles.
4	A	Nervus medianus innervates lateral forearm flexor muscles.
5	A	Arteria circumflexa humeri posterior accompanies axillary nerve in foramen quadrilaterum.
6	A	Injury to the median nerve results in atrophy of the thenar muscles, that looks like “ape’s wrist”.
7	A	Femoral nerve innervates quadriceps femoris muscle that provide extension in knee joint.
8	A	Femoral nerve innervates quadriceps femoris muscle.
9	A	Nervus obturatorius innervates the skin of the medial surface of a thigh and all adductor muscles of thigh.
10	C	Nervus peroneus communis innervates extensor muscles of the foot.
11	B	Posterior cutaneous nerve of thigh innervates the skin of the posterior surface of upper leg.
12	A	Nervus peroneus communis innervates extensor muscles of the foot.
13	A	Tibial nerve innervates flexor muscles of the foot.
14	A	Nervus peroneus communis innervates extensor muscles of the foot.
15	A	Nervus pudendus innervates external anal sphincter.
16	B	Sciatic nerve innervates posterior thigh muscles that provide extension in hip joint.
17	D	Sympathetic system provides dilation of the pupil.
18	A	Nervus musculocutaneus innervates anterior brachial muscles and skin of the anterolateral surface of the forearm.
19	A	Femoral nerve innervates quadriceps femoris muscle that provide extension in knee joint.
20	A	Nervus ulnaris innervates skin of the medial part of a dorsal and palmar surface of a hand.
21	A	Phrenic nerve innervates the diaphragm.
22	A	Nervus musculocutaneus innervates anterior brachial muscles and skin of the anterolateral surface of the forearm.
23	A	Nervus cutaneus autebrachii medialis innervates the skin of the medial surface of the forearm.
24	A	Nervus auricularis magnus innervates a skin of an auricle and an external acoustic meatus.
25	A	Nervus transversus coli innervates a skin of anterior and lateral surfaces of a neck.

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CHAPTER 4. SENSE ORGANS

Sensory organs. Olfactory organ and olfactory nerve (I). Gustatory organ. Centers and pathways of olfactory and gustatory analyzers. Skin and its derivatives

1. Which of the papillae of the tongue do not have taste buds?

- A. Foliate
- B. Filiform
- C. Vallate
- D. Fungiform
- E. Lentiform

2. As a result of a nasal injury in a 32-year-old man, the mucous membrane of the upper nasal cavity was damaged. What were the consequences?

- A. Insufficient air heating
- B. Insufficient humidity
- C. Olfactory disorders
- D. Insufficient heating and humidification
- E. Violation of air purification

3. The boxer after a nose injury has a violation of the sense of smell. Identify the cells whose damage can lead to olfactory loss.

- A. Neurosensory cells
- B. Supporting epitheliocytes
- C. Basal epitheliocytes
- D. Ciliated epitheliocytes
- E. Microvilli epitheliocytes

4. As a result of a nose injury in a 30-year-old man, the mucous membrane covering the upper part of the upper concha is damaged. What were the consequences?

- A. Violation of humidification
- B. Violation of the secretory activity of goblet cells
- C. Violation of air heating
- D. Impaired perception of odorous substances
- E. Violation of heating and humidification

5. As a result of a head trauma in a 25-year-old man, disorders of taste was found. What cortical area can be damaged?

- A. Uncus
- B. Superior temporal gyrus
- C. Inferior frontal gyrus
- D. Superior parietal lobule
- E. Precentral gyrus

6. Specify the part of the tongue where the receptors that distinguish the taste of bitter are located.

- A. Edges
- B. Tip
- C. Tip and edges
- D. All this is true
- E. Root

7. The taste sensory system together with the olfactory system are involved in the regulation ...

- A. Digestion, metabolism and human behavior
- B. Selection, human behavior
- C. Blood circulation, digestion

- D. Digestion, metabolism
- E. -

8. How many basic tastes does a person distinguish?

- A. 3
- B. 4
- C. 5
- D. 6
- E. 7

9. Which structure is indicated by letter G (diagram №1)?

- A. Superior temporal gyrus
- B. Inferior frontal gyrus
- C. Superior parietal lobule
- D. Uncus
- E. Precentral gyrus

10. Which structure is indicated by letter A (diagram №1)?

- A. Facial nerve
- B. Trigeminal nerve
- C. Glossopharyngeal nerve
- D. Vagus nerve
- E. Hypoglossal nerve

11. Which structure is indicated by letter B (diagram №1)?

- A. Trigeminal nerve
- B. Facial nerve
- C. Glossopharyngeal nerve
- D. Vagus nerve
- E. Hypoglossal nerve

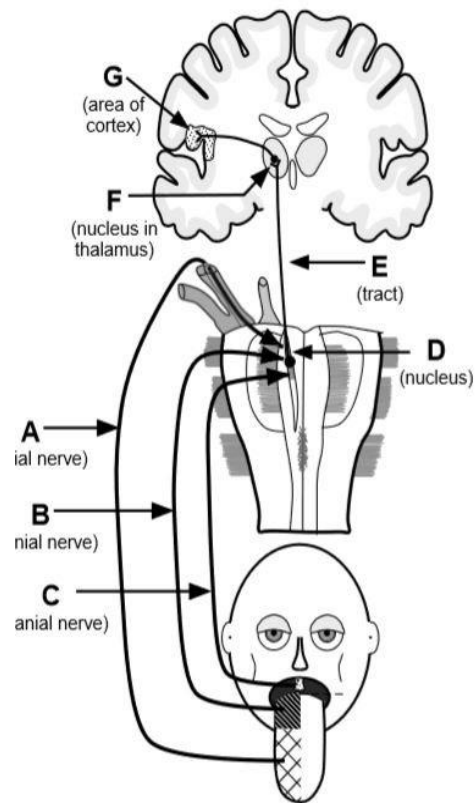


Diagram 1. Pathways of taste analyzer scheme (source - <https://studfile.net>).

12. Which structure is indicated by letter C (diagram №1)?

- A. Vagus nerve
- B. Glossopharyngeal nerve
- C. Trigeminal nerve
- D. Facial nerve
- E. Hypoglossal nerve

13. Specify the type of receptors that perceive the effects of volatile chemical compounds (odor).

- A. Mechanoreceptors
- B. Chemoreceptors
- C. Nociceptors
- D. Photoreceptors
- E. Baroreceptors

Sensory organs. Olfactory organ and olfactory nerve (I). Gustatory organ. Centers and pathways of olfactory and gustatory analyzers. Skin and its derivatives

Key to the test with explanation*

1	B	Filiform papillae have no taste buds.
2	C	Olfactory area located in superior nasal concha and superior nasal meatus mucosa.
3	A	Olfactory receptors are modified bipolar neurons.
4	D	Olfactory area located in superior nasal concha and superior nasal meatus mucosa.
5	A	Taste cortex located in uncus.
6	E	Bitter receptors located mostly in the root tongue region.
7	A	Olfactory system is involved in the regulation of digestion, metabolism and human behavior.
8	B	There are 4 basic tastes: sweet, sour, salt and bitter.
9	D	That is uncus.
10	A	That is tympanic cord, branch of the facial nerve.
11	C	That is glossopharyngeal nerve.
12	A	That is vagus nerve.
13	B	Olfactory chemoreceptors are modified bipolar neurons

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 193-197.**

Organ of vision. Eyeball

1. Rising of intraocular pressure was found during eye examination at the patient. What liquid outflow infringement has provoked that condition?

- A. Aqueous humor.
- B. Perilymph.
- C. Endolymph.
- D. Lymph.
- E. Blood

2. A patient demonstrates functional loss of nasal halves of the retinas. What area of visual pathways is affected?

- A. Left optic tract
- B. Optic chiasm
- C. Right optic tract
- D. Left optic nerve
- E. Right optic nerve

3. The external sheath of the eyeball is called:

- A. The choroid.
- B. Retina.
- C. Actually, the vascular membrane.
- D. Fibrous sheath.
- E. Iris.

4. Name the sheath which includes the iris:

- A. Fibrous.
- B. Touch.
- C. Pigmented.
- D. Visual.
- E. Vascular.

5. What is the name of the first retinal neuron?

- A. Amacrine cells.
- B. Bipolar.

- C. Photosensory cell.
- D. Multipolar.
- E. Horizontal cells.

6. Name the third neuron of the retina:

- A. Unipolar.
- B. Photosensory cells.
- C. Ganglionic cells.
- D. Bipolar cells.
- E. Horizontal cells.

7. Name the functions of the ciliary body:

- A. Regulation of light flux.
- B. Lens trophism.
- C. Reabsorption of fluid of the anterior and posterior chambers of the eye.
- D. Accommodation and formation of aqueous humor.
- E. Formation of aqueous humor.

8. What are the parts of the vascular sheath of the eyeball?

- A. Vascular, supravascular and subvascular.
- B. The choroid, ciliary body.
- C. The vascular sheath is not divided into parts.
- D. The choroid, iris.
- E. The choroid, the ciliary body and the iris.

9. Name the layer of the retina in which there are no nerve cells:

- A. External nuclear.
- B. Pigmented.
- C. Photosensory.
- D. Ganglionic.
- E. External border.

10. The receptor apparatus of the eye forms:

- A. Iris.
- B. The choroid.
- C. Crystal.
- D. Retina.
- E. The vitreous body

11. In a 40-year-old man, after traumatic brain injury, vision loss of both right halves of the retina is observed. Eyes without pathology. Where is the damage most likely to be localized?

- A. At the cortical end of the visual analyzer on the right
- B. At the cortical end of the visual analyzer on the left
- C. In the area of the optic chiasm
- D. In the optic nerve
- E. -

12. When which part of the conductive path of the visual analyzer is damaged, will the absence of lateral fields of vision be detected?

- A. Left visual tract
- B. Optic chiasma
- C. Right visual tract
- D. Right optic nerve
- E. Left optic nerve

13. As a result of the injury, the patient has a different diameter of the pupils (anisocoria). Which muscle activity is blocked?

- A. M. rectus superior.
- B. M. rectus inferior.
- C. M. ciliaris.
- D. M. rectus lateralis.
- E. M. sphinter pupillae.

14. Patient C, 53 years old, was diagnosed with a pituitary tumor. The examination revealed loss of vision in the medial half of both eyes. Which part of the visual pathway is affected?

- A. Retina
- B. Optic nerve
- C. Visual tract
- D. The medial part of the optic nerve junction
- E. Pulvinar thalami

15. The patient, 27 years old, complained of impaired vision. Examination revealed a violation of accommodation, the pupil is dilated, does not respond to light. Which muscle function is impaired?

- A. M. obliquus superior, m. ciliaris.
- B. M. dilator pupillae.
- C. M. sphinter pupillae, m. ciliaris.
- D. M. rectus lateralis, m. sphinter pupillae.
- E. Mm. sphincter and pupillate dilator.

16. When anesthesia is administered, the anesthesiologist monitors the pupillary response to light. Which nuclei of the brain stem are responsible for the friendly reaction of the pupils to light?

- A. Nucleus ambiguus
- B. The nuclei colliculi superiores.
- C. Nuclei of lateral geniculate bodies.
- D. Additional nucleus of the oculomotor nerve
- E. Motor nucleus of the trigeminal nerve.

17. Where are the centers of parasympathetic innervation of the pupillary reflex:

- A. Additional paired nuclei of the oculomotor nerve
- B. Additional unpaired nucleus of the oculomotor nerve
- C. The nuclei of the superior colliculi
- D. The nuclei of the lateral horns of the spinal segments C8-TH2
- E. n. intermediolateralis

18. Where are the centers of sympathetic innervation of the pupillary reflex:

- A. Additional paired nuclei of the oculomotor nerve
- B. Additional unpaired nucleus of the oculomotor nerve
- C. The nuclei of the superior colliculi
- D. The nuclei of the lateral horns of the spinal segments C8-TH2
- E. n. intermediolateralis

19. Where are the accommodation centers:

- A. Additional paired nuclei of the oculomotor nerve
- B. Additional unpaired nucleus of the oculomotor nerve
- C. The nuclei of the superior colliculi
- D. The nuclei of the lateral horns of the spinal segments C8-TH2
- E. n. intermediolateralis

20. Who are the bodies of the first neuron of the visual pathway:

- A. Bipolar cells
- B. Ganglion cells
- C. Glial cells
- D. Pigment cells
- E. Rods and cones

Organ of vision. Eyeball

Key to the test with explanation*

1	A	Internal chambers of the eyeball are filled with aqueous humor.
2	B	Decussation of nasal halves of retina happened in optic chiasm.
3	D	External tunic of eyeball is fibrous sheath.
4	E	Vascular layer is the middle layer of eyeball and comprises choroid, ciliary body and the iris.
5	C	Rods and cones are the first photosensory receptor cells of retina.
6	C	Third layer of retinal cells comprises ganglionic neurons.
7	D	Ciliary body provides accommodation and secretion of aqueous humor.
8	E	Vascular layer of eyeball comprises choroid, ciliary body and the iris.
9	B	There are no neurons in pigmented layer of retina.
10	D	Rods and cones are the photosensory receptor cells of retina.
11	C	Optic chiasm is an incomplete decussation of optic nerve fibers. Injury to the chiasm leads to the vision loss of halves of the retina.
12	B	Injury to the optic chiasm leads to the loss of the lateral fields of vision.
13	E	Musculus sphincter pupillae narrows the pupil.
14	D	Decussation of medial halves of retina happened in optic chiasm.
15	C	Musculus sphincter pupillae narrows the pupil and musculus ciliaris is responsible for the accommodation.
16	D	Additional nucleus of the oculomotor nerve is responsible for the friendly reaction of the pupils to light.
17	A	Parasympathetic center of the pupillary reflex is located in additional paired nuclei of the oculomotor nerve.
18	D	Sympathetic center of the pupillary reflex is located in the nuclei of the lateral horns of the spinal segments C8-TH2.
19	A	Accommodation center is located in additional paired nuclei of the oculomotor nerve.
20	E	Rods and cones are the first photosensory receptor cells of retina.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 164-169, 175-177.**

**Accessory visual structures. Oculomotor nerve (III) and ciliary ganglion.
Trochlear (IV) and abducent (VI) nerves**

1. What structures do not belong to the auxiliary apparatus of the eye?

- A. Eyelids.
- B. Conjunctiva.
- C. Lacrimal glands.
- D. Cornea.
- E. Tear sac.

2. The conjunctiva of the eye covers:

- A. The choroid.
- B. Cornea.
- C. Iris.
- D. Sclera and eyelids.
- E. Ciliary body.

3. Which of the eye muscles does not start from the fibrous ring

- A. Upper straight
- B. Lower straight
- C. Lateral straight
- D. The upper oblique
- E. Lower oblique

4. Which of the muscles rotates the eye around the sagittal axis

- A. Upper oblique, lower oblique
- B. Upper straight, lower straight
- C. Lateral straight, medial straight
- D. All answers are correct
- E. There are no correct answers

5. Which of the structures does not belong to the tear pathways?

- A. punctum lacrimalis
- B. lacrimal canals
- C. saccus lacrimalis
- D. ductus nasolacrimalis
- E. meatus nasi medius

6. What is the order of the layers of the eyelids is correct?

- A. Skin, orbicular muscle, cartilage, conjunctiva
- B. Skin, subcutaneous adipose tissue, cartilage, conjunctiva

C. Skin, cartilage, orbicular muscle, conjunctiva

D. Skin, orbicular muscle, muscle that raises the upper eyelid, conjunctiva

E. Skin, orbicular muscle, cartilage, subcutaneous adipose tissue, conjunctiva

7. Which eye muscle rotates the eye upwards and laterally?

- A. Upper straight
- B. Lower straight
- C. Lateral straight
- D. Upper oblique
- E. Lower oblique

8. Which eye muscle rotates the eye down and laterally?

- A. Upper straight
- B. Lower straight
- C. Lateral straight
- D. Upper oblique
- E. Lower oblique

9. To which of the nasal passages do tears flow from the nasolacrimal duct?

- A. Meatus nasi medius
- B. Meatus nasi superior
- C. Meatus nasi inferior
- D. Meatus nasi communis
- E. Meatus nasopharyngeus

10. At the patient as a result of an injury rotation of an eye outside is broken. Which muscle is damaged?

- A. Upper straight
- B. Lower straight
- C. Lateral straight
- D. The upper oblique
- E. Lower oblique

Accessory visual structures. Oculomotor nerve (III) and ciliary ganglion. Trochlear (IV) and abducent (VI) nerves

Key to the test with explanation*

1	D	Cornea in the part of fibrous layer of the eyeball.
2	D	Conjunctiva covers internal surfaces of eyelids and the anterior portion of the eyeball.
3	E	Inferior oblique muscle originates from the medial portion of the orbital wall.
4	A	Superior and inferior oblique muscles rotate the eye around the sagittal axis.
5	E	Meatus nasi medius does not related to the lacrimal apparatus.
6	A	Skin, orbicular muscle, cartilage and conjunctiva situated in eyelids.
7	E	Inferior oblique muscle rotates the eye upwards and laterally.
8	D	Superior oblique muscle rotates the eye downwards and laterally.
9	C	Nasolacrimal duct opens into the inferior nasal meatus.
10	C	Lateral rectus muscle rotates the eye laterally.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 170-175.**

External and middle ear

1. The patient had otitis media complicated by mastoiditis. Later there was a threat of purulent thrombosis of the nearest venous sinus. Which one?

- A. Sigmoid
- B. Inferior petrosal
- C. Superior sagittal
- D. Transverse
- E. Straight

2. The patient had follicular angina complicated by acute otitis media (inflammation of the middle ear). What are the anatomical prerequisites for this?

- A. Pirogov's lymphoepithelial ring.
- B. Eustachian tube
- C. Fallopian tube.
- D. Malformations of the pharynx
- E. The presence of a pear-shaped nook.

3. The middle ear consists of:

- A. Utriculus
- B. Scala vestibuli
- C. Lateral semicircular tubules.
- D. Incus
- E. Sacculus

4. The middle ear consists of:

- A. Stapes
- B. Utriculus
- C. Scala tympani
- D. Anterior semicircular tubules.
- E. Sacculus

5. Patient 18 years old, went to the hospital with complaints of noise and pain in the ear. Objectively – the patient has an acute respiratory disease, rhinitis. Through which

opening of the pharynx did the infection enter the tympanic cavity and cause its inflammation?

- A. Nasopharyngeal meatus
- B. Choana
- C. Fauces
- D. Vestibule of larynx
- E. Pharyngeal opening of the auditory tube

6. The pathology of the middle ear was revealed. What structures are part of the middle ear?

- A. Anterior semicircular tubules.
- B. Malleus
- C. Utriculus.
- D. Scala tympani
- E. Sacculus

7. A 5-year-old child was admitted to the ENT department of the hospital with a diagnosis of purulent otitis media (tympanitis). The disease began with inflammation of the nasopharynx. Through which temporal bone canal did the infection enter the tympanic cavity?

- A. Canaliculus tympanicus.
- B. Caroticotympanic tubules.
- C. Canaliculus mastoideus.
- D. Carotid canal.
- E. Musculotubal canal.

8. A child, 7 years old, often suffers from cold, she has a greatly enlarged pharyngeal tonsil. It closes the pharyngeal opening (tuba auditiva), which leads to a decrease in auditory sensitivity in children. On which wall of the tympanic cavity does the tuba auditiva open?

- A. Paries jugularis

- B. Paries labyrinthicus
- C. Paries mastoideus
- D. Paries caroticus
- E. Paries tegmentalis

9. At a purulent inflammation of a middle ear the artery which is located on a front wall of a tympanic cavity is involved in pathological process. Which vessel is involved in the pathological process?

- A. a. meningea media
- B. a. carotis externa
- C. a. auricularis posterior
- D. a. temporalis superficialis
- E. a. carotis interna

10. The child was admitted to the ENT department of the hospital with a diagnosis of purulent otitis media. The disease began with inflammation of the nasopharynx. It is established that the infection got into the tympanic cavity through the Eustachian tube, which lies in:

- A. Canalis musculotubarius
- B. Canaliculus tympanicus
- C. Canalis caroticus
- D. Canaliculus chordae tympani
- E. Canaliculi carotici tympanici

11. A 2-year-old child developed complaints of ear pain after suffering from the flu. The doctor found hearing loss and otitis media. How did the infection get to the middle ear?

- A. Through the foramen jugularis
- B. Through the auditory tube
- C. Through the canalis caroticus
- D. Through the atrium mastoideum
- E. Through the canalis nasolacrimalis

12. In an 8-year-old child with purulent otitis media, the infection from the tympanic cavity spread to the jugular vein bulb. This complication develops under the condition of thinning of one of the walls of the tympanic cavity. Which wall anomaly occurs?

- A. Upper
- B. Lower
- C. Medial
- D. Lateral
- E. Anterior

13. The patient has hearing loss. Examination revealed sulfur plugs. In which part of the hearing organ changes?

- A. In the outer ear
- B. In the middle ear
- C. In the inner ear
- D. In the auditory tube
- E. –

14. The patient is 18 years old and went to the hospital with complaints of noise and pain in the ear. Objectively – the patient has an acute respiratory disease, rhinitis. Through which opening of the pharynx did the infection enter the tympanic cavity and cause its inflammation?

- A. The tympanic opening of the auditory tube
- B. Choana
- C. Fauces
- D. Vestibule of larynx
- E. Pharyngeal opening of the auditory tube

15. What anatomical feature of the cartilaginous part of the auricle do you know?

- A. In the skin of the auricle a large number of sebaceous glands
- B. The front skin is tightly welded to the cartilage
- C. A large number of blood vessels
- D. Existing sanctorium slits
- E. A large number of ceruminous glands

16. What is the bony part of the external auditory canal?

- A. Bone canal of the tympanic part of the temporal bone
- B. Is part of the mammary process
- C. Is a separate bone that grows with the mammary process
- D. Cartilage that ossifies with age
- E. Formed by papillary and shark processes

17. How many walls does the tympanic cavity have?

- A. 2
- B. 4
- C. 6
- D. 8
- E. 3

18. What borders the upper wall of the tympanic cavity?

- A. Middle cranial fossa
- B. Inner ear
- C. Posterior cranial fossa
- D. Antrum mastoideum
- E. Ear canal

19. Which wall of the tympanic cavity is movable?

- A. Medial
- B. Upper
- C. Lower
- D. Lateral
- E. Anterior

External and middle ear

Key to the test with explanation*

1	A	Sigmoid sinus is located next to tympanic cavity.
2	B	Auditory (Eustachian) tube communicates tympanic cavity with nasopharynx.
3	D	Tympanic cavity contains 3 auditory ossicles: malleus, incus and stapes.
4	A	Tympanic cavity contains 3 auditory ossicles: malleus, incus and stapes.
5	E	Auditory tube communicates tympanic cavity with nasopharynx.
6	B	Tympanic cavity contains 3 auditory ossicles: malleus, incus and stapes.
7	E	Bony part of auditory tube occupies the musculotubal canal.
8	D	Tympanic opening of the auditory tube opens on anterior (carotic) wall of tympanic cavity.
9	E	Anterior wall of tympanic cavity neighbors with internal carotid artery canal.
10	A	Bony part of auditory tube occupies the musculotubal canal.
11	B	Auditory tube communicates tympanic cavity with nasopharynx.
12	B	Internal jugular vein is situated next to the inferior wall of tympanic cavity.
13	A	Ceruminous glands are situated in external acoustic meatus.
14	A	The tympanic opening of the auditory tube leads to the tympanic cavity.
15	E	Ceruminous glands are situated in external acoustic meatus.
16	A	Bony part of auditory tube occupies the musculotubal canal.
17	C	The tympanic cavity has six walls.
18	A	Superior wall of tympanic cavity looks into the middle cranial fossa.
19	D	Lateral (membranous) wall of tympanic cavity is movable.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 178-184.**

Inner ear

1. VIII pair of cranial nerves belong to the following cochlear nuclei.

- A. Posterior and anterior cochlear nucleus
- B. Anterior cochlear nucleus, the nucleus of solitary tract
- C. Medial vestibular nucleus
- D. Lateral vestibular nucleus
- E. Upper and lower vestibular nucleus

2. Through which hole of the skull comes the VIII pair of cranial nerves?

- A. The upper orbital fissure;
- B. Round hole;
- C. Internal acoustic meatus;
- D. Spinosus hole;
- E. Lower orbital fissure.

3. What is the topography of the cortical end of the auditory analyzer

- A. Middle temporal gyrus
- B. Superior temporal gyrus
- C. Inferior temporal gyrus
- D. Supramarginal gyrus.
- E. Precentral gyrus

4. The patient has reduced hearing in the left ear. In which formation are the nuclei of the affected nerve localized?

- A. Pedunculi cerebri.
- B. Thalamus.
- C. Pedunculi cerebelli.
- D. Medulla oblongata
- E. Fossa rhomboidea

5. The patient has reduced hearing in the left ear. In which formation are the nuclei of the affected nerve localized?

- A. Thalamus;
- B. Medulla oblongata;
- C. Pedunculi cerebellaris media;
- D. Pons;
- E. Pedunculi cerebri.

6. A 54-year-old woman went to the doctor with complaints of dizziness, nausea, imbalance after a fall and a head injury. What structure of the inner ear most likely was impaired?

- A. vestibular apparatus
- B. ossicles
- C. spiral organ
- D. tympanic membrane
- E. canalis longitudinalis modioli

7. A 5-year-old child with purulent inflammation of the inner ear developed symptoms of meningitis. The path of infection?

- A. Ductus cochlearis.
- B. Aqueductus vestibuli.
- C. Cochlear window.
- D. Vestibular window.
- E. Canaliculus tympanicus.

8. Specify the part of the hearing organ in which the cochlea is located

- A. outer ear
- B. middle ear
- C. intermediate ear
- D. inner ear
- E. tympanic cavity

9. The basis of the Corti's organ is

- A. chemoreceptors
- B. photoreceptors
- C. thermoreceptors
- D. hair cells
- E. baroreceptors

10. The inner ear consists of:

- A. Malleus, incus, stapes
- B. Cochlea, vestibulum, semicircular canals
- C. Tympanic membrane
- D. Auditory tube
- E. External acoustic meatus

11. On which membrane are the hair cells of the spiral organ:

- A. On the vestibular
- B. On the basilar
- C. On the tectorial
- D. Everything listed is correct
- E. There are no correct answers

12. Helicotrema is...

- A. A small hole in the dome of the cochlea, where the scala tympani and the scala vestibule are connected.
- B. Hole connecting the outer and middle ear
- C. A hole in the wall of the labyrinth that connects the vestibule and the cochlea
- D. Hole in semicircular channels
- E. Everything listed is correct

13. The membranous labyrinth consists of:

- A. Vestibule, cochlea and anterior, posterior, lateral semicircular canals
- B. Vestibule and anterior, posterior, lateral semicircular canals
- C. Vestibule, cochlea and anterior, posterior, medial semicircular canals
- D. Cochlea and anterior, posterior, lateral semicircular canals

E. Vestibular labyrinth, cochlear and semicircular ducts

14. Which semicircular channels have a common leg?

- A. Anterior and posterior
- B. Anterior and lateral
- C. Lateral and posterior
- D. Superior and lateral
- E. Inferior and lateral

15. Where does the perilymph flow from the perilymphatic space?

- A. Ductus cochlearis
- B. Canaliculus cochleae
- C. Cochlear canals
- D. Canaliculus mastoideus
- E. All answers are correct

16. Where is the ductus cochlearis

- A. Between scala tympani and scala vestibuli
- B. Between the bony and membranous labyrinth
- C. Between the dorsum and the cochlea
- D. Between the vestibular and tectorial membranes
- E. Between the basilar and tectorial membranes

17. Which statement is correct?

- A. Utricle is responsible for sound perception
- B. Saccle is responsible for sound perception
- C. Utricle and saccle are parts of the sound-receiving apparatus
- D. Utricle and saccle do not participate in sound perception

Inner ear

Key to the test with explanation*

1	A	There are two cochlear nuclei: posterior and anterior.
2	C	VIII pair of cranial nerves goes through internal acoustic meatus.
3	B	Auditory cortex is located in superior temporal gyrus.
4	E	Cochlear nuclei are located in rhomboid fossa.
5	D	Cochlear nuclei are located in the pons.
6	A	Injury to the vestibular apparatus can cause dizziness and nausea.
7	B	Aquaeductus vestibuli contains endolymphatic duct that incorporated into the dura mater.
8	D	Internal ear comprises bony labyrinth that consists of the vestibule, semicircular canals and cochlea.
9	D	Spiral organ (Corti) consists of the sensory hair cells.
10	B	Internal ear comprises bony labyrinth that consists of the vestibule, semicircular canals and cochlea.
11	B	Spiral organ (Corti) is situated on the basal membrane.
12	A	Helicotrema is the communication between the scala tympani and the scala vestibuli.
13	E	Membranous labyrinth consists of the semicircular ducts, sacculus, utriculus and cochlear duct.
14	A	Anterior and posterior canals have one common bony limb.
15	B	Perilymph drains via cochlear canaliculus.
16	A	Cochlear duct is situated between the tympanic and vestibular scalae.
17	D	Utricle and saccle are a parts of vestibular apparatus.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 184-191.**

Vestibular and cochlear nerve. Centers and pathways of auditory and vestibular analyzers.

1. Name the cells of the Corti's organ that receive stimulation?

- A. Border cells.
- B. Pillar cells.
- C. Phalangeal cells.
- D. Hair cells.
- E. Supporting cells.

2. Where is the spiral organ located?

- A. In the tympanic ladder.
- B. In the cochlear duct.
- C. In the vestibular ladder.
- D. In the utricle.
- E. In the sacculus.

3. Where is I neuron of the vestibular pathways?

- A. Ganglion vestibulare
- B. Spiral ganglion
- C. Hair cells of the spiral organ
- D. The nuclei of the pons
- E. The nuclei of the midbrain

4. Where are the II neurons of the vestibular pathways?

- A. Bipolar ganglion vestibulare cells VIII CN.
- B. Spiral ganglion cells
- C. Located in the nucleus vestibulare lateralis, medialis, superior.
- D. Hair cells of the spiral organ
- E. The nuclei of the midbrain

5. In the which of structure are the leading pathways of the auditory organ?

- A. Lemniscus medialis
- B. Lemniscus spinalis
- C. Lemniscus trigeminalis
- D. Lemniscus spiralis
- E. Lemniscus lateralis

6. Upper vestibular nucleus eponym term :

- A. The nucleus of Deuters
- B. Schwalbe's nucleus
- C. Roller nucleus
- D. Bekhterev's nucleus
- E. The nucleus of Yakubovich

7. Lower vestibular nucleus by author:

- A. Bekhterev's nucleus
- B. The nucleus of Deiters
- C. Schwalbe's nucleus
- D. Roller nucleus
- E. The nucleus of Yakubovich

8. The subcortical centers of the auditory organ are located

- A. Thalamus
- B. Superior colliculi, lateral geniculate body
- C. Inferior colliculi, corpora geniculata medialis
- D. Internal capsule
- E. Gyrus temporalis superior

9. The cortical centers of the hearing organ are located

- A. Gyrus postcentralis
- B. Lobulus parietalis superior
- C. Gyrus frontalis superior
- D. Cuneus
- E. Gyrus temporalis superior

10. What decussation forms tr. tectospinalis?

- A. Decussation tegmentalis dorsalis
- B. Ventilation of the ventral tegmentalis
- C. Chiasma opticum
- D. Deccusatio leminiscorum
- E. Deccusatoi pyramidarym

Centers and pathways of auditory and vestibular analyzers.

Key to the test with explanation*

1	D	Spiral organ (Corti) consists of the sensory hair cells.
2	B	Spiral organ is situated on the basal membrane in cochlear duct.
3	A	First neuron of the vestibular pathway located in vestibular ganglion.
4	C	Second neuron of the vestibular pathway forms vestibular nuclei.
5	E	Decussated fibers of auditory pathway forms lateral lemniscus in the pons.
6	D	Bekhterev's nucleus is eponym term for superior vestibular nucleus.
7	D	Roller nucleus is eponym term for inferior vestibular nucleus.
8	C	Subcortical center of the auditory system is located in inferior colliculi and medial geniculate bodies.
9	E	Auditory cortex is located in superior temporal gyrus.
10	A	Tractus tectospinalis forms posterior midbrain decussation.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 188-191.**

Ascending and descending pathways of CNS

1. What structures have pass through the internal capsule?

- A. Descending axons to the pons.
- B. Descending axons to the midbrain.
- C. Descending axons to the medulla oblongata.
- D. Ascending axons of thalamic neurons.
- E. All of the above.

2. Axons of cells of the second neuron of the cortico-cerebellar pathway are in the composition

- A. Middle peduncles of the cerebellum
- B. Upper peduncles of the cerebellum
- C. Lower peduncles of the cerebellum
- D. Anterior cords of the spinal cord
- E. Lateral cords of the spinal cord

3. Axons of the first neuron of the cortico-cerebellar pathway end in synapses

- A. The cells of the nuclei of the pons of the opposite side
- B. On cells of gracile and cuneate nuclei
- C. On the cells of the nuclei of the pons of the same side
- D. On the cells of the cerebellar cortex of the opposite side
- E. On the cells of the cerebellar cortex of the same side

4. Axons of the first neuron of a corticospinal pathway pass...

- A. Through the peduncles of the brain
- B. Through the posterior limb of the internal capsule
- C. Through the genu of internal capsule

- D. Through the medulla oblongata
- E. Through the thalamus

5. Axons of the first neuron of the corticonuclear pathway pass...

- A. Through the posterior limb of the inner capsule
- B. Through the lower cerebellar peduncles
- C. Through the genu of internal capsule
- D. Through the medulla oblongata
- E. Through the thalamus

6. Axons of the first neuron of the anterior corticospinal tract are in the composition with

- A. Anterior funiculus of the spinal cord
- B. Lateral funiculus of the spinal cord
- C. Fasciculus gracilis
- D. Fasciculus cuneatus
- E. Anterior funiculus of the opposite side of the spinal cord

7. Axons of the first neuron of a lateral corticospinal pass throught.

- A. Fasciculus gracilis
- B. Fasciculus cuneatus
- C. Anterior funiculus of the spinal cord
- D. Lateral funiculus of the spinal cord
- E. Anterior funiculus of the opposite side of the spinal cord

8. Axons of the nuclei of the vestibulospinal tract descend in the composition with

- A. Posterior funiculus of the spinal cord

- B. Peduncles of the brain
- C. Lateral funiculus of the spinal cord
- D. Upper peduncles of the cerebellum
- E. Anterior funiculus of the spinal cord

9. Axons that form a fasciculus cuneatus, carry proprioceptive impulses from

- A. Upper extremities, waist
- B. Head and chest
- C. Lower extremities
- D. Upper part of body, upper extremities
- E. Lower half of the torso

10. Axons that form a fasciculus gracilis (Gaulle beam), carry proprioceptive impulses from

- A. Lower torso, head
- B. Lower extremities and lower part of body
- C. Upper extremities
- D. Cervical parts of the body
- E. Thoracic parts of the body

11. The ventral decussation (Forell's) of the tegmentum is formed by fibers

- A. Tecto-spinal tract
- B. Corticospinal tract
- C. Olivo-spinal tract
- D. Reticulospinal tract
- E. Rubro-spinal tract

12. The processes of cells of the first neuron of the cortico-nuclear pathway pass through the:

- A. Posterior limb of the internal capsule
- B. Anterior limb of the internal capsule

- C. Genu of the internal capsule
- D. Thalamus
- E. Upper peduncles of the cerebellum

13. The processes of the cells of the third neuron of the lateral spinal-thalamic pathway pass through the:

- A. Posterior limb of the internal capsule
- B. Knee of the internal capsule
- C. Lower peduncles of the cerebellum
- D. Upper peduncles of the cerebellum
- E. Hypothalamus

Ascending and descending pathways of CNS

Key to the test with explanation*

1	E	A lot of ascending and descending pathways pass through the internal capsule.
2	A	Axons of cells of the second neuron of the cortico-cerebellar pathway pass through the middle cerebellar peduncles.
3	C	Axons of the first neuron of the cortico-cerebellar pathway end in synapses on the cells of the nuclei of the pons of the same side.
4	B	Axons of the first neuron of a corticospinal pathway pass through the posterior limb of the internal capsule.
5	C	Axons of the first neuron of a corticonuclear pathway pass through genu of internal capsule.
6	A	Axons of the first neuron of the anterior corticospinal tract enters the anterior funiculus of the spinal cord.
7	D	Axons of the first neuron of the lateral corticospinal tract enters the lateral funiculus of the spinal cord.
8	E	Fibers of the vestibulospinal tract enters the anterior funiculus of the spinal cord.
9	D	Cuneate fasciculus carries proprioceptive impulses from the upper portion of the body and upper extremities.
10	B	Gracile fasciculus carries proprioceptive impulses from the lower portion of the body and lower extremities.
11	E	Ventral midbrain decussation is formed by rubro-spinal tract.
12	C	Axons of the first neuron of a corticonuclear pathway pass through the genu of internal capsule.
13	A	Thalamo-cortical fibers pass through the posterior limb of the internal capsule.

***Human anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. – Lugansk: LTD «Virtualnaya realnost», 2009. – P. 74-75, 84-90.**

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