

**ANATOMO-PHYSIOLOGICAL PECULIARITIES, METHODS OF EVALUATION,  
PARACLINICAL METHODS OF INVESTIGATION AND SEMEIOLOGY OF THE  
NERVOUS SYSTEM DISEASES IN CHILDREN**

**Academic discipline «Pediatric Propedeutics»**

*Self-study guide for the 3<sup>rd</sup> year*

*English medium students*

**АНАТОМО-ФІЗІОЛОГІЧНІ ОСОБЛИВОСТІ, МЕТОДИ ОБСТЕЖЕННЯ ТА  
СЕМІОТИКА ЗАХВОРЮВАНЬ НЕРВОВОЇ СИСТЕМИ У ДІТЕЙ**

**З дисципліни «Пропедевтика педіатрії»**

*Методичні вказівки*

*до самостійної роботи студентів 3-го курсу*

*медичного факультету*

**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ**  
**Харківський національний медичний університет**

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Затверджено  
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Sirenko T.V.  
Karpushenko J.V.

Анатомо-фізіологічні особливості, методи обстеження та семіотика захворювань нервової системи у дітей: метод. вказ. до самост. роботи студентів 3 курсу медичних факультетів / упор. В.А.Клименко, Т.В. Сіренко, Ю.В.Карпушенко. – Харків, ХНМУ, 2016. – 16 с.

Упорядники: Клименко В.А.  
Сіренко Т.В.  
Карпушенко Ю.В.

## Contents

When a child is born, its nervous system is least developed and differentiated in comparison to the other organs and systems. At the same time, this system has the most important functions. The nervous system helps in the adaptation of an individual to the various environmental conditions it regulates the vital functions of the internal organs and provides their coordinated activity.

### Specific goals

- To get knowledge about embryogenesis of the nervous system in children.
- To know main morphofunctional peculiarities of the nervous system in children.
- To get skills of clinical and paraclinical methods of examination of the nervous system in children.

### To know:

1. Embryogenesis of the nervous system in children
2. The main morphofunctional peculiarities of the nervous system in children.
3. Main symptoms and syndromes of the nervous system affection in children.
4. How to interpret results of laboratory and instrumental methods of examination of the nervous system of children.

### To be able to:

1. To demonstrate the technique of interrogation and inspection of the nervous system.
2. To interpret the results of clinical and paraclinical investigations.
3. To appoint laboratory and instrumental methods of investigations of the nervous system of children.
4. To conduct syndromic diagnosis of the nervous system diseases of children.
5. To get skills of care of children with diseases of the nervous system.

### 1. Basic skills and knowledge, necessary for the topic study (intradiscipline integration)

Name of the previous discipline	Skills
1. Normal human anatomy	Morphofunctional peculiarities of the nervous system of children in different age.
2. Normal physiology	To know the features of functioning of the nervous system of children in different age.
3. Pathophysiology	To identify pathophysiological processes which arise in nervous system in children.
3. Biochemistry	To have knowledge of techniques of

	carrying out some laboratory investigation at pathology of nervous system.
4. Care for children	Nursing of children with disease of the nervous system.

### **Graphical structures of individual issues of the topic.**

#### **The list of study materials:**

##### **Main:**

1. Propaedeutics of Paediatrics: Manual for foreign students / V. A. Fjoklin, V. A. Klymenko, O. M. Plakhotna, T. V. Sirenko, A. I. Kojemiaka, O. V. Sharikadze. – Kharkiv: 2010. – 356 p.
2. Kapitan T. Propaedeutics of children's diseases and nursing of the child / T. Kapitan. – The state cartographical factory, 2006. – 734p.

##### **Additional:**

1. Nelson textbook of pediatrics.—19th ed./ [edited by] Robert M. Kliegman... [at. ol], p. SM
2. Ghai O.P. Essential pediatrics (fourth edition). – New Delhi, India: Interpint, 1996.–476 p.
3. Gupte S. The short textbook of pediatrics, 8<sup>th</sup> edition. – New Deli, India.: Iaypee Brthe others. Medical publishers (P) hTD, 1998. – 617 p.
4. Bickley L.S., Hockelman R.A. Physical examination and History Taking. – Philadelphia, New York, Baltimor.: Lippincott, 1999. – 789 p.

##### **Test questions to the class:**

1. What parts does the nervous system consist of?
2. What are the main functions of the nervous system?
3. What do you know about embryogenesis of the nervous system?
4. What do you know about maturity of the different parts of the nervous system?
5. What do you know about the spinal cord development?
6. What do you know about autonomic nervous system function in children?
7. What do you know about the maturation of functions of the sense organs?
8. Describe methods of clinical and paraclinical examinations of the nervous system in children.
9. Describe pathological symptoms and neurological syndromes in children.
10. What do you know about care of children with the neural system diseases?

##### **Tests for self-control:**

1. Formation of the brain and spinal cord of the fetus occurs:
  - a) at 5-6 weeks of gestation

- b) at 5-6 days of gestation
- c) at 1 month of gestation
- d) at 2 month of gestation
- e) at 3 month of gestation.

2. What is the critical period for the formation of the central nervous system?

- a) between 4-5 weeks of gestation
- b) between 5-6 weeks of gestation
- c) between 8-9 weeks of gestation
- d) between 10-18 weeks of gestation
- e) between 20-24 weeks of gestation

3 . Mark the main antenatal risk factor of the nervous system affection:

- a ) sepsis
- b) trauma of the skull
- c) incorrect feeding
- d) chronic diseases of mother
- e) damage of the brain tissue during delivery

4 . The brain tissue is rich in:

- a) albumins
- b) lipids
- c) carbohydrates
- d) cerebrospinal fluid
- e) blood

5. What is the most underdeveloped part of the brain at birth?

- a) the cerebellum
- b) the cerebral cortex
- c) the midbrain
- d) the medulla oblongata
- e) the thalamus

6. The quantity of cerebrospinal fluid in comparison to an adult is:

- a) more
- b) less
- c) the same
- d) constant
- e) gradually decreases

7 . The cerebral tissue is characterised by

- a) weak vascularization
- b) abundant vascularization

- c) abundant outflow of blood
- d) all above is correct
- e) all above is wrong

8. Mark the most widespread stigma:

- a) hydrocephaly
- b) Down's syndrome
- c) polydactyly
- d) meningitis
- e) single kidney

9. What is not type of hydrocephaly:

- a) congenital
- b) acquired
- c) acute
- d) internal
- e) external
- e) persistent

10. What is the pathognomonic sign of hydrocephaly?

- a) sun set sign
- b) microcephaly
- c) macroglossia
- d) cross-line on the palm
- e) Lessage's symptom

11 . The reason of the Down's syndrome is the trisomy of the

- a) 15<sup>st</sup> chromosome
- b) 18<sup>st</sup> chromosome
- c) 21<sup>st</sup> chromosome
- d) 23<sup>st</sup> chromosome
- e) gonosome

12. What is not the pathognomonic sign of the Down's syndrome?

- a) "mongoloid" eye
- b) short neck
- c) brahydactyly
- d) the reduction of the size of the skull
- e) "sandals" view of feet

13. What is not a sign of meningeal syndrome?

- a) Rigidity of occipital muscles
- b) General hyperesthesia
- c) headache

- d) Kernig's symptom
- e) macroglossia

14. What is not a symptom of meningeal syndrome?

- a) Kernig's symptom
- b) Brudzinski's symptom
- c) Graefe's symptom
- d) Lessage's symptom
- e) Zygomatic symptom

15. The main cause of meningitis is

- a) infection
- b) tumor
- c) trauma
- d) hemorrhage
- e) parasites

16. Serous meningitis caused by

- a) bacterial infection
- b) viral infection
- c) trauma
- d) parasites
- e) tumor

17. Purulent meningitis caused by

- a) bacterial infection
- b) viral infection
- c) trauma
- d) parasites
- e) tumor

18. What is the compulsory method for the differential diagnosis between viral and purulent meningitis?

- a) clinical blood test
- b) lumbar puncture
- c) USD
- d) MRI
- e) X-ray

19. What type of exudate is absent?

- a) serous
- b) purulent
- c) hemorrhagic
- d) fibrinous

e) cellular

20. What method is informative for investigation of the nervous system?

- a) MRI
- b) Neurosonography
- c) lumbar puncture
- d) ECG
- e) X-ray

**Tasks for individual work of students:**

Work at the bedside, collection of complaints, medical case history, clinical examination of the patient. Analysis of paraclinical laboratory and instrumental methods.

**Standards of responses to tests:**

1-A; 2- D; 3-D; 4-A; 5- B; 6-B; 7- B; 8- C; 9- C; 10- A; 11- C; 12- D; 13- E; 14- C; 15- A; 16- B; 17- A; 18- B; 19- E; 20- D.

The **maximum number of points** which may be consequently obtained by students is 200 points; this includes 120 points for current educational activity and 80 points for the final lesson.

***Current educational activity of students*** is controlled during practical classes according to specific goals in the course of each practical class as well as during self-training in the hospital department. It is recommended to apply the following means of diagnostics of the students' level of readiness: control of practical skills, solving cases and test control of theoretical knowledge.

The current assessment of students on respective topics is conducted in the traditional 4-point grade scale ("excellent", "good", "satisfactory" and "unsatisfactory") with further conversion into a multiscore scale.

**The grade "Excellent"** is given when the student knows the program in toto, illustrating the answers with various examples; gives clear and comprehensive answers without any hints; delivers the material without any inaccuracies or errors; performs practical tasks of a different degree of complexity.

**The grade "Good"** is given when the student knows the whole program and understands it well, gives correct, consistent and structured but not completely comprehensive answers to questions, although he is able to answer additional questions without mistakes; solves all cases and performs practical tasks experiencing difficulties only in the most complex situations.

**The grade "Satisfactory"** is given to the student based on his satisfactory level of knowledge and understanding of the entire subject. The student is able to solve modified tasks with the help of hints; solves cases and applies practical skills experiencing difficulties in simple cases; is unable to deliver a consistent answer, but answers direct questions correctly.

**The mark "Unsatisfactory"** is given when the student's knowledge and skills do not meet the requirements of the grade "satisfactory".

Given the number of practical classes the grades are converted into the multiscore scale as follows:

**The mark "Excellent" – 72-80 scores**

**The mark "Good" – 60-71 scores**

**The mark "Satisfactory" – 50-59 scores**

**The mark "Unsatisfactory" – 0 scores**

*Навчальне видання*

**Анатомо-фізіологічні особливості, методи обстеження та семіотика захворювань  
нервової системи у дітей**

Упорядники: Клименко Вікторія Анатоліївна  
Сіренко Тетяна Вадимівна  
Карпушенко Юлія Валентинівна

Відповідальний за випуск: Клименко В.А.

Комп'ютерна верстка

Ум. друк. арк. \_\_\_\_ . Тираж \_\_\_\_ прим. Зам. № \_\_\_\_ .

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