PHYSICAL DEVELOPMENT OF CHILDREN, ANTHROPOMETRY. ASSESSMENT OF THE PHYSICAL DEVELOPMENT

Academic discipline «Pediatric Propedeutics»
Self-study guide for the 3rd year
English medium students

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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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ХНМУ
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Compiled by: KlymenkoV.A.
SirenkoT.V.
Yanovska K.O.

Фізичний розвиток дитини та антропометрія. Оцінка фізичного розвитку: метод. вказ.до самост. роботи студентів 3 курсу медичних факультетів / упор. В.А.Клименко, Т.В. Сіренко, К.О. Яновська. – Харків, ХНМУ, 2016. – 16 с.

Упорядники: Клименко В.А.
Сіренко Т.В.
Яновська К.О.

Number of class periods: independent work– 3;
practical trainings – 4.

Contents

Age-specific characteristics of human physical development constitute an impartment parameter which allows assessing a normal development of the body and determining deviations from the normal range.

Physical development is variable and depends on certain factors. First of all, it depends on the gestation and delivery course and mother's state of health. After the birth, the physical development of a child is affected by endogenous (intrinsic) and exogenous (extrinsic) factors. Endogenous endocrine glands have an influence on children's development. In the earliest period of childhood, thymus has the main influence, thyroid gland after the end of the first year of life, hypophysis starting from the third year of life. Exogenous factors are conditions of life and development of the child, hygienic state of environment where the child develops, nutrition, different acute diseases.

The main parameters used for the assessment of the physical development of children of early and preschool age are height, body weight, chest circumference, head circumference as well as lipopexia state, skin and mucous state.

The main method used for the study of the physical development is an anthropometric method; that is measurements of the body (linear, superficial, volumetric and weighting).

Specific goals

1. Conception of the physical development, its meaning and assessments.
2. Conception of the acceleration of children's development.
3. Main hypothesis and mechanisms of acceleration.
4. Anthropometric methods.
5. Method of assessment of children's physical development.

6. Semiotics of children's physical development pathology.
7. Physical education.

To know: How to assess the physical development of children of different age, to understand to reasons of the pathology of physical development.

Be able to:

1. Measurement of the main body parameters (weight, height, head, chest, hip, calf, shoulder circumferences, body mass index).
2. Calculation of anthropometric indexes.
3. Calculation of appropriate parameters of the physical development according to the empirical equations, sygmal and empirical tables, alignment charts.
4. Assessment of the physical development based on the received data.

Basic knowledge, practices and skills necessary for the topic (interdisciplinary integration).

Names of previous branches of learning	Acquired skills
1. General anatomy	Knowledge of organs and body systems. Meaning of some anatomical features of the children's body for organization of the children's care.
2. General physiology.	Knowledge of characteristics of organs and body systems functioning.
3. Introduction to psychology. Introduction to pedagogics	Analysis of patient's emotions, interpersonal relationships, children's behavior.

Control questions to the lesson:

1. Characterize the meaning in pediatric practice of anthropometric measurements.
2. Describe the techniques of anthropometric measurements of weight, height, head and chest circumferences.
3. Describe the term ‘acceleration’ of physical development.
4. What does the term ‘retardation’ mean of physical development?
5. Semiotics of deviations of children’s physical development.
6. Presentation of existent equations of calculation of weights, height and head and chest circumferences in different age.
7. Listing of clinical methods of children’s physical development assessment.
8. Dynamics of physical development parameters at the child’s first year.
9. What first and second retraction means?
10. Characterization of the main signs of deviations of the children’s physical development.
11. Typical characteristics of somatometry of children of more than two years old.
12. What do the indexes of physical development mean (Erisman, Chulitskaya)?
13. Listing of factors which influence the physical development (genetic, environmental and so on)
14. Listing of children’s diseases which are accompanied by changes of body height and weight (endocrine, chromosomal, chronic infections and so on).

Graphical structures of individual issues of the topic.

1. Graphological structure of the topic “Assessment of physical development of children. Methods of assessment of the physical development of children. Semeiotics of disorders of physical development in children. Physical upbringing”.

Tests for self-control:

1. Low value of the ratio of "weight/ height/ year of birth" according to the alignment chart means:

A. normal body weight
B. increased body weight
C. insufficient body weight
D. insufficient height
E. accelerated height

2. Choose the equation used for the calculation of the head circumference of a child older than 6 months?

A. 50 cm - 1 x (5 - n)
B. 50 cm + 0,6 x (n - 5)
C. 43 cm - 1,5 x (6 - n)
D. 43 cm + 0,5 x (n - 6)
E. 45 cm - 2 x (6 - n)

3. For individual assessment of children's physical development, following methods are used:

A. sygmal deviations
B. using of alignment charts
C. centile method
D. using of empirical equations
E. All abovementioned

4. Body weight of the full-term child is three times increased after the birth

A. at the age of 1 year
B. at the age of 1,5-2 years
C. at the age of 6 months
D. at the age of 8 months
E. at the age of 10 months

5. Body height during the first year is increased by:

A. - 15 cm
B. - 20 cm
C. - 27 cm
D. - 35 cm
E. - 24 cm

6. Embryo weight at the term of 36 weeks approximately equal:

A. 2,0 kg
B. 2,5 kg
C. 2,8 kg
D. 3,0 kg
E. 3,3 kg

7. Body weight of the full-term child is doubled after the birth:

A. at the age of 4-4,5 months
B. at the age of 6 months
C. at the age of 9 months
D. at the age of 1 year
E. at the age of 10 months

8. Choose the equation used for the calculation of child's body weight during the first half-year of life.

A. body mass at the birth + 800 × n
B.10, 5 kg + 2 × n
C. body mass at the birth + 800 × 6 + 400 × (n - 6)
D.19 kg + 3 × (n - 5)
E.19 kg - 2 × (5 - n)

9. Determine the mean child's body weight increase at the 3 month (monthly)?

A. 600 g
B. 700 g
C. 800 g

D.500 g
E.400 g

10. Chest circumference of the newborn child is:

A. 39 - 40 cm
B. 35 - 36 cm
C. 30 - 32 cm
D. 33 - 34 cm
E. 37 - 38 cm

11. Choose the equation used for the calculation of child's body weight in age after 6 month

A. bw + 800 × n
B. bw × 600 – 2n
C. bw + 800 × 6 + 400 × (n-6)
D. bw + 400 × 6 + 200 × (n-6)
E. bw – 800 × 4 + 400 × (10 – n)

12. Choose the equation used for the calculation of the average height of a child older than 4 years:

A. 100 cm – 8 x (4-n)
B. 100 cm + 6 x (n – 4)
C. 130 cm – 7 x (8- n)
D. 130 cm + 5 x (n – 8)
E. 66 cm + 1, 5 x (n – 6)

13. Provide the normal value of the body weight of a full-term newborn child:

A. 200-4500 g
B. 3500-4500 g
C. 4000-5000 g
D. 2800-4000 g
E. 6000-6500 g

14. Average body weight of a child at the age of one year:

A. 14,5 kg
B. 12,5 kg
C. 13 kg
D. 10,5 kg
E. 9 kg

15. Head circumference during the first half-year increases monthly at:

A. 0,5 cm
B. 1 cm
C. 2,5 cm
D. 1,5 cm
E. 2,0 cm

16. Body height at the term of 36 weeks of gestation is approximately:

A. 40 cm
B. 36 cm
C. 46 cm
D. 50 cm
E. 56 cm

17. Monthly increase of body height of a child at the age from 4 to 6 months is:

A. 4 cm
B. 3 cm
C. 2,5 cm.
D. 1.5 cm
E. 1 cm

18. Chest circumference and head circumference are equal at the age of:

A. 1 year

B. 4 months
C. 5 months
D. 6 months
E. 7 months

19. Alignment chart "body weight/ age" is not used for identification of:
A. exhaustion
B. insufficient body weight
C. dynamics of the body weight increase
D. obesity
E. deviation of the neurological/ psychological development

20. Starting for the II half-year till one year a full-term child increases monthly its weight at:
A. 800 g
B. 400 g
C. 600 g
D. 1 kg
E. 500 g

Task for the individual student's work:
Prepare a report on the topic: "Hypotrophy"
Reference responses at the test questions:
1-C; 2- D; 3-E; 4-A; 5-C; 6- B; 7-B; 8-A; 9- C; 10- C; 11- C; 12- B; 13-D; 14- D; 15-D; 16- C; 17- C; 18- B; 19- E; 20-B.

Graphological structure of the topic:
1. "Assessment of physical development of children. Methods of assessment of the physical development of children. Semeiotics of disorders of physical development in children. Physical upbringing" - Appendix 1.

List of learning literature:

Basic literature:

1. Propaedeutics of Pediatrics: 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 diseses and nursing of the child / T. Kapitan. – The state cartographical factory, 2006. – 734p.
3. Мазурин А.В., Воронцов И.М. Пропедевтика детских болезней. – СПб.: Фолиант, 2000. – 928с.
4. Наказ МОЗ України №149 від 20.03.2008 «Про затвердження Клінічного протоколу медичного догляду за здоровою дитиною віком до 3 років».
5. Ріст і розвиток людини: навчальний посібник / Під ред. проф. Ю.М.Нечитайла. – Чернівці: БДМА, 2003. – ІІ вид., пер. – 56 с., іл.
6. Чеботарьова В.Д., Майданник В.Г. Пропедевтична педіатрія. – К., 1999. – 578с.

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, 8th 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.

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".

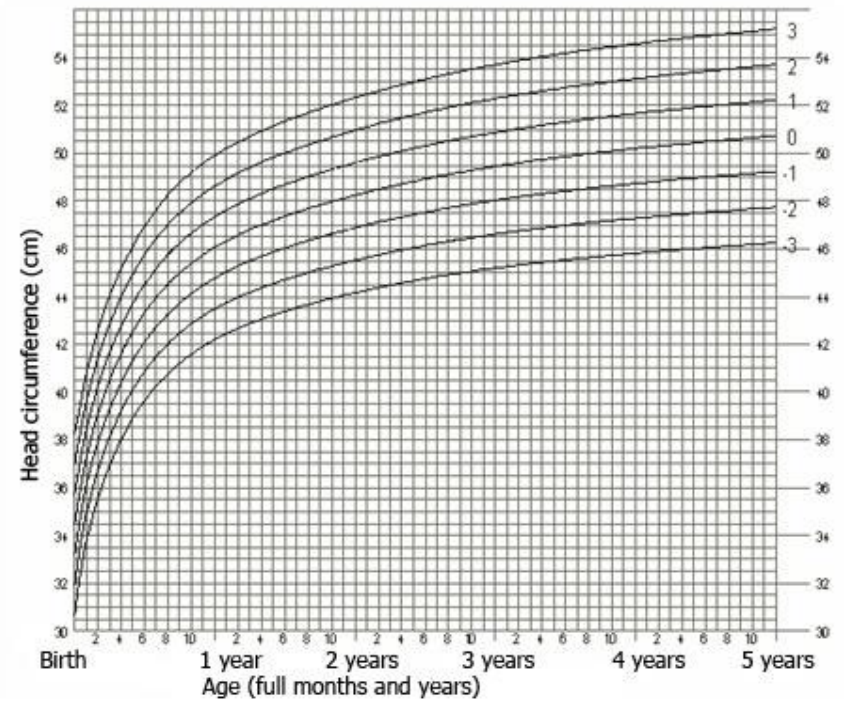
Given the number of practical classes the grades are converted into the multiscore scale as follows:

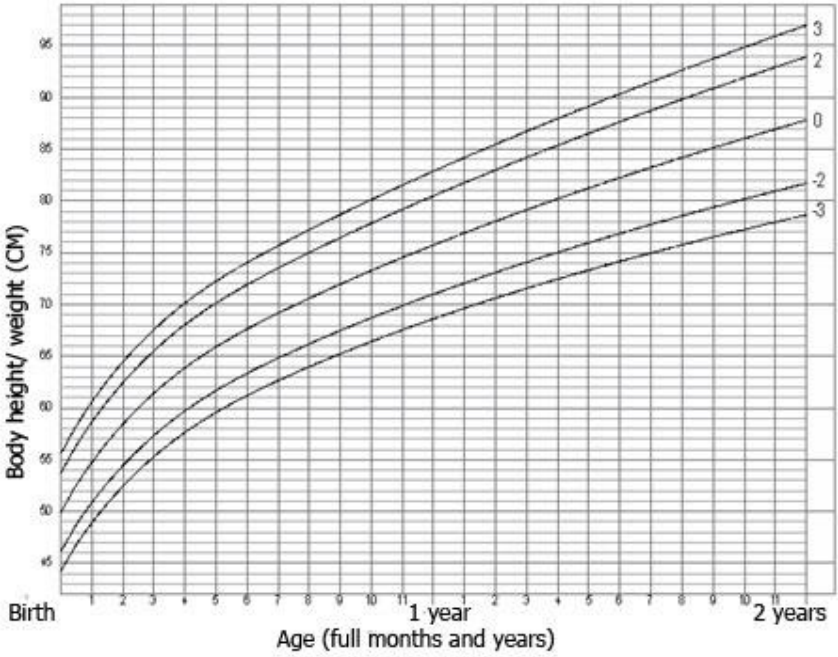
The mark "Excellent" – 72-80 scores

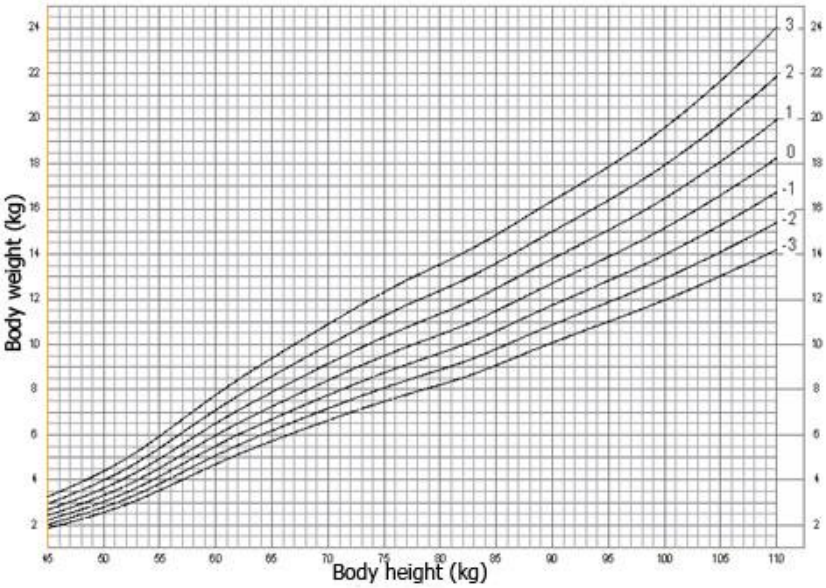
The mark "Good" – 60-71 scores

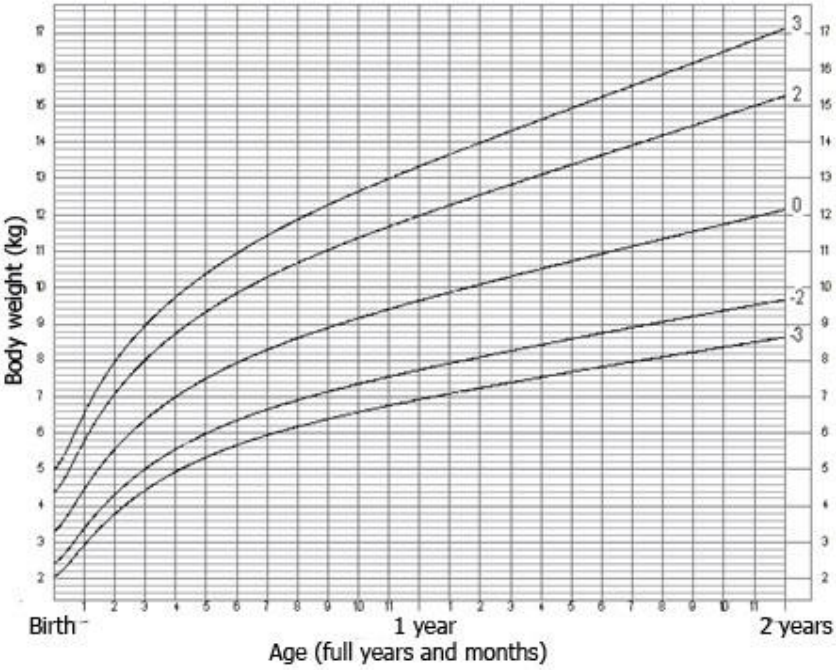
The mark "Satisfactory" – 50-59 scores

The mark "Unsatisfactory" – 0 scores

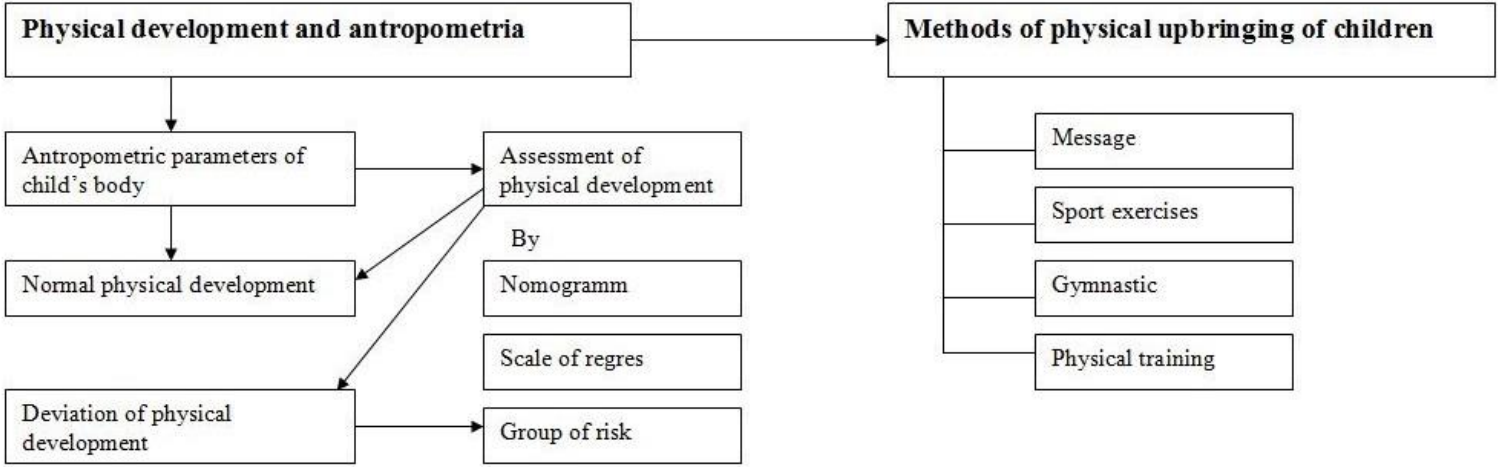

Head circumference (cm)
54
52
50
48
46
44
42
40
38
36
34
32
30
3
2
1
0
-1
-2
-3
Birth
1 year
2 years
3 years
4 years
5 years
Age (full months and years)


Body height/ weight (CM)
95
90
85
80
75
70
65
60
55
50
45
3
2
0
-2
-3
Birth
1 year
2 years
Age (full months and years)


Body weight (kg)
Body height (kg)
3
2
1
0
-1
-2
-3


Body weight (kg)
3
2
0
-2
-3
Birth
1 year
2 years
Age (full years and months)

Graphological structure of the topic "Assessment of physical development of children. Methods of assessment of the physical development of children. Semeiotics of disorders of physical development in children. Physical upbringing" **Appendix 1**



Навчальне видання

ФІЗИЧНИЙ РОЗВИТОК ДИТИНИ ТА АНТРОПОМЕТРІЯ. ОЦІНКА ФІЗИЧНОГО РОЗВИТКУ

Упорядники: Клименко Вікторія Анатоліївна
Сіренко Тетяна Вадимівна
Яновська Катерина Олександрівна

Відповідальний за випуск: Клименко В.А.

Комп'ютерна верстка

Ум. друк. арк.___. Тираж____ прим. Зам. №____.