THE MINISTRY OF HEALTH OF UKRAINE
NATIONAL BOGOMOLETS MEDICAL UNIVERSITY

GUIDELINES

for independent work of students during preparation to the class

Academic discipline: Child care in the conditions of a pediatric hospital

Field of knowlege: 22 "Health care"

Specialty: 222 "Medicine"

Pediatric department № 2

Discussed and approved at department meeting of the pediatric department № 2 of Medical faculty № 3 from 28 of August, 2023, protocol № 1

Discussed and approved at
CMC on the pediatric disciplnes from 28 of August, 2023, protocol № 1

Topic of lesson:
"Organization of children's nutrition in hospital conditions. Organization of children's nutrition in hospital conditions. The technique of conducting anthropometric measurements in children of different ages"

1. Aims: acquisition by the student of knowledge, abilities, skills and professional competences of the professional activity of a junior nurse of a children's hospital (department), namely:
- the student's acquisition of knowledge about devices and methods of conducting anthropometric examinations of children of various ages; mastering the skills and ability to work with these devices, compliance with the unified methodology for conducting each of the anthropometric examinations.
- the student's acquisition of knowledge about the nutrition organization of healthy children of the first year of life and sick children of different ages;

2. Competencies

-demonstrate the methodology of basic anthropometric measurements of children of different ages, using the necessary devices.

- to be able to properly organize the nutrition of healthy children of the first year of life;
- to be able to properly organize the nutrition of sick children;

3. Plan and organizational structure of the lesson:

Name of the stage	**Description of the stage**	**Learning levels***	**Time (min)**
Preparatory stage	Organizational measures Setting educational goals, students motivation		10
The main stage	Test control on the subject of the lesson "Organization of children's nutrition in hospital conditions. The technique of conducting anthropometric measurements in children of different ages", verification and announcement of results. - a theoretical survey regarding the importance and frequency of conducting anthropometric examinations for children of different ages, instruments and methods of examination; - a theoretical survey on the importance of the proper organization of nutrition for children of different ages in hospital conditions - demonstration of practical skills, clarification of the most important points regarding examination methods (measurement of weight, height, head and chest circumferences); - students' work on acquiring the skills of conducting the above-mentioned anthropometric examinations; Solving the exercise according to the subject of the lesson .	** *, **, *** *, **, *** *, **, *** ****	20 35 20 20 20
Final	Analysis and evaluation of the results of clinical work of students. Announcement of the topic of the next lesson, an indicative map for independent work with literature.		10
	Total **3 academic hours**		**135**

* Introductory,** reproducible, *** reconstructive, **** creative (levels of learning).

Topic content:

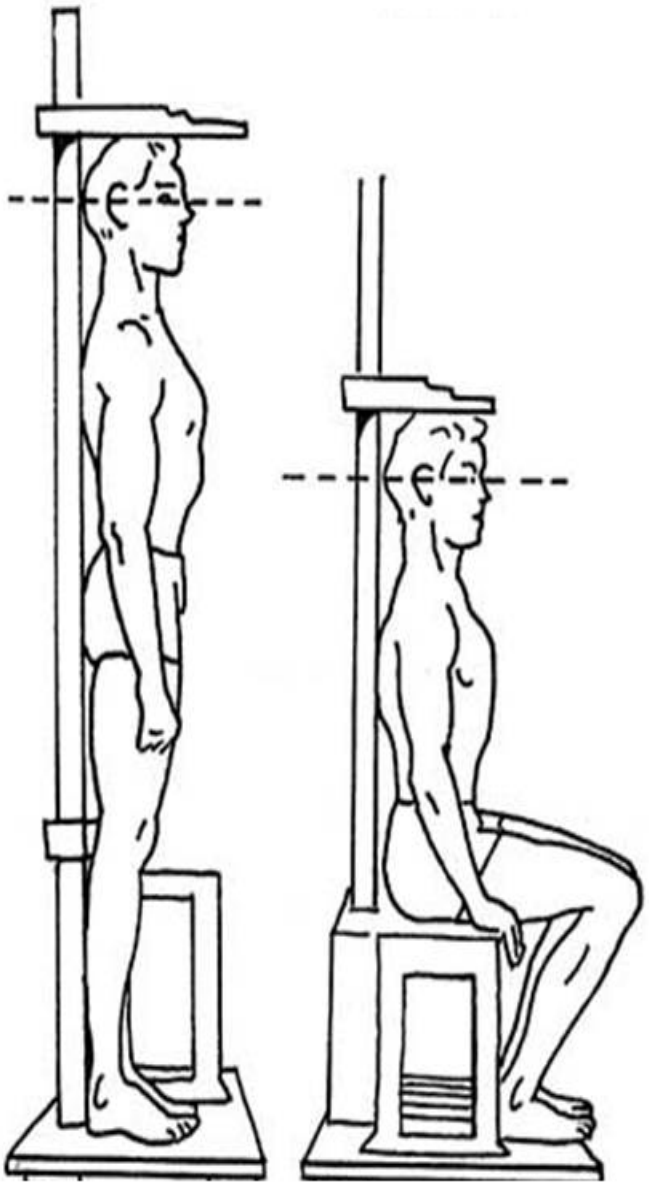
Concept of anthropometry

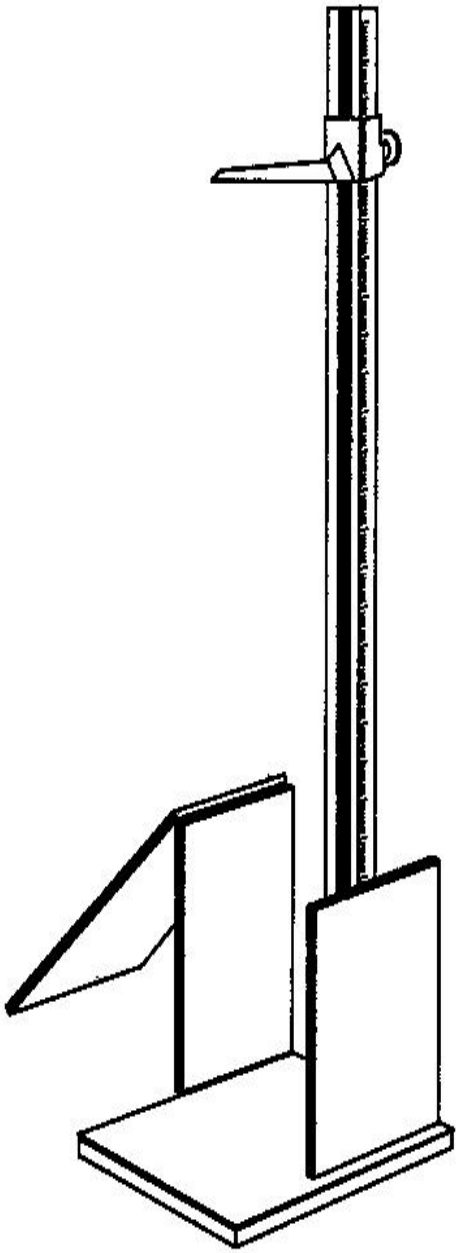
Anthropometry is a set of methods of measurement, description of the human body as a whole and its individual parts. It allows to give a quantitative description and assessment of a person's physical development. Anthropometric assessment is very widely used in medicine. One of the first procedures that occurs after the birth of a newborn child is its anthropometric examination. And the most serious diseases are often diagnosed precisely after establishing negative anthropometric changes. This is due to the attention to anthropometry not only among medical workers, but also among the general population.

Physical development is one of the integrative indicators of a child's health, biological maturity of all body systems. The main methods of physical development research are easy to perform for children of any age, which determines their wide use in pediatrics.

Physical development is a dynamic process of growth (increase in length and weight of the body, individual parts of the body, etc.) and biological maturation of a child in different periods of childhood, an essential criterion for assessing the state of health and age-related norms of development, especially in the period of early childhood. Physical development of children is a process of changing the morphological and functional properties of the body, as well as their condition at different age periods, which determines the reserve of physical strength, endurance and work capacity. The pace of physical development at each stage of ontogenesis depends on individual characteristics, social factors, region of residence, etc.

The technique of anthropometric indexes measuring





The body weight of an infant is determined on special electronic baby scales with a maximum permissible load of up to 10 kg and a measurement accuracy of up to 1 g. Weighing is carried out in the morning, after urination and defecation, in underwear. When weighing a child up to 1 year old, first put a diaper on the scale tray, weigh it, and then put the child on the scale with his head on the wide part of the tray. The readings of the child's body weight together with the diaper are noted, after which the weight of the diaper must be subtracted. Determination of the body weight of older children is carried out in the morning on an empty stomach on special medical scales with an accuracy of 50 g. Undressed child is placed in the middle of the plane. Body length means the size of the child from feet to head when measured in a lying position, horizontally. The vertical measurement of the same size while standing is called height. The length of the body to some extent reflects the level of maturity of the organism. Body length in children of the first 2 years is measured in a lying position using a special height meter in the form of a board with a centimeter scale. The top of the child's head should fit snugly against the stationary bar of the height meter. The head is fixed so that the lower edge of the eye ball and the upper edge of the external auditory canal are at the same level. The child's legs are straightened

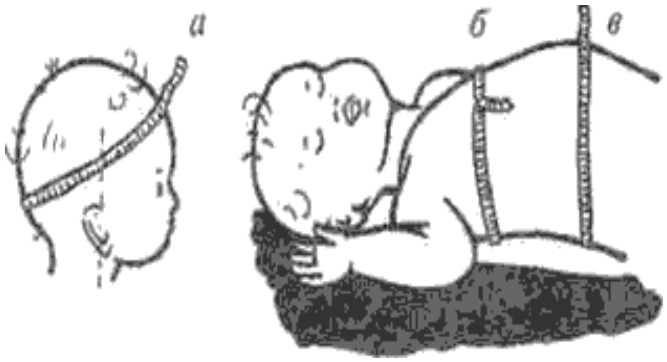
with light pressure on the knee. The moving bar of the height meter is tightly pressed to the child's heels.

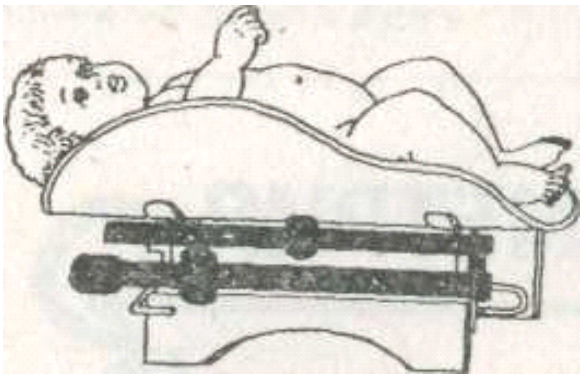
In older children, height is measured using a vertical height gauge with a folding stool. The child stands on the platform of the height meter with his back to the scale. The child touches the scale with the back of the head, between the scapular area, the sacrum and the heels. The head is fixed in the same way - so that the lower edge of the eye balls and the upper edge of the external auditory canal are at the same level. The movable bar is fixed at the top point of the head.

The circumference of the head and chest is measured using a centimeter tape. To determine the circumference of the head, the tape is placed behind the most prominent point of the back of the head, in front - along the browbones.

To measure the circumference of the chest, the tape is applied behind under the lower corners of the shoulder blades and in front - along the area of the nipples.

Measurements of the perimeter of the shoulder are performed with a centimeter tape, which is placed at the level of the armpit in the horizontal plane at the place of the most developed biceps muscle. The measurement is performed when the muscles are relaxed. Thigh circumference is measured at the level of the crotch in the widest part of the thigh. A centimeter tape is made directly under the gluteal fold in the horizontal plane. When measuring the perimeter of the lower leg, a centimeter tape is placed in the area of the largest volume of the calf muscles.





Patterns of changes in anthropometric indexes

CALCULATION OF THE IDEAL BODY WEIGHT OF CHILDREN OF DIFFERENT AGE

A full-term newborn baby has a weight gain of 600 g in the 1st month; for each month of the first half of the year - 800 g; the second half of the year - 400 g.

1 month: +600g

up to 6 months: M = m + 800 x n

up to 1 year: M = m + 800 x 6 + 400 (n – 6), where n is months.

The body weight of children older than 1 year is calculated according to the following formulas:

from 2 to 10 years: M (kg) = 10+2n, where n is the child's age in years

older than 10 years: M = 30+4(n-10), where n is the child's age in years.

CALCULATION OF THE IDEAL HEIGHT OF CHILDREN OF DIFFERENT AGES

The body length of a child of the first year of life can be calculated as follows:

for the 1st quarter – 3 cm per month (9 cm per quarter);

for the II quarter - 2.5 cm per month (7.5 cm per quarter);

for the third quarter – 1.5 cm per month (4.5 cm per quarter);
for the IV quarter - 1.0 cm per month (3 cm per quarter).
The total increase in body length during the first year of life is 25 cm.
The length of the child's body doubles up to 4, triples up to 12 years.

After 1 year, the following formulas are used:
up to 4 years L = 100 – 8(4 – n)
after 4 years L = 100 + 6(n – 4), where n is years.

The circumference of a newborn's head is 34-36 cm, in children under 1 year of age, the size increases monthly by an average of 1 cm, and is equal to 46-47 cm by the year.
up to 6 months 43 – 1.5(6 – n)
after 6 43 + 0.5(n – 6), where n is months.

The circumference of the chest of a newborn is 33-35 cm. This index increases monthly by an average of 1.2-1.3 cm and by the year is approximately 48 cm.
up to 6 months: 45 – 2(6 – n)
after 6 months: 45 + 0.5(n – 6), where n is months.
In children under 3 months of age, head circumference index exceeds chest circumference index. At the age of 3 months, these indexes are equalized, and throughout life, the indexes of the chest circumference prevail.

Nutrition of a child of the first year of life

Nutrition that meets the physiological needs of a growing organism is the most important condition for the harmonious development of a child. Qualitative and quantitative deviations in a child's nutrition easily cause metabolic changes, can suppress or activate anabolic processes and lead to such diseases as rickets, anemia, atopic dermatitis, hypotrophy, etc. Nutritional defects at an early age cause the development of later pathology: obesity, endocrine dysfunctions, allergies, chronic diseases of the digestive tract, etc. It is also necessary to take into account the psychological comfort that is created during feeding the child and contributes to his mental development. The best feeding of a child under the age of 6 months is exclusively breastfeeding, that is, feeding with breast milk without the use of other food and/or liquid in the child's diet.

Breastfeeding must be started immediately (within 1 hour) after the birth of the child and continue up to 1 year, and longer if the mother has sufficient lactation. Mother's milk is the ideal food product for a child of the 1st year of life. It contains not only all nutrients necessary for a child in the most optimal balanced ratio, but also a complex of protective factors and biologically active substances that contribute to the timely and complete formation of the immune system. Children who are breastfed are less likely to suffer from infectious and allergic diseases, they have a lower risk of otitis, diarrhea, sudden death syndrome, bronchial asthma, obesity, etc., and better indicators of mental development. Breast milk contains about 90% water, which fully satisfies the child's fluid needs. Its additional introduction can reduce the need for breast milk and lead to insufficient weight gain of the child, increase the risk of acute intestinal infections and reduce the duration of breastfeeding. However, for various reasons, which may be due to the state of health of the mother or the child, as well as other factors, the child can receive breast milk substitutes - milk formulas.

According to the "Terms and definitions of breastfeeding" adopted by the WHO in 1993, breastfeeding is distinguished between:

•full breastfeeding, when the child receives only breast milk from the mother's breast;

•partial breastfeeding (mixed), when the child still receives an artificial adapted mixture due to insufficient lactation in the mother;

•artificial, when the child receives its substitutes (artificial mixtures) instead of breast milk.

Rules of breastfeeding children of the first year of life

For successful and long-term breastfeeding of a child, it is necessary to observe certain rules that relate to both direct feeding of the child and the implementation of basic hygiene rules:

• early applying to the mother's breast (in the first hour after birth);

• round-the-clock stay of mother and child, starting from the moment of birth;

• correct attachment of the child to the breast;

• breastfeeding at the request of the child, including night feeding;

• do not give to a child under the age of 6 months no other products and liquids, except for cases determined by medical indications;

• do not use pacifiers;

• exclusive breastfeeding up to 6 months;

• mandatory introduction of adequate feeding from 6 months;

• continuation of breastfeeding up to 1 year, and if possible even longer.

Signs of correct attachment of the child to the mother's breast:

• the child's head and body are in the same plane;

• the child's body is brought to the mother facing the breast, the chin touches the mother's breast, the nose is opposite the nipple;

• the mother supports the child's body from below, not only his head and shoulders;

• the mother supports the breast from below with her fingers, while the index finger is located below, and the big one is on top (the fingers should not be close to the nipple);

• at the beginning of feeding, the mother should touch the baby's lips with the nipple and wait until she opens her mouth wide, and then quickly bring the baby closer to the breast, directing her lower lip below the nipple so that it covers the lower part of the areola;

• the position of the mother should be comfortable for her;

• signs of effective sucking are slow, deep sucking with short breaks.

The most common position when feeding a baby is the sitting position. The mother takes the baby in her hand, turns a little towards the breast, with which she will feed the child, and supports the breast with the other hand so as not to make it difficult for the child to breathe through the nose during sucking, but without squeezing the lobes of the mammary gland. It is necessary to ensure that during sucking, the child captures not only the nipple, but also the areola. This facilitates sucking, prevents aerophagia (air entering the stomach), as well as the occurrence of nipple cracks. A breastfeeding woman must follow the usual rules of hygiene. Wash your hands thoroughly with soap before feeding. Before and after feeding, it is not necessary to wash the mammary glands with soap or other antiseptics because there are special glands (Montgomery's glands) in the area of the nipple and areola that produce a secret that keeps the skin healthy, protects it from infection and prevents the occurrence of nipple cracks. Frequent washing of the breast with soap dries the skin, destroys its natural protective layer and

leads to the appearance of cracks. However, the underwear, in particular the bra, must be impeccably clean. It is advisable to use special disposable pads that keep the bra dry. Before feeding, it is recommended to express the first few drops of milk, because they can be contaminated with microbes.

Feeding regime of a child of the first year of life

Breastfeeding is carried out "at the request of the child", that is, the child himself determines the number and duration of feedings depending on individual needs, without restrictions on the part of the mother, but it should be remembered that the crying of the child does not always mean that he is hungry. In the 1st month life, the child can be put to the breast up to 10-12 times or more, including night feeding. This improves the lactation process, contributes to a longer duration of breastfeeding, prevents the development of hypogalactia and lactostasis in mother. However, starting from 2-3 months, most children establish a certain feeding regime - usually with an interval of 2.5-3.5 hours. The duration of feeding is on average 15-30 minutes. Approximate feeding regime of a child during breastfeeding:

- up to 2-3 months - on demand or after 3 hours;
- from 3 to 4-5 months - 6 times in 3.5 hours;
- from 4-5 months up to 1 year - 5 times in 4 hours.

After the introduction of the first complementary foods, the child is transferred to five feedings per day. A child aged 6 months: for further physiological development, it is necessary to expand the diet and introduce additional products to it, because, starting at this age, breast milk can no longer satisfy the child's need for energy, micronutrients (primarily iron) to ensure its normal development.

It is necessary that the child is physiologically ready before introducing complementary foods. Signs of this are that the child holds his head; sits almost without support (in a high chair); shows interest in products used by other family members; opens his mouth when a spoon with food is presented, and turns away from it when he is not hungry; does not push food out of the mouth, but swallows it.

Rules for the introduction of supplementary food. Feeding products should correspond to the age of the child and gradually change in consistency, taste, aroma and appearance. Complementary food should be given when the child is active and hungry, preferably during breakfast or lunch together with other family members. Complementary food is given from a spoon, after short-term breastfeeding or with a small amount of milk mixture in the case of artificial feeding. During feeding, the child should be in an upright position in a special high chair or in a comfortable position in the mother's arms. They start giving complementary food by placing a small amount of food on the tip of a teaspoon. Hold the spoon so that the child can see it. Then touch the child's lips with a spoon so that he opens his mouth, put the spoon with food on the middle of the tongue, then the child will easily swallow it.

Artificial feeding of children of the first year of life. The technique of preparing milk mixtures If it is impossible to feed the child with breast milk (contraindications on the part of the mother and the child or the mother does not have milk), it is necessary to completely switch to artificial feeding using breast milk substitutes (adapted mixtures).

Adapted mixtures are made mainly from cow's milk, less often - from goat's or vegetable (soy, coconut) milk. Adapted milk mixtures are used according to the age of the child and the nature of the disease. There are mixtures intended for premature babies, children with dysbiosis,

cow's milk intolerance, anemia, malabsorption syndrome (impaired absorption). The type of mixture, its volume and frequency of feeding is determined by the doctor.

Cooking technique. Adapted milk mixtures of industrial production are produced in three forms: liquid ready for consumption, concentrated liquid with further dilution and powder. The powder form is usually used more often and is the most economical. Preparation of the mixture is carried out in accordance with the recommendation for its use. Before preparing the mixture, you must wash your hands with soap. Prepare clean dishes in advance (a special children's graduated bottle with a capacity of 200-250 ml with a division size of 10 ml), a pacifier, a container for preparing the mixture, a measuring spoon, a mixture for feeding the child and boiled water for its dilution. The water must be brought to the temperature indicated in the instructions for preparing the mixture. Measure the necessary amount of the mixture, pour it into a container, stir well, bring it to a temperature of 37-38 °C and fill the baby's feeding bottle with it. The hole in the nipple should be small so that milk (or mixture) flows out in drops (20-30 drops in 1 minute). If the mixture has cooled down, it can be heated in a bottle in a water bath, but only the amount required for one feeding. Before feeding, it is necessary to check whether the temperature of the mixture corresponds to 37-38 °C.

The use of unboiled water, unsterilized bottles, as well as improper dilution of the mixture can cause digestive disorders in children. It is better to feed the baby while holding it on hands; her head should lie on the forearm of the one who is nursing. The bottle with the mixture should be held with your free hand so that the neck of the bottle is always filled with milk. The child is fed depending on the condition, on demand or at certain time intervals. In case of a serious condition of the child, feeding in the hospital is carried out by a nurse through a tube. Nb! In no case should you leave the baby while feeding, because this can lead to aspiration (food entering the respiratory tract). At the age of 1 to 3 years, intensive growth of the child, development and improvement of his organs and systems continues, therefore there is a high need for plastic and energetic material.

The recommended number of feedings is at least 5 per day - three main and two additional. • Continue breastfeeding in the 2nd year of life. • The diet should be varied and contain fresh vegetables and fruits every day. • Low-fat varieties of meat, fish, liver, eggs are recommended.

Organization of children's nutrition in hospital conditions

Feeding children in the hospital is carried out as prescribed by a doctor under the direct supervision of a nurse. In the organization of children's nutrition, two main principles are used: individual and group. An individual diet is prescribed by a doctor: in this case, food is prepared specifically for each child; with the group principle, one or another generally accepted diet is prescribed, which has a certain therapeutic effect. The number of the diet, as well as the child's feeding regimen, depend on his age and the nature of the disease. The nurse must know what diet each sick child receives and monitor its compliance. For children of the 1st year of life, breastfeeding is the most rational. And during an illness, this is especially necessary for a child, as it contributes to a faster recovery. The feeding regime may change depending on the general condition of the child and the disease. In the child's medical record, the doctor calculates feeding, makes a menu, and the nurse makes sure that the mother or the person who cares for the child follows it. In case of a serious condition of the child, feeding is carried out by a nurse through a tube.

To ensure children's nutrition, there is a special unit - a food block - in the departments of the hospital. It includes a dishwashing room, which is equipped with dishwashing sinks with two

sections for dirty and clean dishes or dishwashers, a food distribution room (distribution) and a dining room. Dishes are stored in the distribution room, separately for mothers and children. The distribution room is equipped with a cabinet for clean dishes; a refrigerator for storing a daily supply of milk mixtures, an electric kettle; an electric stove for heating food; a table with a hygienic coating for distributing food; a set of dishes (one deep, shallow and dessert plate, cup, fork, spoons - dining and tea set per patient); a cabinet for storing bread, salt, sugar, a cabinet for sterilizing dishes; a waste container with a lid that closes tightly; detergents and disinfectants. Cleaning supplies and detergents must be labeled and stored in a separate room, food for children is prepared centrally, and delivered to the ward according to the time of use by patients.

To transport and store food, marked thermoses are used: "For first courses", "For second courses", "Garnish", "Milk", etc. Food is distributed in the canteen of the department no later than 2 hours after its preparation. If necessary, the dishes are heated before consumption. The food is distributed by a distributor, a barmaid or a nurse on duty, wearing special gowns. Staff who distribute food must follow the rules of personal hygiene: remove the robe before visiting the toilet; after visiting - wash hands with soap and processt them with one of the disinfectants.

The senior nurse monitors the order and compliance with the rules of food distribution. Before eating, all treatment procedures are stopped (except for cases caused by the child's condition). Children should wash their hands with soap, and medical personnel must monitor this. Children of the same age and those who receive the same diet are usually seated at the table. Chairs should be made of material that is easy to wash. During the consumption of food in the canteen, the medical staff makes sure that the children eat calmly, helps if necessary and, if the child refuses food or eats poorly, finds out the reason and informs the doctor. If the child has a poor appetite, make sure that he eats the most complete part of the meal.

Critically ill patients and patients with infectious diseases consume food in the ward. If the child can sit, then after washing his hands, he eats independently at the bedside table; if it is difficult for the child to sit, he is given a half-sitting position. For this, the head end of the functional bed is raised or several pillows are placed under the back. The neck and chest are covered with an apron or oilcloth. The child's head is raised with the left hand, and a spoon with food or a special drinking cup is presented with the right hand. The amount of food consumed by the child must be recorded in the appointment sheet. Food should be tasty, freshly prepared and warm (40-45 °C). Own food products are used within the range allowed by the doctor; they should be stored in designated cabinets or refrigerators and issued to children under the supervision of a nurse. Dishes are treated as follows: first, the dishes are cleaned of food waste, degreased by soaking in a 2% solution of sodium bicarbonate or washed using one of the products approved by the Ministry of Health of Ukraine, rinsed well and roasted in an oven at a temperature of 180 °C for 30 minutes or at a temperature of 120 °C for 45 min. Food waste is collected in specially marked containers and taken out of the department on the same day. After use, soft equipment for cleaning is poured with a disinfectant solution for a period according to the instructions, boiled for 15 minutes, then rinsed and dried. Soft equipment for cleaning the floor is processed in the same way, but not boiled

7. Control questions for mastering the topic.

1. Concept of anthropometry.
2. The technique of measuring the body weight of children of different ages.
3. The technique of measuring the height of children of different ages

4. The technique of measuring the circumference of the chest of children

5. The technique of measuring the circumference of children's shoulders, hips and lower legs

6. Rules of physical development assessment

7. What types of infant feeding do you know?

8. What are the advantages of natural feeding?

9. What is the technique of breastfeeding?

10. What is the mode of feeding the baby?

11. What is control feeding (weighing)?

12. What is supplementary feeding and how is it carried out?

13. Technique of preparing milk mixture.

14. Rules for feeding a child from a bottle and a spoon.

15. Rules for attaching breastfed children to the breast.

16. How is food for children organized in the hospital?

17. How is the nutrition of seriously ill children organized?.

Practical tasks:

1. Weighing children up to 1 year and older than 1 year;

2. Measurement of children's growth;

3. Measurement of head and chest circumference;

4. Measurement of the circumference of the shoulder, hip and lower leg;

5. Prepare the appropriate means and demonstrate the ability to prepare a milk mixture;

6. Prepare the appropriate means and demonstrate on a dummy the method of feeding a child of the first year of life with the help of a bottle.

8. Recommended literature.

Basic literature:

1. Tyazhka O.V., Antoshkina A.M., Vasyukova M.M. etc. Basics of child care. Techniques of medical procedures and manipulations: a study guide for university students of III-IV levels of accreditation / edited by O.V. Heavy - K.: "Medytsyna", 2013. - 152 p.

2. V.G. Square Propaedeutic pediatrics: a textbook for students of higher educational institutions of IV level of accreditation. - 2nd edition, ed. and added – Vinnytsia: Nova kniga, 2018. – 872 p.

3. Basics of pediatrics according to Nelson: in 2 volumes. Volume 1 / Karen J. Marcdante, Robert M. Kligman; translation of the 8th Eng. edition. Scientific editors of the translation V.S. Berezenko, T.V. Rest Kyiv: VSV "Medicine", 2019. T1-378 p., T2- 426 p.

Additional literature:

1. Nursing: a textbook / N.M. Kasevich, I.O. Petryashev, V.V. Slipchenko and others..; edited by V.I. Lytvynenko – 3rd ed., corr. K.: "Medicine", 2017. - 816 p.

2. General patient care and medical manipulation technique: textbook / N.M. Kasevich; edited by V.I. Lytvynenko - 7th ed., edition, K.: "Medytsyna", 2017. - 424 p.

3. Fundamentals of nursing: a textbook / V.M. Lisovyi, L.P. Olkhovska, V.A. Cabbage plant – 3rd ed., revised. and added K.: VSV "Medicine", 2018. - 912 p.

Methodical guidelines have been created

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