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FUNDAMENTALS OF CLINICAL DIETOLOGY

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АННОТАЦИЯ

В данной монографии подробно освещается объём теоретических и практических знаний, необходимых для усвоения основ “Клинической диетологии”, приведены основополагающие принципы современной клинической диетологии в сочетании с изложением клинических особенностей течения заболеваний. Монография включает подробную информацию о составе продуктов и лечебном питании при различных заболеваниях. В основу монографии положены последние достижения отечественной и зарубежной диетологии. Издание предназначено для врачей различных специальностей, студентов медицинских институтов.

ANNOTASIYA

Ushbu monografiyada "Klinik dietetika" asoslarini o'zlashtirish uchun zarur bo'lgan nazariy va amaliy bilimlar miqdori batafsil yoritilgan, zamonaviy klinik dietetikaning asosiy tamoyillari kasalliklar kursining klinik belgilari taqdimoti bilan birgalikda taqdim etilgan.Monografiyada mahsulotlarning tarkibi va turli kasalliklar uchun klinik ovqatlanish haqida batafsil ma'lumotlar mavjud. Monografiya mahalliy va xorijiy dietologiyaning so'nggi yutuqlariga asoslangan. Nashr turli ixtisoslikdagi shifokorlar, tibbiyot institutlari talabalari uchun mo'ljallangan.

ANNOTASION

This monograph highlights in detail the amount of theoretical and practical knowledge necessary to master the basics of "Clinical Dietetics", presents the fundamental principles of modern clinical dietetics in combination with a presentation of the clinical features of the course of diseases. The monograph includes detailed information on the composition of products and clinical nutrition for various diseases. The monograph is based on the latest achievements of domestic and foreign dietetics. The publication is intended for doctors of various specialties, students of medical institutes.

Contents

LIST OF ABBREVIATIONS

AZD - alimentary-dependent diseases
BAS - biologically active substances
BAA - biologically active supplements
PEB - protein-energy balance
PEM - protein-energy malnutrition
GIT - gastrointestinal tract
FS - fat burners
HLS - healthy lifestyle
URTI - upper respiratory tract infections
BMI - body mass index
ME - trace elements
NAC - essential amino acids
SFA - saturated fatty acids
LPA - low physical activity
DF - dietary fiber
FD - food additives
PJ – pancreas
PUFA — polyunsaturated fatty acids
OPD — occupational diseases
RA — rheumatoid arthritis
EDT — fasting diet therapy
RD — rheumatic diseases
RE — energy expenditure
RBW — recommended body weight
SDDF — specific dynamic action of food
DM — diabetes mellitus
CVD — cardiovascular diseases
CVS — cardiovascular system
TG — triglycerides
BMR — basal metabolic rate
COPD — chronic obstructive pulmonary disease
CS — cholesterol
CRF — chronic renal failure
CNS — central nervous system
EN — enteral nutrition

INTRODUCTION

It is recognized globally that the nature of nutrition is the most important factor determining human health. Good health is an indicator of the quality of life of a modern person and the desire for it should be a primary social task. Properly organized nutrition is one of the most important conditions for a healthy lifestyle. Rational nutrition ensures normal growth and development of children, helps prevent diseases, prolongs life, increases working capacity and creates conditions for adequate adaptation to the environment.

Improving public health and preventing chronic diseases reduce expenses related to both medical care and economic losses due to loss of temporary and permanent working capacity. In this regard, good health is also economically beneficial. Proper healthy nutrition is also economically beneficial, maintaining health and playing an important role in preventing diseases of modern man that depend on nutrition. Chronic diseases have many causes, and nutritional factors are one of the groups of risk factors that contribute to their development. [1]

In childhood and adolescence, violations in rational nutrition can negatively affect growth and development, are the cause of a decrease in the body's immune responses, which contribute to susceptibility to colds and viral diseases. Poor nutrition has a negative effect on the body of a pregnant woman - on her well-being and the health of the future child. An incorrect ratio of nutrient composition in the diet, i.e. the content of vitamins, minerals, microelements in food, often leads to metabolic pathology, which can be the main reason for the development of concomitant pathology and chronicity of the process.

It should be noted that people perceive the adverse effects of excess or deficiency of food nutrients on the body differently. Insufficient, irrational and unbalanced nutrition leads to health disorders, the result of which are pathological processes in organs and systems.

Nowadays, there are diseases of civilization, which include cardiovascular diseases, obesity, diabetes and some forms of malignant neoplasms. These diseases

account for a significant share of morbidity and mortality of modern man. Unhealthy diet and insufficient physical activity are the leading factors of these diseases. Improper nutrition reduces immunity, contributes to the limitation of the body's resistance and, as a result, a person's susceptibility to any infections increases.

Other diseases associated with nutritional disorders, such as gastrointestinal diseases, liver and biliary tract diseases (cholelithiasis), dental caries, osteoporosis, gout, iron deficiency anemia are widespread today and are significant causes of morbidity and disability of the population.

The majority of the population in the era of civilization has a sharp discrepancy in diet: low energy expenditure and high consumption of high-calorie foods, and the consumption of essential micronutrients is reduced.

In this regard, an important task of modern preventive medicine is the prevention of chronic diseases associated with overeating and excessive consumption of certain nutrients.

Dietology, including its section - clinical dietology, is especially relevant at the present stage. Nutrition is the basis of human life, one of the most important factors that help reduce the risk of developing alimentary-dependent diseases, ensuring active longevity, participating in the formation and implementation of the adaptive potential of the body. Based on the tasks set, in order to prevent the above diseases, dietitians have introduced the rules of rational healthy nutrition. The effectiveness of treating patients based on the state of their diet has been studied in practice. Dietology has revealed the importance of the nutrient composition of food products on the functioning of human organs and systems, revised the role of nutrients, macro and micronutrients in the nutrition of healthy and sick people. To assess nutritional imbalances and correct their violations in healthy and sick people, dietitians use modern methods of diagnosis, assessment and correction. [8]

This guide is devoted to the issues of nutrition of healthy and sick people. Practical use of this guide will contribute to improving the nutritional status of the

population, organizing and increasing the effectiveness of the use of therapeutic nutrition in medical and preventive institutions.

CHAPTER I. ORGANIZATION OF DIETARY NUTRITION IN MEDICAL AND PREVENTIVE INSTITUTIONS

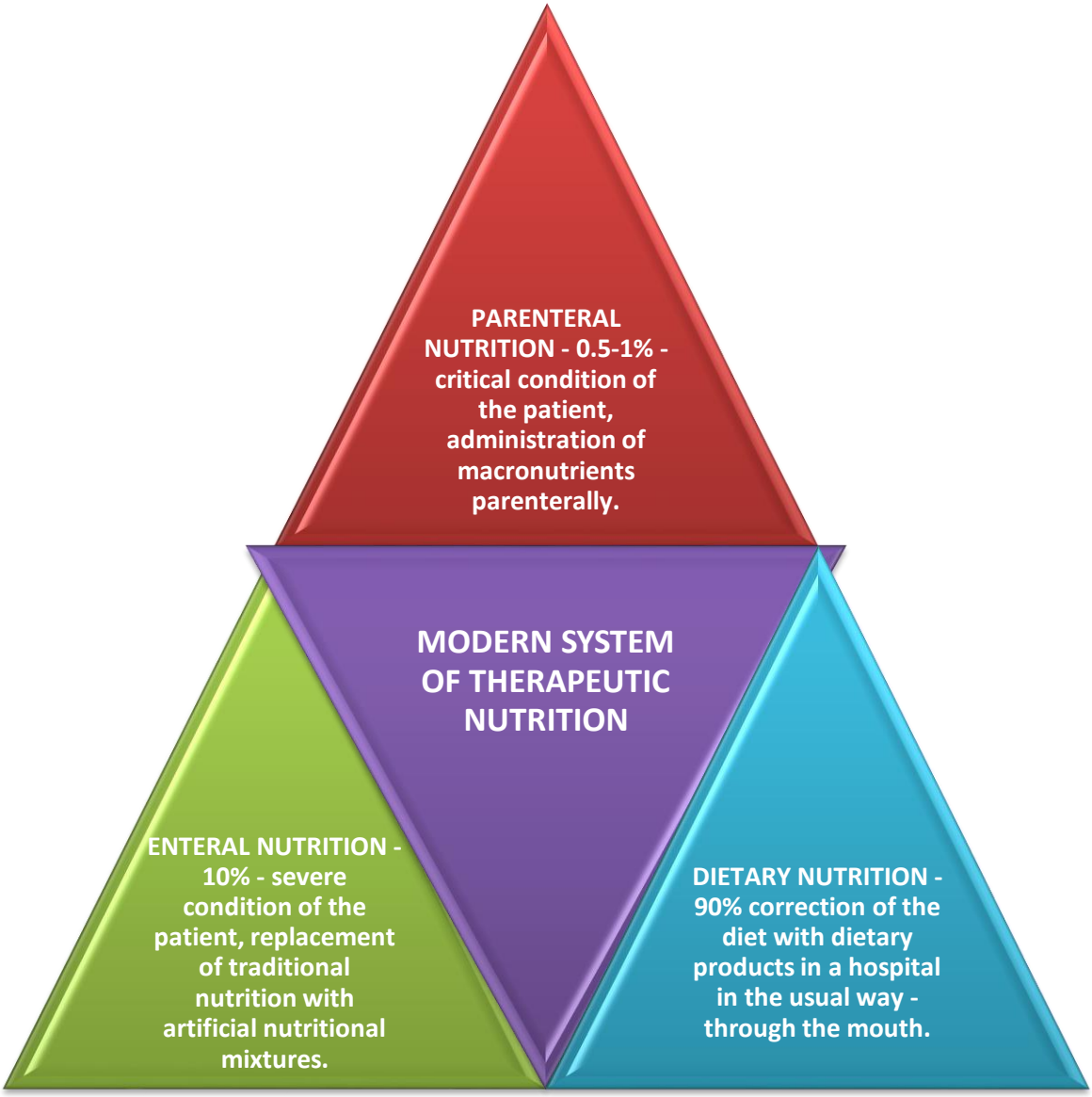


Fig.1. Therapeutic nutrition system

Basic dietary tables, classification.

Therapeutic dietary nutrition is nutrition that absolutely corresponds to the patient's/patient's needs for food ingredients that play an important role in metabolic processes and homeostasis of organs and systems.

Fig. 2. Types of nutrition for healthy and sick people

The main task of therapeutic nutrition and diets is to restore the body's homeostasis during illness/disease by adapting the chemical composition of food to its metabolic needs through the combination and selection of products, choosing the type of culinary processing (which in modern conditions largely depends on the equipment of hospital canteens) based on information about the metabolic characteristics, the state of the tissue system and organs of the patient/patient. The most complete application of all the achievements of therapeutic nutrition is greatly facilitated by its competent formulation. [17]

There are 15 basic diets (therapeutic tables). Some diets are divided into subgroups (1a, 1b, 1c, etc.) for a gradual transition from strict restrictions to expanded nutrition as the patient recovers.

Fig. 3. Therapeutic diets

Prof. M.I.Pevzner developed a system of therapeutic diet tables - diets (Fig. 4) for use in dietetics, which is widely used by residents and family doctors, especially when treating patients in inpatient and sanatorium-resort conditions. The author divided some of the diet tables into categories with letter designations.

Therapeutic tables (diets) according to Pevzner.

Diet No.1, 1a, 1b - gastric ulcer and duodenal ulcer;

Diet No.2 - atrophic gastritis, colitis;

Diet No.3 - constipation;

Diet No.4, 4a, 4b, 4c - intestinal diseases with diarrhea;

Diet No.5, 5a - diseases of the biliary tract and liver;

Diet No.6 - urolithiasis, gout;

Diet No.7, 7a, 7b, 7c, 7d - chronic and acute nephritis, CRF;

Diet No.8 - obesity;

Diet No. 9 - diabetes mellitus;

Diet No.10 - diseases of the cardiovascular system;

Diet No.11 – tuberculosis;

Diet No.12 – diseases of the nervous system;

Diet No.13 – acute infectious diseases;

Diet No.14 – kidney disease with the passage of phosphate stones;

Diet No.15 – diseases that do not require special diets. [30]

In medical and preventive institutions, depending on their specialization and profile, along with the main standard diets, their variations are also used (Fig. 4).

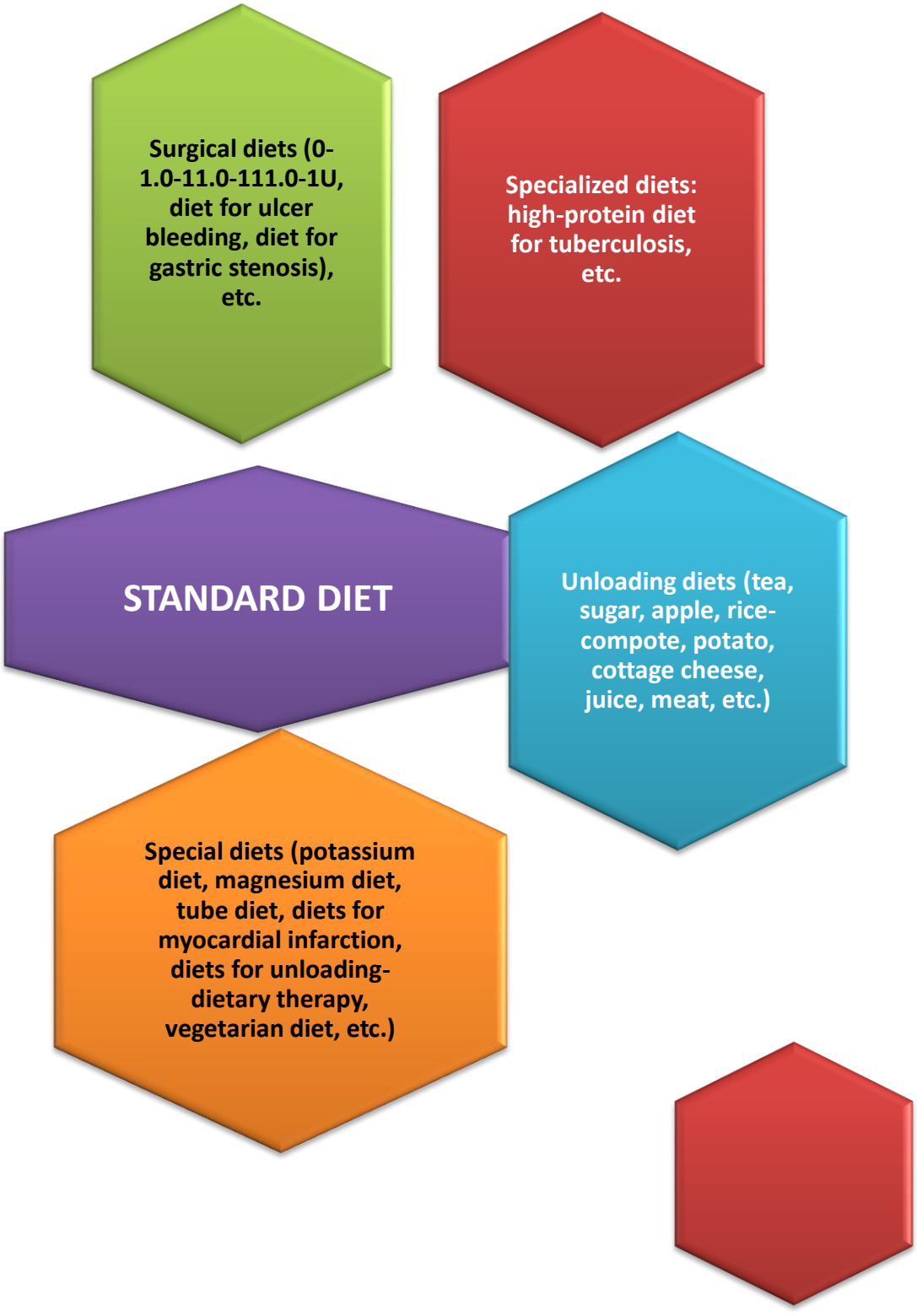


Fig. 4. Additional therapeutic diets

Provision of safe rational nutrition, its organization to various segments of the population is carried out on the basis of laws, regulations, SanPiNs of the republic developed and implemented in healthcare practice.

Along with the main standard diet and its variants, the following are used in healthcare institutions in accordance with their profile:

— surgical diets (diet for ulcer bleeding, diet for gastric stenosis), etc.;

— unloading diets (tea, sugar, apple, rice and compote, potato, cottage cheese, juice, meat, etc.);

— special diets (potassium diet, magnesium diet, probe diet, diets for myocardial infarction, diets for unloading_dietary therapy, vegetarian diet, etc.).

Individualization of the chemical composition and caloric content of standard diets is carried out by:

- selecting the dishes of therapeutic nutrition available in the card index;

- increasing or decreasing the amount of buffet products (bread, sugar, butter);

- monitoring food home transfers for patients undergoing treatment in a medical institution;

- using biologically active food supplements and ready-made specialized mixtures in therapeutic and enteral nutrition. [17]

The nomenclature of permanent diets in each medical institution is established in accordance with its profile and approved by the Council on Therapeutic Nutrition. All medical institutions establish at least a four-time diet regimen; more frequent meals are used according to indications in individual departments or for individual categories of patients (peptic ulcer of the duodenum, disease of the operated stomach, diabetes mellitus, etc.). The diet regimen is approved by the Council on Therapeutic Nutrition. Control over the correctness of the diet therapy should be carried out by checking the compliance of the diets received by patients (by the set of products and dishes, cooking technology, chemical composition and energy value) with the recommended characteristics of

standard diets and by checking the uniform use of allocations by quarters of the year.

INFORMATION ABOUT THE PERSONS RESPONSIBLE FOR PREPARING THE MENU, THE NUMBER OF DAILY PORTIONS AND THE QUALITY OF FOOD

General management of dietary nutrition in the healthcare facility is carried out by the chief physician, and in his absence, by the deputy for medical care.

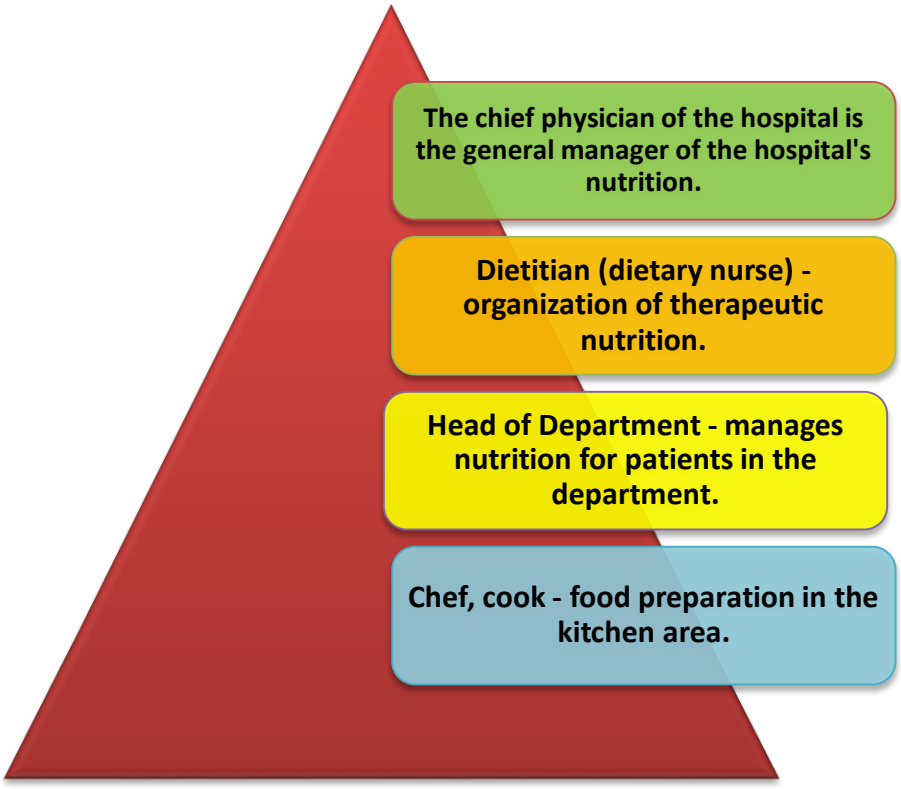


Fig. 5. Organization of therapeutic nutrition

The rates of a dietitian of a medical institution, who organizes and carries out scientific and methodological management of therapeutic nutrition of patients, depend on the capacity of the hospital, i.e. on the number of beds. 1 rate of a dietitian is allocated in hospitals with a number of beds - 500 and above, 0.5 rate - from 300 to 500 beds. The functions of a dietitian include management of dietitians, and he also carries out direct control over the work of the food block of the medical institution.

The rates of dietitian nurses of a medical institution also depend on the capacity of the hospital, specialization and profile. 1 position of dietician nurse is

allocated in hospitals with 200 beds, 0.5 position - per 100 beds. 1 position of dietician nurses in children's, tuberculosis and infectious diseases hospitals - per 100 beds, 0.5 position - per 75 beds. In a department with 30 beds - 1 position of a canteen nurse, in the burn department - 3 positions of a canteen nurse.

In cases where there is no position of a dietitian in a health care facility, the person responsible for this work is a dietetic nurse. The dietetic nurses and all food service workers who provide therapeutic nutrition in the health care facility are subordinate to the dietitian.

In the food service facility, the production manager (chef, senior cook) monitors compliance with the cooking technology and the output of ready-made dietary dishes, and the quality of ready-made dietary dishes is monitored by the dietitian, dietetic nurse, and the doctor on duty who authorizes the issuance of ready-made food to the departments. [33]

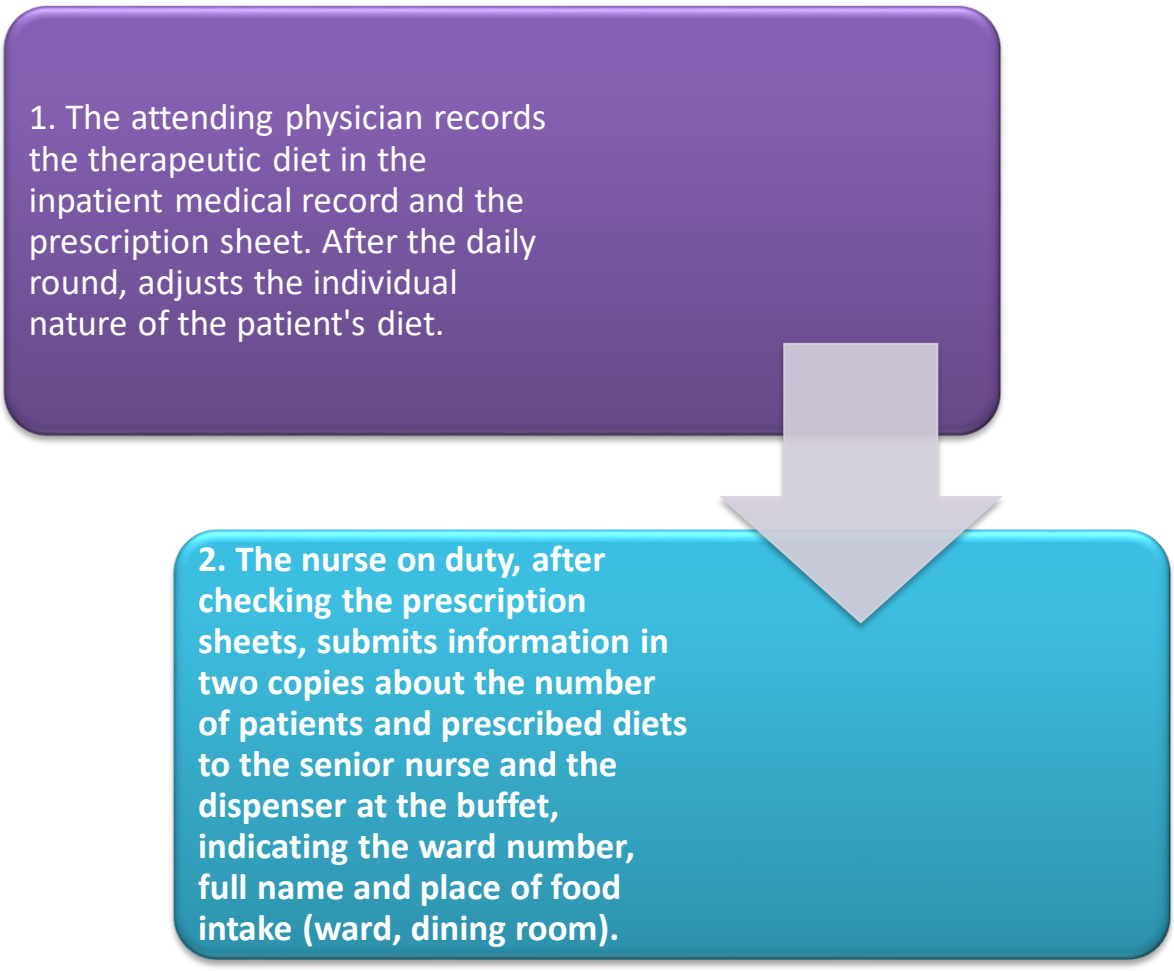


Fig. 6. The role of a doctor and a nurse in organizing dietary nutrition.

All issues related to the organization of therapeutic nutrition in a healthcare facility are systematically (at least once a quarter) heard and resolved at meetings of the Council on Therapeutic Nutrition.

Responsibilities of a nutritionist in inpatient facilities. A nutritionist is the main figure in organizing dietary therapeutic nutrition for patients.

1. A specialist doctor with training in therapeutic nutrition and a certificate in the specialty of "dietetics" is appointed to the position of a nutritionist.

2. A nutritionist is responsible for organizing therapeutic nutrition and its adequate application in all departments of healthcare institutions.

3. A nutritionist supervises dietetic nurses and monitors the work of the food block.

4. The nutritionist is obliged to:

a) consult department doctors on issues of organizing therapeutic nutrition;

b) consult patients on issues of therapeutic and rational

nutrition;

v) conduct a random check of case histories for compliance

with the prescribed diets and the stages of diet therapy;

g) analyze the effectiveness of therapeutic nutrition;

d) check the quality of products upon their receipt at the warehouse and food block; control the correct storage of food supplies;

Fig. 7. Quality control of vegetables

e) monitor the correct placement of products during

cooking;

j) prepare documentation on the organization of therapeutic nutrition:

— layout cards;

— seven-day menu;

— seven-day summary menu — summer and winter options;

Fig. 8. Checking the quality of products

z) monitor the correctness of the documentation maintained by the dietary nurse (menu layout, menu requirements, etc.);

i) monitor the quality of prepared food before issuing it to the departments by taking a sample at each meal;

Fig. 9. Quality control of grains

k) together with the heads of departments, determine the list and quantity of food parcels for a patient undergoing treatment at a health care facility;

l) control the timeliness of preventive medical examinations of food service workers and canteens and do not allow persons who have not undergone preventive medical examinations and patients with pustular, intestinal diseases, tonsillitis to work;

m) systematically organize advanced training for food service workers in matters of therapeutic nutrition;

n) conduct active health education work on rational and therapeutic nutrition for all employees of the health care facility and patients;

o) improve the level of professional qualifications at refresher courses in dietetics at least once every 5 years. [24]

Responsibilities of a hospital dietician:

1. A specialist

with secondary medical education, special training in therapeutic nutrition and a certificate in the specialty "dietetics" is appointed to the position of a dietician nurse.

2. A dietician nurse works under the supervision of a dietician.

3. A dietician nurse monitors the work of the food block and compliance with sanitary and hygienic rules by food block employees.

4. A dietician nurse is required to:

a) check the quality of products upon their receipt at the warehouse and food block;

monitor the correct storage of food supplies;

Fig. 10. Checking the quality of products during their storage

b) prepare daily under the supervision of a nutritionist and with the participation of the head of production a menu-layout (or menu-requirement) in accordance with the card index of dishes and the summary menu approved by the Council on Therapeutic Nutrition;

v) monitor the correctness of the placement of products during the preparation of dishes and the rejection of finished products, conduct a sample of finished food;

c) monitor the correctness of the release of dishes from the food block to the departments

in accordance with the "distribution sheet";

d) monitor: the sanitary condition of the premises of the food block, distribution rooms, buffets, inventory, dishes, as well as compliance with personal hygiene rules by food block employees;

e) organize and personally participate in conducting classes with mid-level medical personnel and food block employees on issues of therapeutic nutrition;

j) maintain medical records;

z) carry out timely preventive medical examinations of workers in the food block, distribution and buffet areas and do not allow persons who have not undergone a preventive medical examination and those who are sick with pustular, intestinal diseases, tonsillitis to work;

i) improve the level of professional training at least once every 5 years.

In the hospital, a nurse-nutritionist calculates the chemical composition and energy value of diets, as well as monitors the chemical composition of actually prepared dishes.

PROCEDURE FOR FILLING OUT THE REQUIREMENT AND INFORMATION ON THOSE RESPONSIBLE FOR THE QUALITY OF PREPARED MEALS

Procedure for issuing meals for patients in a healthcare facility.

1. Meals are issued by a dietetic nurse under the supervision of a dietician.

Documentation of the food unit for issuing meals and monitoring the quality of prepared meals in the hospital:

Table 1

PORTIONER FOR PATIENTS' MEALS

«__»_____ 20__

Name Departments	**Numberofpatients**	**Standarddiets**				

Head of Department _____(signature)

Senior Nurse of Department _____(signature)

Nurse of Dietetic Department _____(signature)

If the staffing does not provide for the position of a dietitian, the prescription of food is made by a dietetics nurse under the supervision of a physician responsible for therapeutic nutrition.

2. Upon admission of a patient to a medical and preventive institution, therapeutic nutrition is prescribed by the physician on duty. The prescribed diet is entered into the medical record and simultaneously into the consolidated order for all admitted patients, which is sent to the food block at the appointed time.

3. Diets are recorded by ward nurses, who daily inform the senior nurse of the department of the number of patients and their distribution by diet. Based on this information, the senior nurse of the department prepares Form №1 "Portion List for Patients' Food", which is signed by her, the head of the department and sent to the food block by the dietetic nurse.

4. The dietetic nurse of the food block, based on the information received from all departments, compiles a "Summary of the availability of patients on food" in the health care facility, which is verified with the data of the admission department and signed by her.

5. Based on the "Summary of Information", the dietetic nurse, with the participation of the head of production (chef) and the accountant, compiles, under the supervision of a dietitian, a menu layout according to form №44 for the nutrition of patients for the next day. The menu layout is compiled according to the consolidated seven-day menu, taking into account the average daily set of food products, is approved daily by the head physician of the institution and signed by the dietitian, accountant, head of production (chef). In the menu layout, the dietetic nurse indicates in the numerator the amount of food products for the preparation of one serving of each dish, in the denominator the accountant (calculator) indicates the amount of products necessary to prepare all servings of this dish.

6. Based on the final data of form №44, a "Request for the issue of food products from the warehouse (storeroom)" is written out according to form №45MZ in two copies.

7. Food products are loaded into the boiler in the presence of a dietitian (dietary nurse). Food products are preliminarily weighed regardless of the fact that they were received by weight from the warehouse (storeroom).

8. The issuance of food rations to departments is carried out according to form №23MZ ("Statement on the issue of food rations for patients to departments"), which is filled in by a dietary nurse in one copy.

When breakfasts, lunches and dinners are issued, department employees sign for their receipt. The statement is signed by the dietary nurse and the head of production (chef). Buffet products (butter, bread, tea, salt, etc.) are issued to barmaids directly from the warehouse (storeroom) upon request of form №45 MZ.

9. Additional discharge and/or return of products is made according to the invoice (request) to the warehouse (storeroom) according to form №434. Food products placed in the boiler are not subject to return.

10. Additional nutrition prescribed in the department to dietary rations is issued in two copies, signed by the attending physician, head of the department and approved by the chief physician of the medical and preventive institution. The first is transferred to the food block, the other is saved in the medical history.

11. For each dish prepared in a health care facility, a layout card is prepared in accordance with Form №185 in two copies: one copy is kept by the accountant, the second by the dietary nurse (the technology for preparing the dish is described on the back of the card). [33]

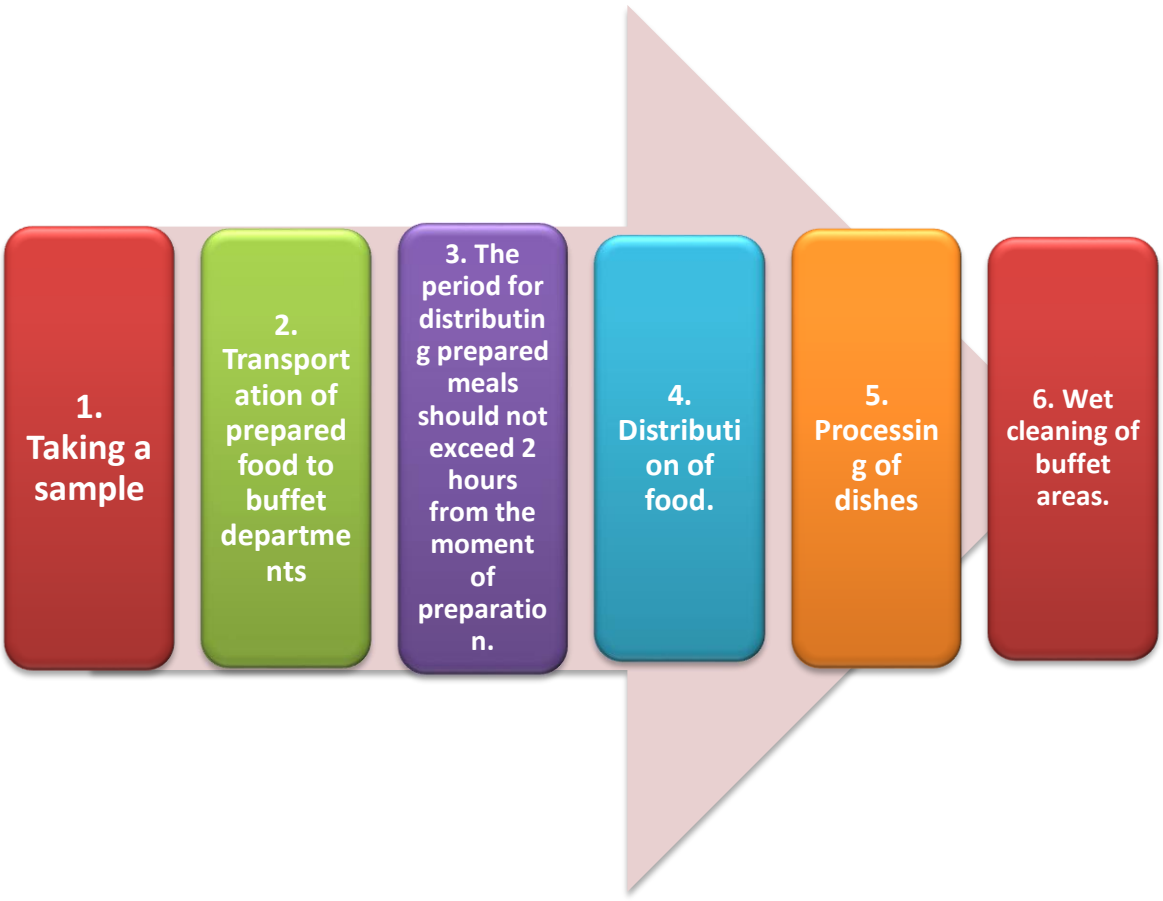


Fig. 11. Requirements for organizing food

Quality control of products and prepared food is carried out systematically in stages and is documented accordingly.

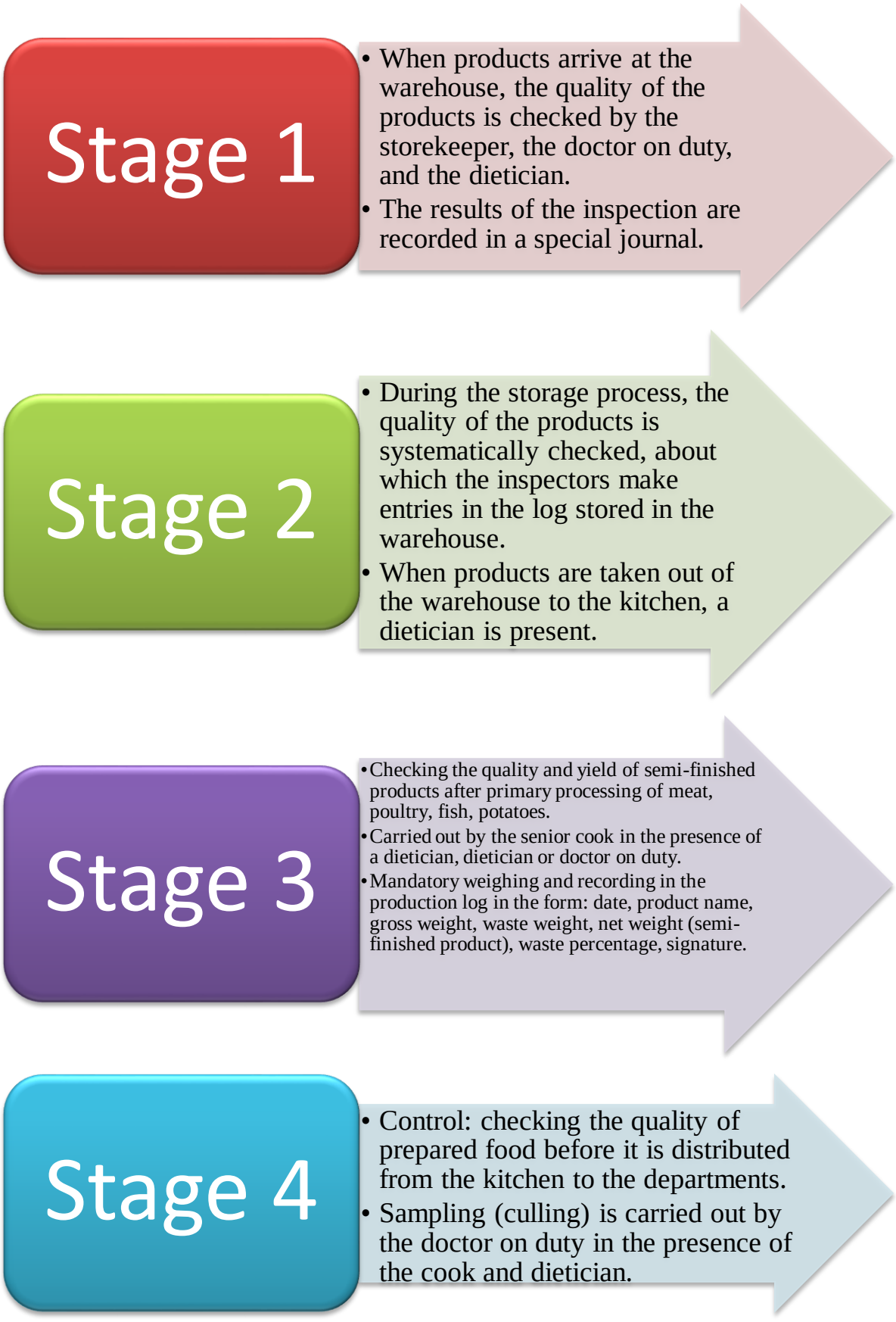


Fig. 12. Stages of quality control of food products in a hospital

The doctor on duty, in the presence of the cook and dietician, takes a sample (culling) of the prepared food, which consists of the following.

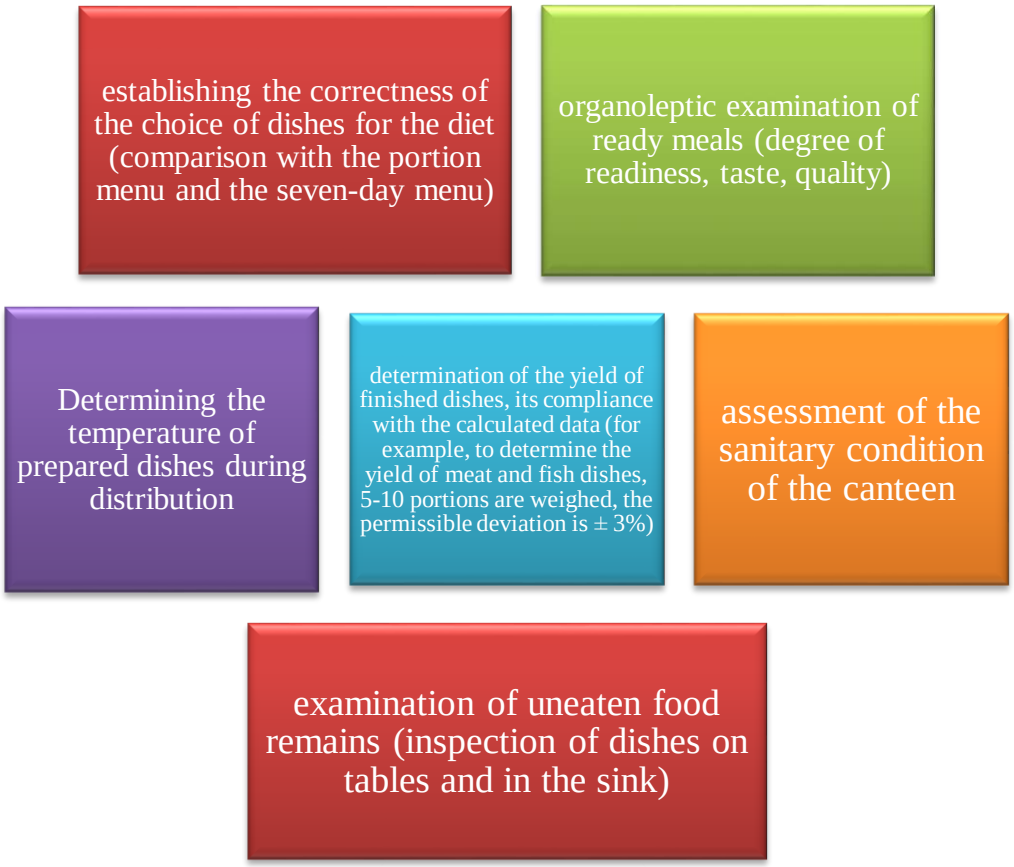


Fig. 13. Taking a sample

Fig. 14. Checking the quality of minced meat.

The brokerage journal, which monitors the quality of prepared food, records the results of control daily for each dish prepared for breakfast, lunch and dinner.

The evaluation criteria for the quality of prepared dishes in the hospital are shown in Fig. 15.

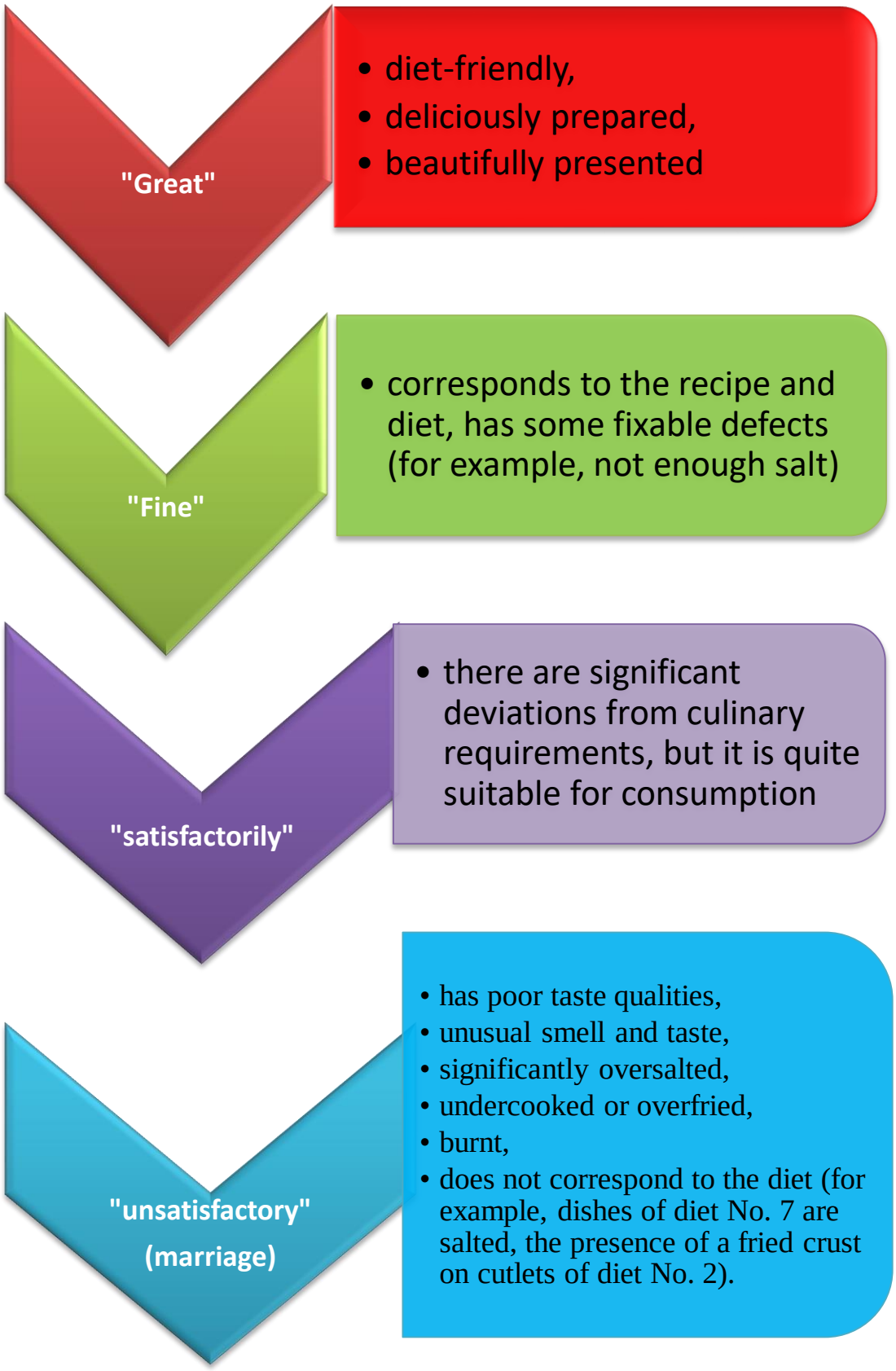


Fig.15. Evaluation criteria for the quality of dishes

The food block includes a complex of rooms necessary for storing products delivered from bases, cutting and cooking, and distributing ready-made food. The food block should include the following rooms: warehouses (cooled and uncooled) for storing products, a pantry for daily food supplies, production shops (meat preparation, fish preparation, vegetable preparation, hot pre-cooking, cold pre-cooking, confectionery), washing rooms (for kitchen utensils, for tableware, for washing carts and transport containers), a distribution room (for dispensing food), a dining hall, auxiliary rooms (inventory, linen, container, waste room, personnel room) (Fig. 16).

Fig. 16. Food block - washing room

In each hospital department, there is a canteen for ambulatory patients to eat, and bedridden seriously ill patients are served food in their wards. In a centralized system, the department's canteen attendant receives food from the kitchen.

Fig. 17. Dietary nutrition in the hospital

Inpatient departments should be equipped with dining rooms and refreshment rooms for patients (Fig. 18).

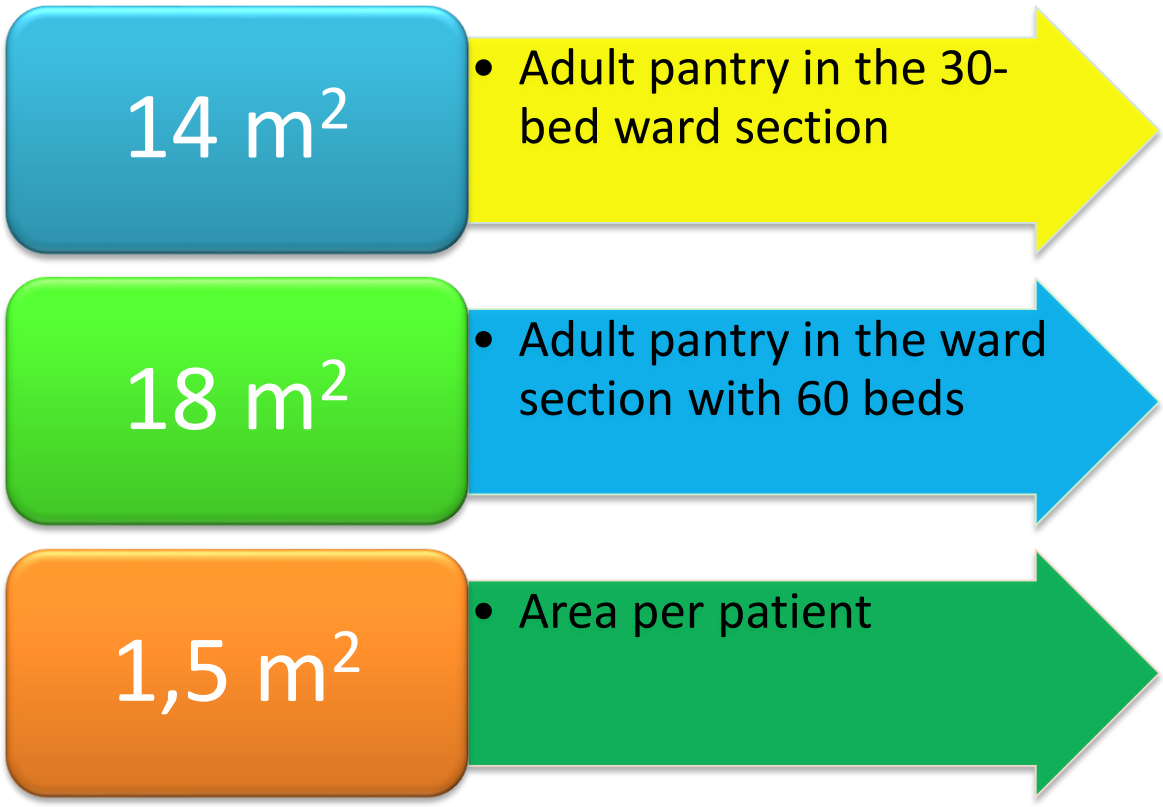


Fig. 18. Areas of the buffet and canteen

In infectious disease departments, one buffet can be equipped with 2 sections, and then its area will increase by 4 m^2. Based on the number of patients in the hospital department, canteens here should be designed to simultaneously provide 50-60% of patients in the corresponding department.

Fig. 19. Department canteen

It is absolutely necessary to post a daily menu with a variety of prepared dishes in the canteens of the hospital departments.

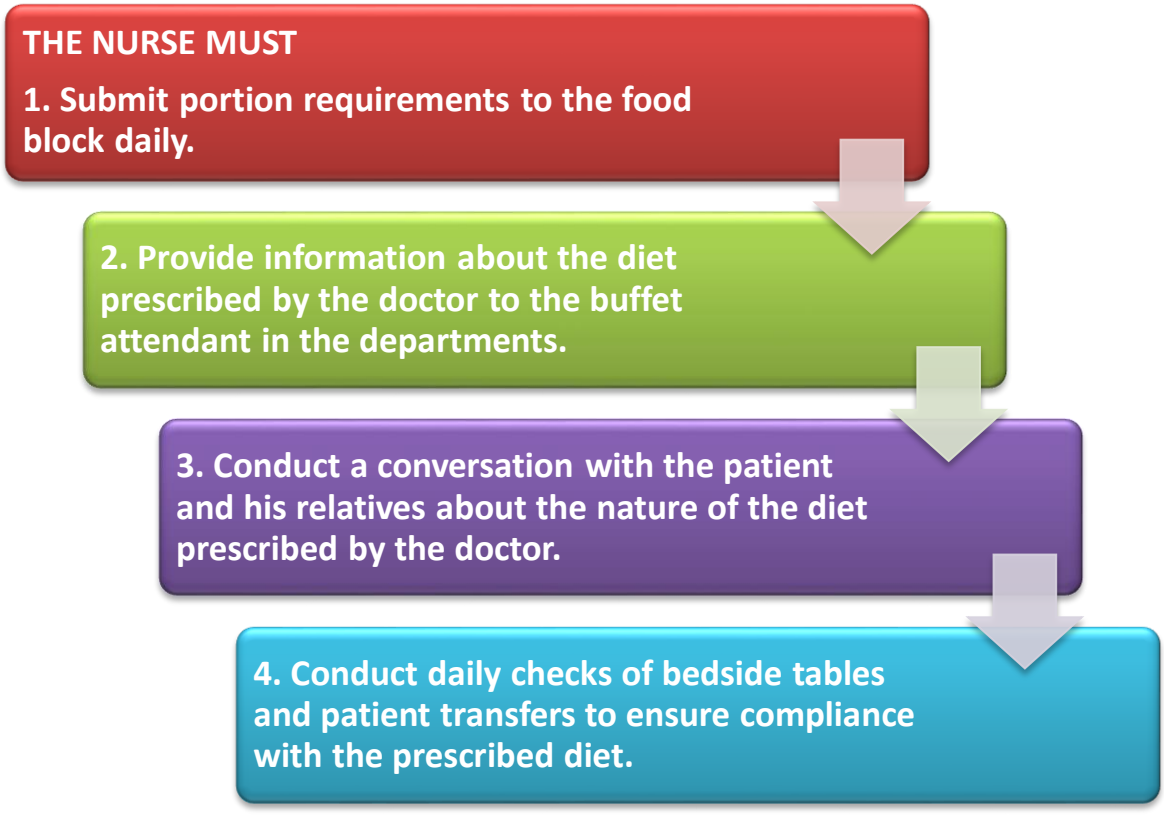


Fig.20. Functions of a nurse in organizing nutrition for patients

The characteristics of the therapeutic dietary tables should also be briefly described here, with recommended and prohibited food products for patients. Technical personnel engaged in cleaning the wards and other premises are not allowed to distribute food.

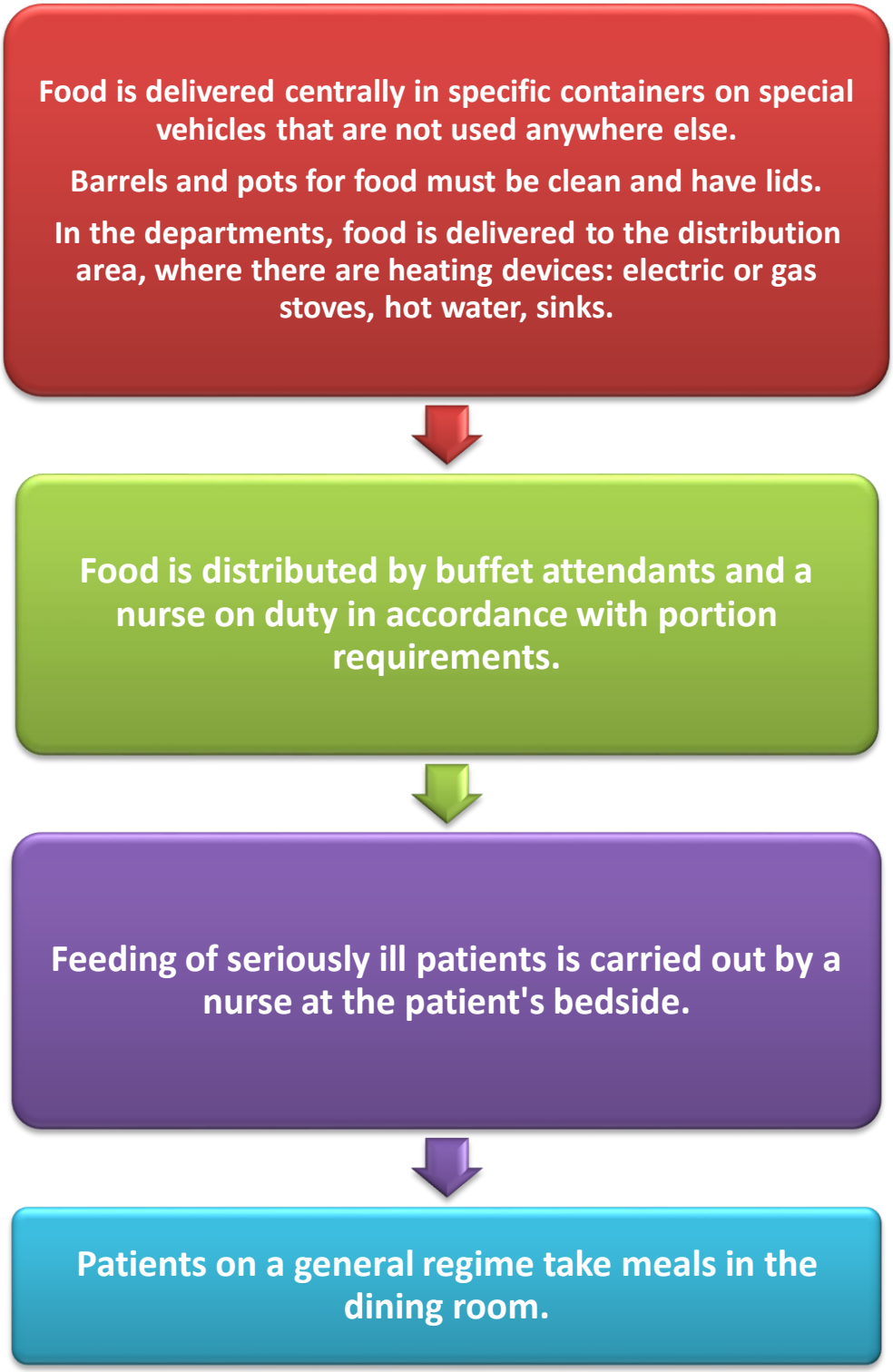


Fig.21. Work of the hospital food unit

S-vitaminization of food in the hospital. According to the instructions: "Implementation and control of food rations" in all medical and preventive institutions, including hospitals, maternity and perinatal complexes, sanatorium-resort homes, dietary canteens, homes for the disabled and the elderly, vitamin S, i.e. ascorbic acid, is added to prepared food every day.

In the hospital department, the dietary nurse or senior nurse adds vitamin S to it before serving food (Fig.21).

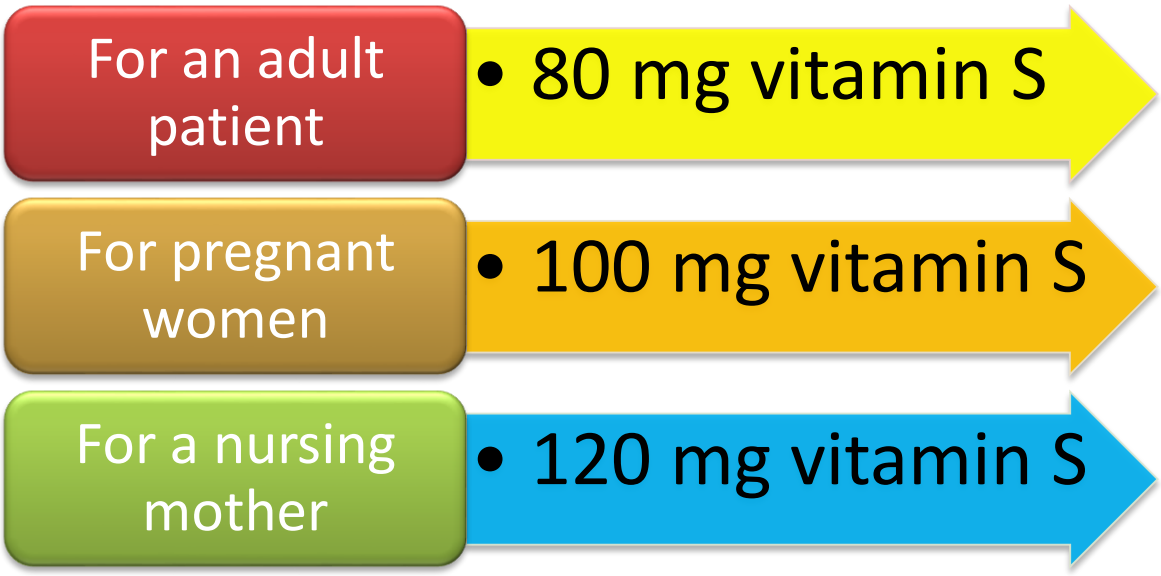


Fig.22. Vitamin S standards in hospitals

Ascorbic acid is usually added to first or third courses. Dishes to which vitamin S has been added cannot be heated. Accounting for the vitaminization performed is carried out according to the menu layout and is reflected in a special journal.

Violation of the sanitary and technical condition of the production equipment of the kitchen block and canteens of the hospital can lead to an outbreak of food poisoning, food toxic infections and other infectious diseases.

It is important for ward nurses to monitor the food products brought to patients. Lists of permitted (indicating their maximum quantity) and prohibited products for transfer should be posted in the places where the transfer is received and in the departments. [17]

Every day, the nurse on duty in the department must check compliance with the rules and shelf life of food products stored in the refrigerator and bedside tables of patients. Products for patients must be transferred in plastic bags with the patient's full name and the date of transfer. If food products with an expired shelf life are found, stored without a plastic bag, without the patient's full name, or showing signs of spoilage, they must be removed as food waste. The patient must be informed about the rules for storing the food products upon admission to the department. In the departments, nurses on duty must check the compliance of the transferred food products with the patient's diet, their quantity and quality. The following three main principles are fundamental to therapeutic nutrition (Fig. 22):

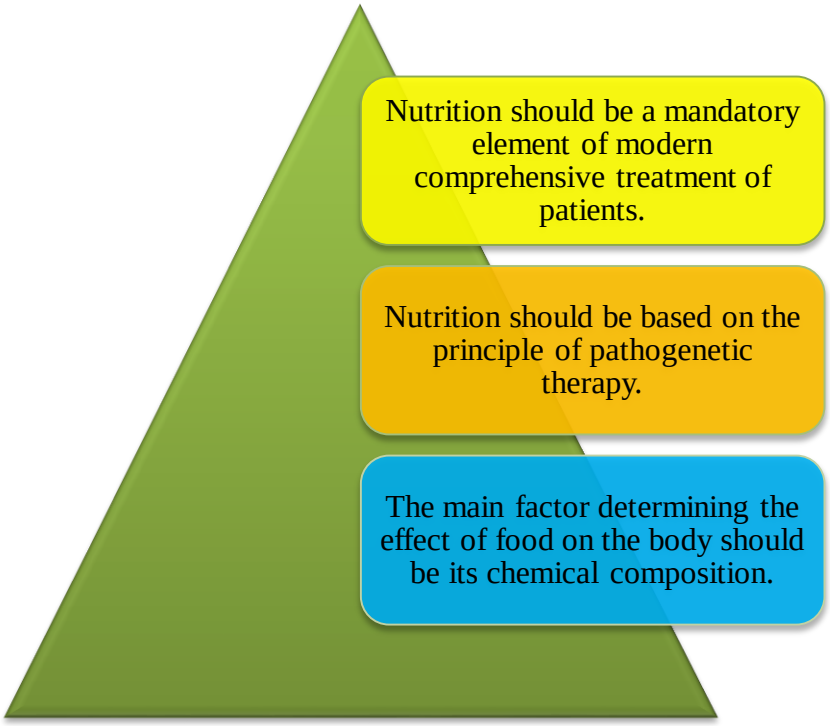


Fig.23. Principles of therapeutic nutrition

Today's dietetics in the age of civilization gives doctors and mid-level medical personnel new clinical opportunities in this area. According to this, the tasks of dietetic nurses are defined (Fig.23):

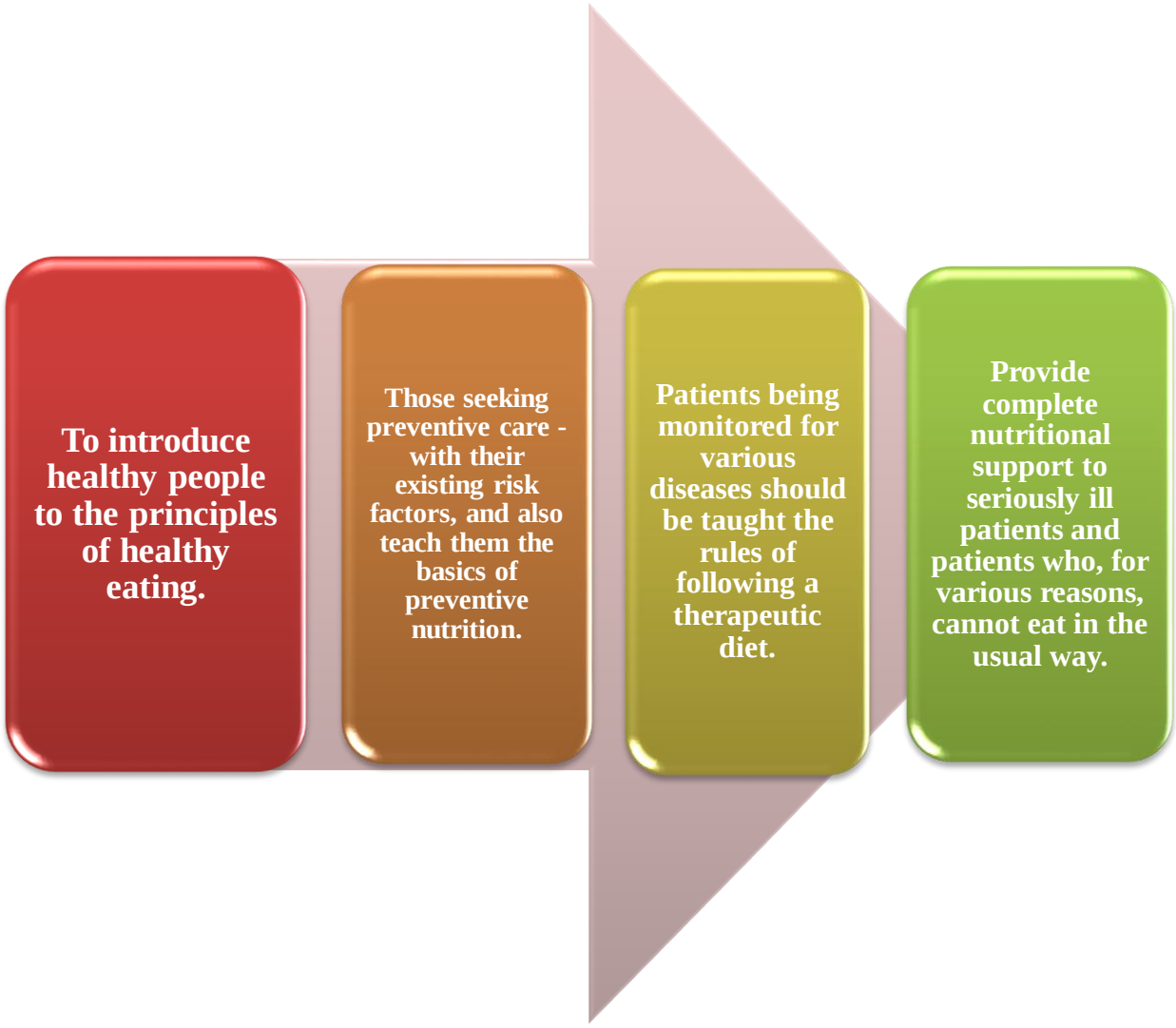


Fig.24. Tasks of nurses

The functions of a dietitian, when prescribing dietary nutrition to a patient, include providing an explanation of the essence of this dietary table, its importance for health, its effect on the body, and the terms of use for the prevention of complications.

FEATURES OF THE TECHNOLOGY OF PREPARING MEDICINAL DISHES

Medicinal food is prepared according to the rules of traditional technologies. The patient's pathology determines special requirements for the choice of products and methods of their preparation; boiled dishes are used more often.

Table -2.

Duration of heat treatment of vegetables

VEGETABLES	Duration of heat treatment, in minutes
Cooking from the moment of boiling	
Potatoes: whole	25-30
diced	15-20
Carrots: whole	25
sliced	15-20
Shredded white cabbage	20-30
Beetroot: unpeeled	90
cut into strips	30
STEWING	
Carrots, diced	35
Shredded cabbage	90
FRYING	
Potatoes, raw, cut into strips	15-20
Carrots, cut into strips (sautéed)	10-20
Onions, finely chopped (sautéed)	10-15

For mechanical sparing of the gastrointestinal tract organs, the following technological methods of processing food products are used (Fig. 25):

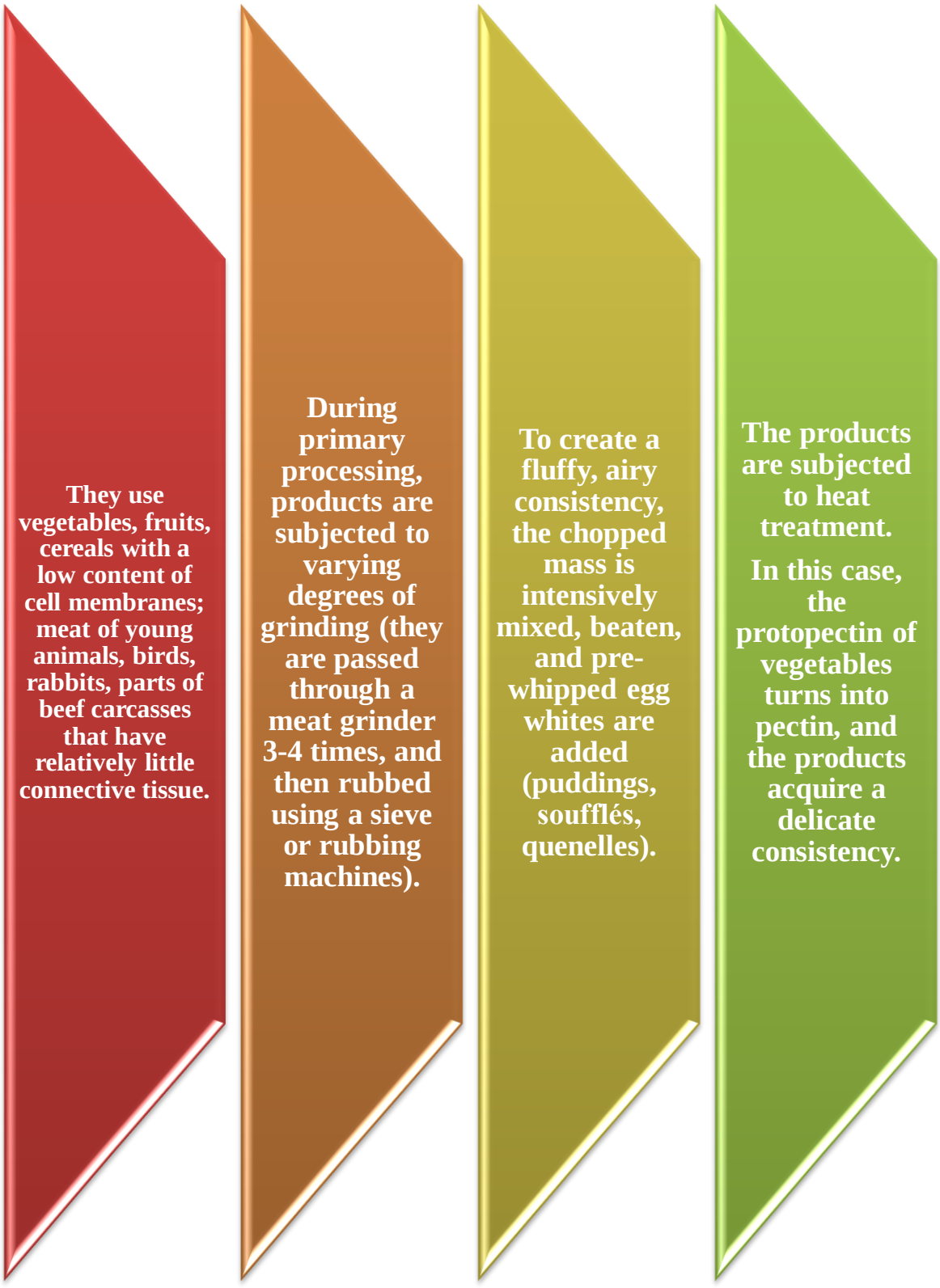


Fig.25. Technological methods for mechanical sparing

For chemical sparing of the gastrointestinal tract organs, the following technological methods are used (Fig.26):

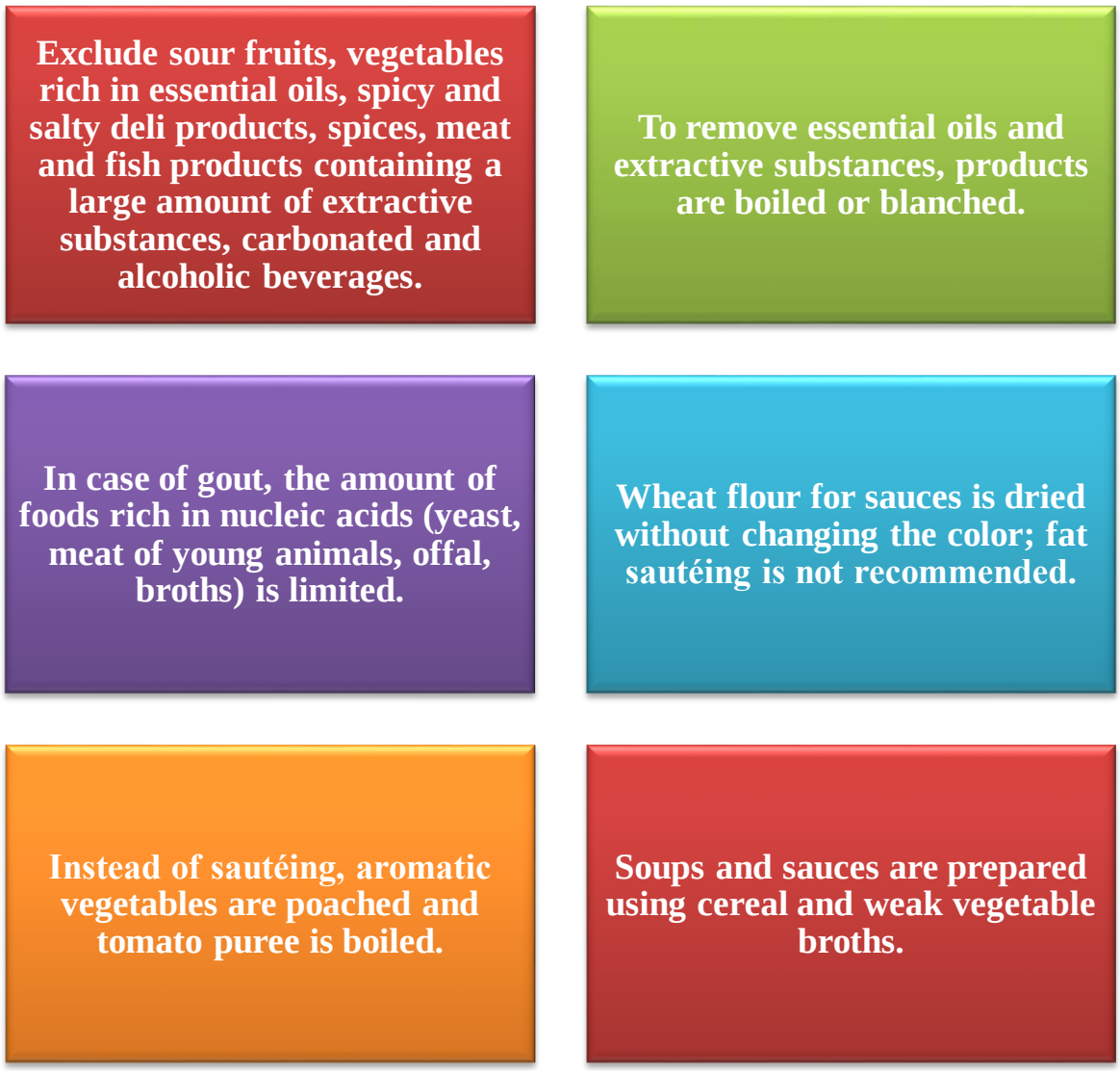


Fig.26. Technological methods for chemical sparing

The temperature of hot dishes should be between 62°C and 65°C, and cold dishes between 14°C and 15°C, which ensures thermal sparing of the patient's digestive organs. To improve the taste of dishes with a low-salt or salt-free diet, sour and sweet gravies and sauces are used in the diet of patients.

In dietary nutrition, liquid dishes - soups are as follows (Fig.28):

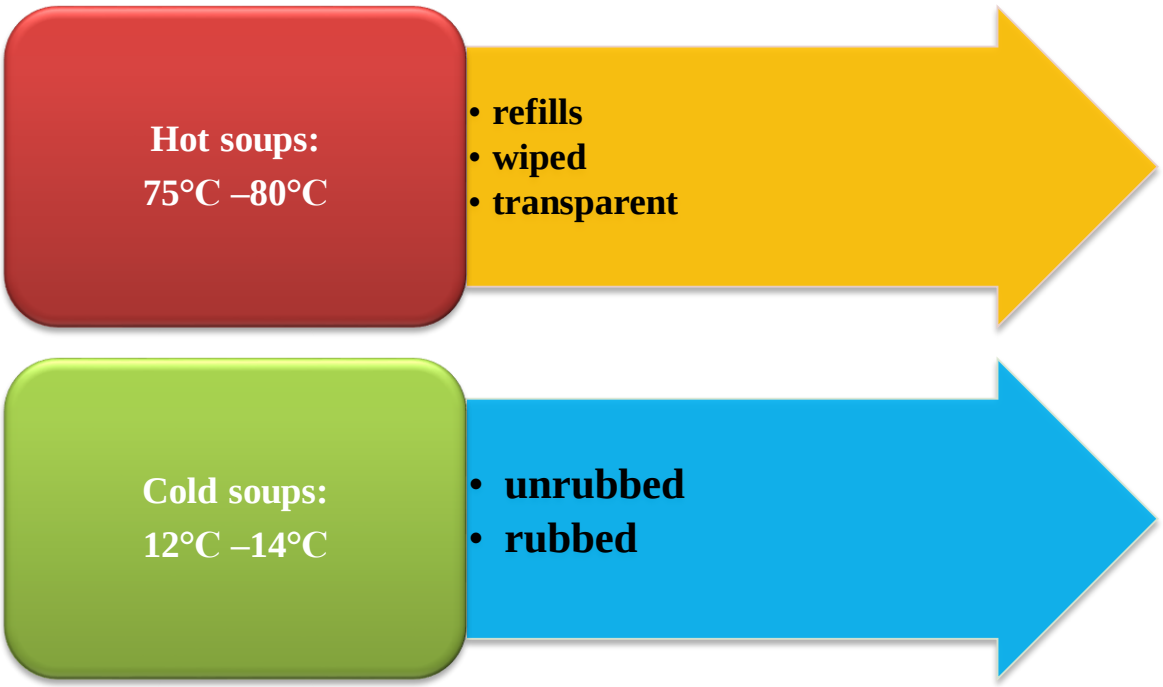


Fig. 27. Types of soups

A normal portion of soup is 400–500 g, but for diets No. 7, 8, 10 the portion is reduced and is 200–250 g. Portions can also be reduced for other diet tables.

With the most gentle diets, these are diets No. 0, 1a, 1b, 4, 4b, 5a, 5p, 13, slimy soups are used, which are prepared by cooking cereals. Vegetables, cereals (cereal flour), meat, poultry, liver, fish are used to prepare cream soups. White sauce is usually prepared on meat, bone, fish or secondary broth, which is used for diet tables No. 2, 4, 4b, 4v, vegetable and cereal broths are used for diet tables No. 1b, 1, 5a, 5p, 5, 6, 7, 10a, 10c, 10, 13. Cold soups are often prepared in the spring and summer, for this they use vegetable, beetroot, and fruit and berry broths, bread kvass and dairy products (usually yogurt, kefir). For dietary tables No. 2, 8, 9, cabbage soup is prepared from sorrel and greens; for dietary tables No. 3, 5, 7, 8, 10, I0c, 11, I5, beetroot soup; for dietary tables No. 3, 5, 6, 7, 8, 9, 10, 10c, 11, 15, okroshka.

The choice of cereals is based on dietary tables. Semolina porridge is contraindicated in diet No. 9, millet and pearl barley porridge are contraindicated for diets No. 1, 4, 5 p.

The menu of diets No. 1, 2, 3, 4, 10, 15 includes eggs, which can be consumed in natural form and in the form of dishes; dietary tables No. 6, 7 - a restriction on the use of eggs is introduced; dietary tables No. 5, 9, 10c - a restriction on the use of egg yolks is introduced; dietary tables No. 7, 10 - the use of eggs without salt is introduced.

Fig. 28. Chicken and quail eggs

CHAPTER II. ENERGY BALANCE OF THE ORGANISM

The clinical discipline of dietetics has now begun to develop strongly, introducing its achievements into practical health care. New theories of nutrition have emerged, the range of food products has increased, and as a result, new dietary tables have appeared, aimed at strengthening and maintaining the health of the population and the sick person. Clinical dietetics, thanks to scientific achievements, has revealed nutritional disorders in modern man (Fig. 30).

Fig. 29. Eating disorders of modern man

Scientists from the University of California, USA (Los Angeles) gave the world a human nutrition pyramid.

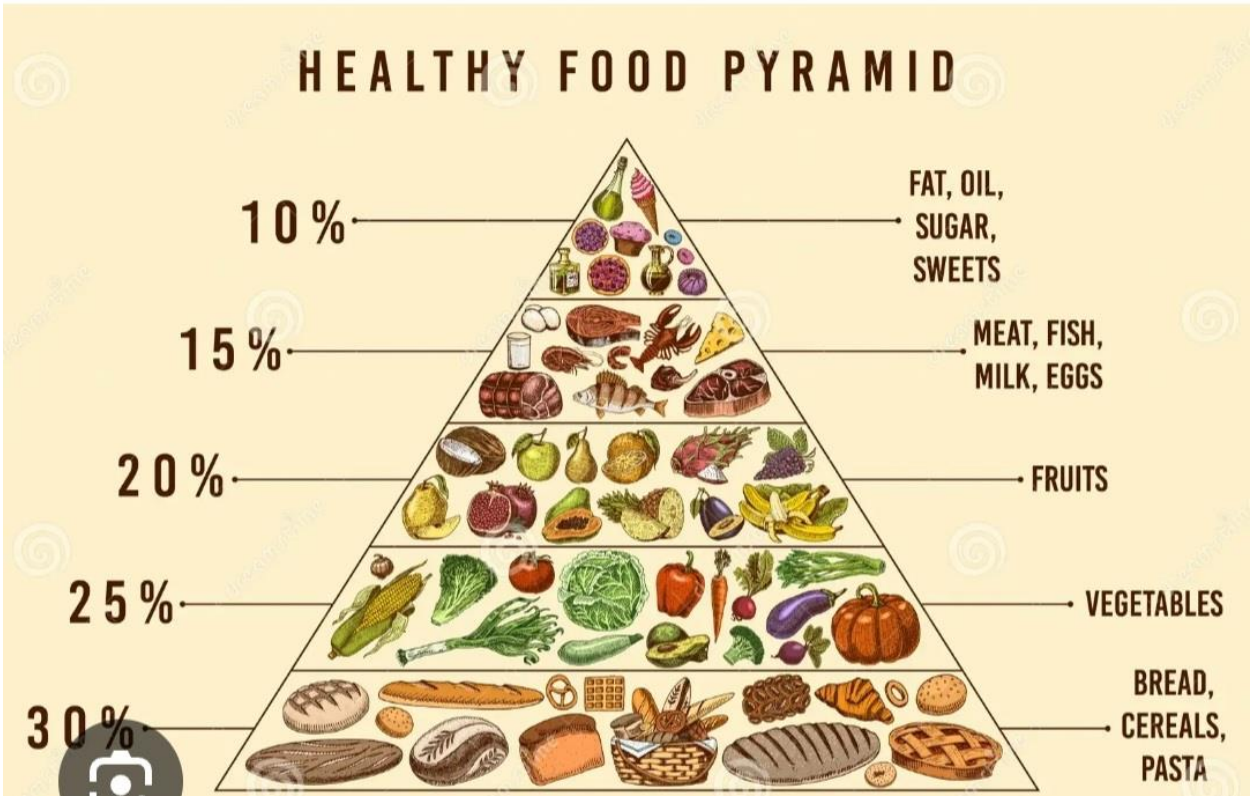


Fig.30. Food pyramid.

According to American nutritionists, the products that the population most often consumes consist of 6 groups. The base of the pyramid is made up of food products that are consumed daily - these are bread and bakery products, cereals, pasta. This group of products contains complex carbohydrates, minerals, B vitamins, dietary fiber.

Above this group is the second floor of food products, which includes mainly vegetables and fruits. They contain carbohydrates, are rich in vitamins, including vitamin C, group B, etc., minerals, and also have a lot of dietary fiber, which is necessary for the normal functioning of the human gastrointestinal tract.

The next step is occupied by milk and dairy products, rich in protein and calcium, this also includes meat, fish, poultry, eggs, nuts and legumes, which contain a lot of protein, macro and micronutrients - iron, magnesium, manganese, zinc, etc., vitamins, including group B. [21,22]

The top of the pyramid is assigned to a small group, which includes various fats, oils and sweets. They should be consumed in small quantities. They add flavor to food and provide variety.

A person satisfies his nutritional needs through food products, which are usually a mixture of nutrients: proteins, fats, carbohydrates, vitamins, mineral salts and water.

The daily food ration (ration) should provide a person with all the listed nutrients in the quantities he needs.

ENERGY VALUE AND QUALITATIVE COMPOSITION OF THE DAILY FOOD DIET

The energy value and qualitative composition of the daily food ration depend on many circumstances, of which the most important are the person's age, height and body weight, profession, physiological state (for example, pregnancy, breastfeeding), health status and climatic conditions.

Healthy nutrition is ensured by: 1) the proper energy value of the diet; 2) the qualitative completeness of the diet, i.e. the presence in it of the necessary quantities of all nutrients; 3) a rational diet; 4) conditions that promote maximum preservation and assimilation of nutrients, which depends on the method of culinary processing of food, giving it a pleasant taste, aroma, appearance, ensuring variety and digestibility; 5) compliance with sanitary rules in the production, transportation, storage and culinary processing of food products to protect them from contamination by pathogenic organisms (germs, microscopic fungi, etc.) and the ingress of toxic substances.

Energy value of the diet. An important quantitative indicator, from which the assessment of nutrition begins, is the caloric content of the diet. The caloric content of food should correspond to the total energy expenditure of the body. For each person, energy consumption can be calculated according to the energy value of the diet.

The energy needs of people of retirement age up to 70 years are 2600 kcal, and those older – 2400 kcal.

Fig. 31. Sample one-day menu for pensioners

The average energy requirement of students, who usually spend a significant part of their free time doing physical education and sports, is about 3,300 kcal/day. Energy expenditure of athletes during intensive training and competitions reaches 4,500-5,000 kcal/day. The energy requirement of women, due to less intensive metabolic processes and lower body weight, is on average 15% lower than that of similar groups of men. The needs of pregnant women are about 3,200 kcal, and nursing mothers - up to 3,500 kcal/day. The required caloric content of the diet of children depends mainly on age. When calculating the energy requirements of a specific person, it is necessary to take into account his basal metabolism, the thermal effect of the food he eats, which is up to 10%, and his physical activity. Diseases, injuries and stress contribute to an increase in the body's energy expenditure.

BASIC ENERGY CONSUMPTION

The main factors in human energy consumption are gender, age, body weight and height. According to the developed standards, the basal metabolic rate is the amount of energy that the human body spends at rest on an empty stomach (12-16 hours after eating) at an air temperature of 18-20°C.According to the standards, in an adult with a body weight of (70 kg) and height of (165 cm), the basal metabolic rate is 1 kcal per 1 kg of body weight for 1 hour, per day on average equals 1x70x24 = 1680 calories. [22,23]

Fig. 32. Daily set of dishes for men aged 16-59

Usually, the average daily norm of a person's diet should contain 2500 kcal.

Physiological energy requirements for the adult population are from 2100 to 4200 kcal/day for men and from 1800 to 3050 kcal/day for women.

The World Health Organization (WHO) has developed standards according to which the daily diet per 1 kg of a person's body weight consists of the following nutrients: 0.7-1 g of proteins, 0.8-0.9 g of fats (including 30% vegetable), 5-6 g of carbohydrates, 25-30 g of dietary fiber.

Based on this, the caloric content of food for a person weighing 70 kg includes: 49-70 g of proteins r 4.1 = 200-290 kcal of proteins, 56-63 fats r 9.3 = 520-590 kcal of fat, 350-420 g of carbohydrates r 4.1 = 1440-1720 kcal of carbohydrates. The daily caloric content is 2160-2600 kcal.

The caloric content of food products depends on the content of nutrients, i.e. proteins, fats, carbohydrates, and it is: 1 g of proteins - 4 kcal, carbohydrates - 3.75 kcal, fats - 8 kcal. In practical medicine around the world, a highly informative and simple indicator is widely used - the body mass index (BMI):

Fig. 33. Healthy products.

$$\text{Body mass index (BMI)} = \frac{\text{body weight (kg)}}{\text{Height m}^2}$$

Example: weight 90 kg, height 160 cm (1.6 m):

$BMI = 90/(1.6)^2 = 35.5$ kg/m²

This indicator is used not only to characterize nutritional status, but also to diagnose obesity in people aged 20 to 65 years. [22,24]

Table 3

Characteristics of nutritional status by BMI (kg/m²).

№ p/p	Statuscharacteristics	BMI MeaningbyAge	
		18-25 years	26 and older
1.	Obesitystage 4	40,0 and above	41,0 and above
2.	Obesitystage 3	35,0-39,9	36,0-49,9
3.	Obesitystage 2	30,0-34,9	31,0-35,9
4.	Obesitystage 1	27,5-29,9	28,0-30,9

5.	Overweight	23,0-27,4	26,0-27,9
6.	Normal nutritional status	19,5-22,9	20,0-25,9
7.	Reduced nutritional status	18,5-19,4	19,0-19,9
8.	Hypotrophy 1st degree	17,0-18,4	17,5-18,9
9.	Hypotrophy 2 st degree	15,0-16,9	15,5-17,4
10.	Hypotrophy 3 st degree	Below 15.0	Below 15.5

Table 4

Nutritional status by BMI (kg/m²) (according to WHO criteria).

№ p/p	**Types of nutritional status**	***BMI (kg/m²)***
1.	Underweight	Under 18.5
2.	Normalbodyweight	18,5-24,9
3.	Overweight	25,0-29,9

The lower limit of normal human body weight is 18.5 (WHO). According to BMI, there are three degrees of underweight: 17.0 – 18.49, 1st degree (mild); 16.0 – 16.99, 2nd degree (moderate); less than 16.0, 3rd degree (severe).

CHARACTERISTICS OF THE MAIN MACRO- AND MICRONUTRIENTS IN FOOD

The qualitative composition of the diet is determined by the nutrients, macro- and micronutrients, contained in it, i.e. proteins, fats, carbohydrates, mineral salts and vitamins. All nutrients can be divided into 3 groups according to their importance for the human body (Fig. 37):

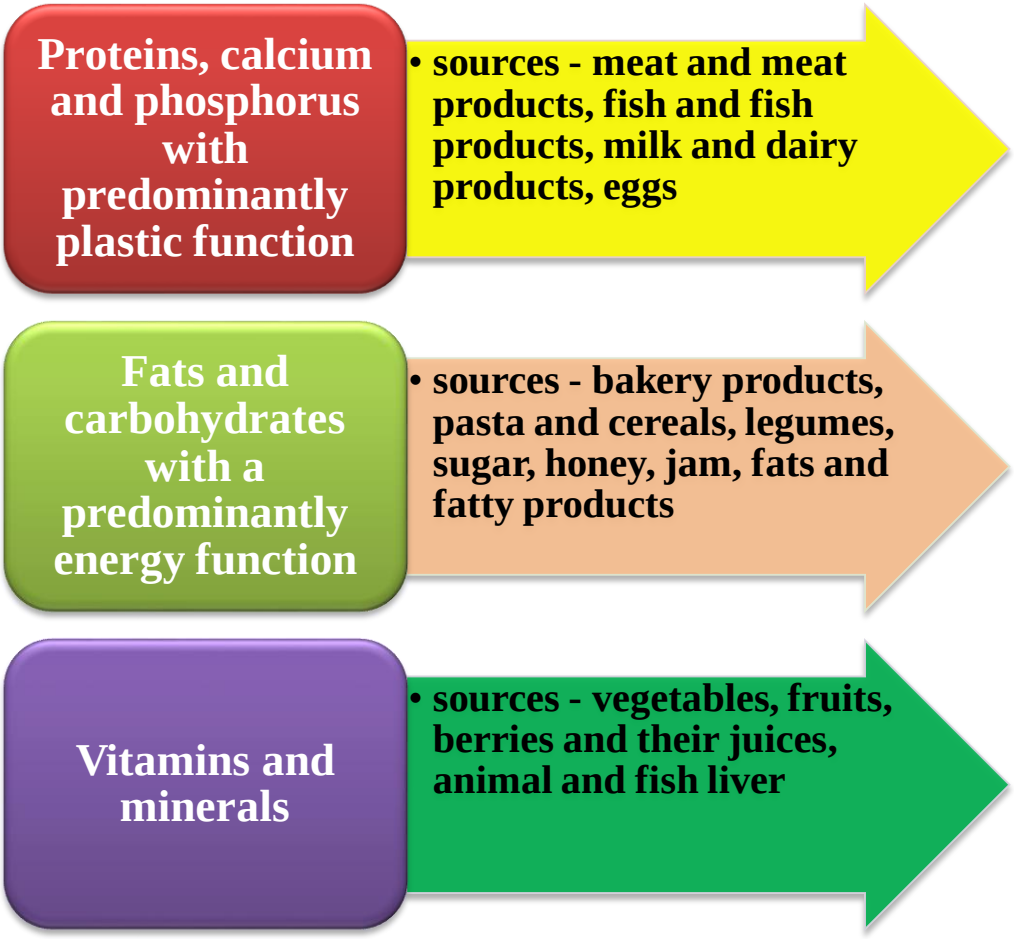


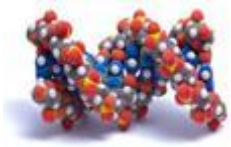
Fig. 34. Groups of nutrients

Some food products contain irreplaceable or essential macro- and micronutrients.

Macronutrients are nutrients (proteins, fats and carbohydrates) that are necessary for a person in quantities measured in grams, providing for the plastic, energy and other needs of the body.

Micronutrients are nutrients (vitamins, minerals and microelements) that are contained in food in very small quantities - milligrams or micrograms. They are not sources of energy, but they participate in the absorption of food, regulation of functions, implementation of growth processes, adaptation and development of the body.

Macronutrients. Proteins.



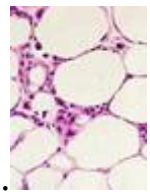
The need for protein is an evolutionarily developed dominant in human nutrition, caused by the need to ensure an optimal physiological level of essential amino acids. With a positive nitrogen balance during periods of growth and development of the body, as well as during intensive reparative processes, the need for protein per unit of body weight is higher than that of an adult healthy person. The quality of protein is determined by the presence of a complete set of essential amino acids in a certain ratio both among themselves and with replaceable amino acids. 1 g of protein gives 4 kcal when oxidized in the body.

Consumption rates:

Physiological protein requirements for adults are from 65 to 117 g / day for men, and from 58 to 87 g / day for women.

Physiological protein requirements for children under 1 year are 2.2-2.9 g / kg of body weight, children over 1 year from 36 to 87 g / day.

Fats



. Fats (lipids) from food are a concentrated source of energy (1 g of fat when oxidized in the body gives 9 kcal). Fats of plant and animal origin have different fatty acid compositions, which determine their physical properties and physiological and biochemical effects. Fatty acids are divided into two main classes - saturated and unsaturated.

Consumption standards:

Physiological need for fats - from 70 to 154 g / day for men and from 60 to 102 g / day for women.

Physiological need for fats: for children under one year old 5.5-6.5 g/kg of body weight, for children over one year old – from 40 to 97 g/day.

Carbohydrates.

Food carbohydrates are mainly represented by polysaccharides (starch), and to a lesser extent by mono-, di- and oligosaccharides. 1 g of carbohydrates, when oxidized in the body, gives 4 kcal.

Consumption standards:

The physiological need for digestible carbohydrates for an adult is 50-60% of the daily energy requirement (from 257 to 586 g / day). The physiological need for carbohydrates - for children under one year old 13 g / kg of body weight, for children over one year old from 170 to 420 g / day.

Recommendations for rationalizing the diet. To assess individual nutrition, a menu layout is usually used, the essence of which is that all dishes consumed during the day are broken down into constituent components, for comparison with hygienic standards for a given group of people**.**

The main document planning the daily qualitative and quantitative composition of food products is the menu layout. The menu layout consists of a daily ration (breakfast, lunch and dinner), which includes a list of dishes with the weight of products needed to prepare them. To calculate the caloric content and chemical composition of the ration, use the tables: "Content of the main nutrients and energy value of products", where the calculation of caloric content and chemical composition are given per 100 g of edible product, excluding the weight of waste.

CHAPTER III. THERAPEUTIC NUTRITION FOR DISEASES OF THE DIGESTIVE ORGANS, THE CONCEPT OF COOKING TECHNOLOGY

Principles of mechanical, chemical and thermal sparing.

The gastric mucosa is subject to mechanical irritation as a result of the following (Fig. 35):

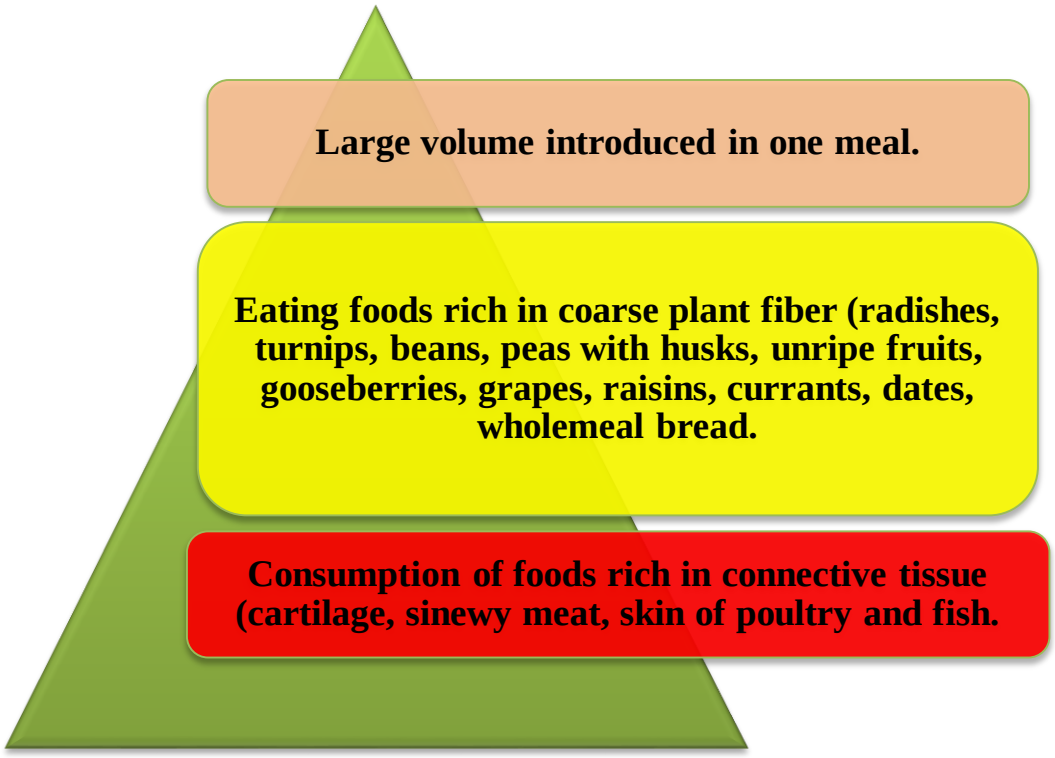


Fig.35. Causes of mechanical irritation of the stomach

Food temperature (cold, hot) has a thermal effect on the gastric mucosa. The gentle principle is the basis for diet therapy of diseases of the upper gastrointestinal tract. In this case, it is important to take into account the nature, form, stage of the disease, possible complications of the digestive organs of a particular patient.

RECOMMENDED DIET TABLES FOR DISEASES OF THE DIGESTIVE ORGANS.

Basic diets used in healthcare facilities for diseases of the esophagus, stomach and duodenum. Diseases of the esophagus.

Gastroesophageal reflux disease (GERD) refers to a group of diseases with primary motility disorders. Due to the lack of a special diet for GERD, patients must follow recommendations for diet and nutrition. Usually, for diseases of the upper gastrointestinal tract, numbered specialized gentle diets No. 0, 1a, 1b and others are used.

A. A variant of a diet with mechanical and chemical sparing - for gastric ulcer and duodenal ulcer in the acute stage and unstable remission; acute gastritis;

chronic gastritis with preserved and high acidity in the mild acute stage; gastroesophageal reflux disease.

Diet characteristics: a diet with a physiological content of proteins, fats and carbohydrates, enriched with vitamins, minerals, with moderate restriction of chemical and mechanical irritants of the mucous membrane and receptor apparatus of the gastrointestinal tract.

Spicy snacks, seasonings, spices are excluded; table salt is limited (6-8 g / day). Meals are boiled or steamed, mashed or not mashed. Temperature - from 15 to 60-65 ° C. Free liquid - 1.5-2 liters. The rhythm of nutrition is fractional, 5-6 times a day.

Chemical composition: proteins - 85-90 g (animal 40-45 g); carbohydrates 300-330 (mono_ and disaccharides 30-40 g) fats 70-80 g (vegetable - 25-30 g, energy content 2170-2400 kcal.Б**.**

The main variant of the standard diet is for chronic gastritis in the remission stage, gastric ulcer and duodenal ulcer in the remission stage.

Characteristics of the diet: a diet with a physiological content of proteins, fats and carbohydrates, enriched with vitamins, minerals, plant fiber (vegetables, fruits). When prescribing a diet to patients with diabetes, refined carbohydrates (sugar) are excluded. Nitrogenous extractive substances, table salt (6-8 g / day), foods rich in essential oils are limited, hot spices, spinach, sorrel, smoked foods are excluded. Meals are boiled, steamed, baked. The temperature of hot dishes is no more than 60-65 ° C, cold dishes - not lower than 15 ° C. Free liquid - 1.5-2 liters. The rhythm of nutrition is fractional, 4-6 times a day.

Chemical composition: proteins - 85-90 g (of which animal 40-45 g); carbohydrates 300-350 (of which mono_ and disaccharides 50-60 g); fats 85-90 g (of which vegetable - 40-45 g. The caloric content of the diet should be: 2170-2480 kcal.

Diet table №1. Indications: gastric ulcer and duodenal ulcer in the acute stage and unstable remission; acute gastritis; chronic gastritis with normal and high acidity in the mild acute stage; gastroesophageal reflux disease. Daily frequency of meals: 4-

5 times, duration of the diet: at least 2-3 months. Semi-liquid or gelatinous dishes are recommended, they should be warm, withoutfrying, salt is limited**.**

Characteristics of numbered diet №1. Food composition: milk and dairy products (whole milk, powdered or condensed milk, cream, fresh non-acidic sour cream and strained cottage cheese); fats (unsalted butter, refined vegetable oils); eggs and egg dishes (soft-boiled eggs, steamed omelet); soups (from strained cereals, from boiled permitted vegetables, milk soup with small vermicelli) with the addition of milk, cream, eggs. From vegetables: potatoes, carrots, beets, cauliflower, pumpkin and zucchini, Meat and fish dishes should be prepared from lean beef, veal; chicken, rabbit, turkey, lean fish (pike perch, carp, perch, etc.). In nutrition I use the following types of cereals - semolina, rice, buckwheat, oatmeal; porridges from them are prepared in milk or water. Fruits and berries in the form of compotes, kissels, mousses, jelly, rosehip decoction. From sweets I use - sugar, jam, marshmallow, pastila. Juices can be consumed raw from permitted vegetables. [17]

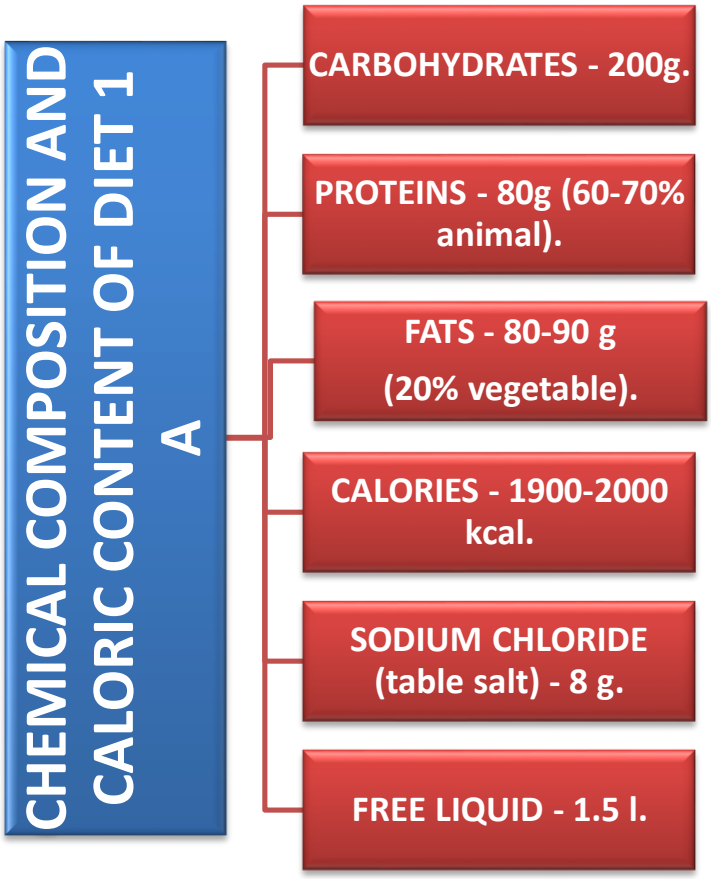


Fig.36. Diet 1a

Characteristics of numbered diet №2. It is indicated for chronic gastritis with secretory insufficiency during a mild exacerbation, acute gastritis, enteritis and colitis during an exacerbation, chronic enterocolitis. The diet allows drinks, tea with milk, cocoa, coffee with milk and with cream; juices - vegetable, berry, diluted with water, rosehip decoctions. Of the bread products, the following are allowed: yesterday's white and gray wheat bread, unleavened varieties of bakery products and cookies, dry biscuit. Of the snacks, the following are allowed: mild grated cheese, soaked herring, fish, jellied meat and tongue. Milk and dairy products that can be used include: dry and condensed milk in drinks and dishes, cottage cheese, curd cheese, sour milk, kefir, acidophilus milk. Fats include: butter, ghee, refined vegetable oil (olive oil is best).

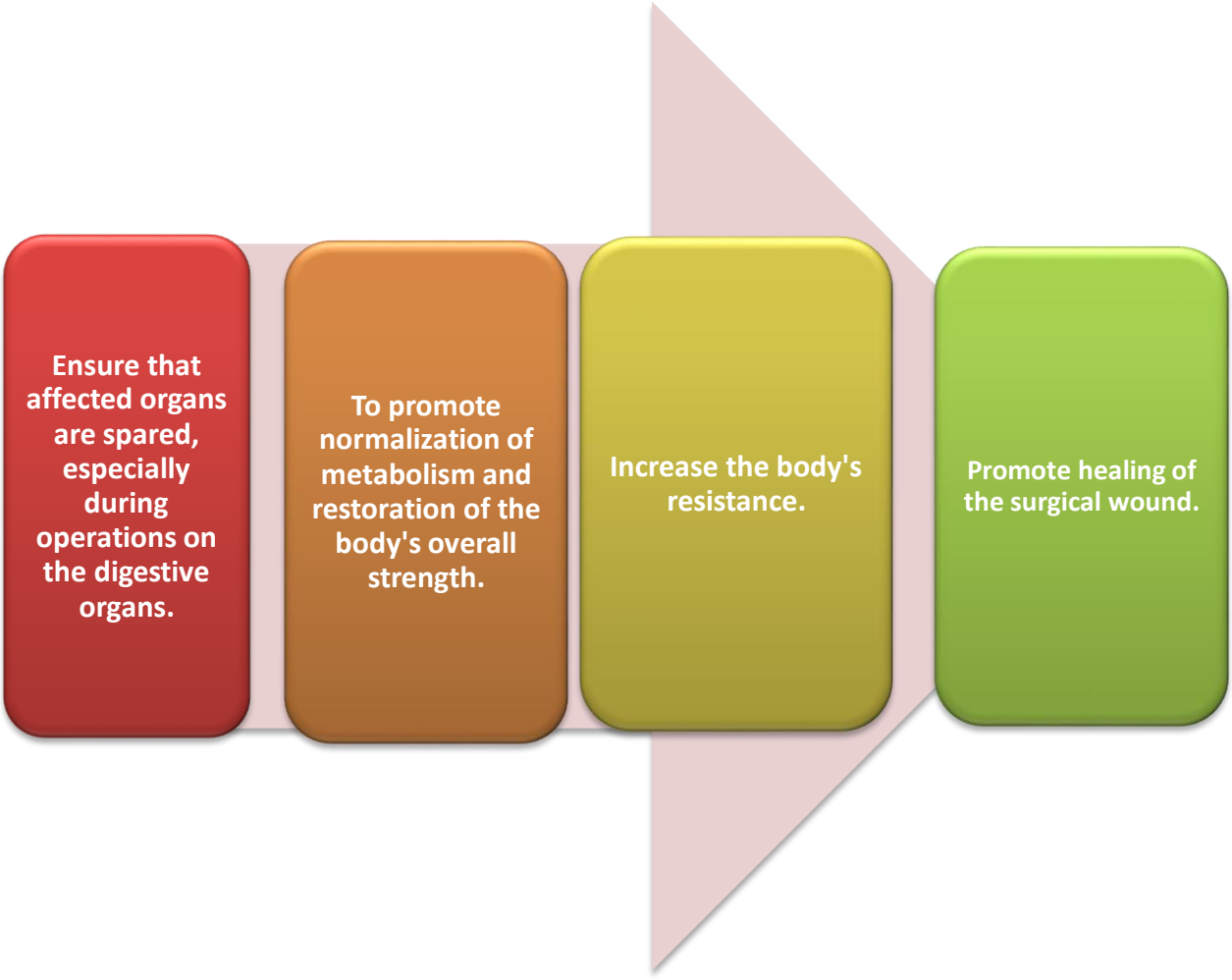


Fig.37. Diet in the postoperative period

Egg products include soft-boiled eggs, omelettes. Soups are prepared in weak, low-fat meat, fish, mushroom broths and vegetable broths with finely chopped or

mashed vegetables, mashed cereals (cream soups, cream soups), borscht, beetroot soup, cabbage soup made from finely shredded fresh cabbage, with finely chopped vegetables.

Diet No.3. Indicated for: atonic constipation. The technology of cooking consists of the following: food is cooked in water or steamed in unchopped form, it can be baked; vegetables and fruits can be eaten raw or boiled. The composition of food should mainly include vegetables, fresh and dried fruits, bakery products, cereals, fermented milk drinks. Bread is allowed: wheat from coarse flour, rye and crispbread (soaked); cookies - dry, unsweetened pastries.

Fig.38. Nutrition for Gastritis

Soups are prepared from vegetables in meat broth, cold fruit and vegetable soups, borscht, beetroot soup, cabbage soup from fresh cabbage. Meat dishes should be prepared from lean varieties of various types of meat: chicken, turkey, boiled or baked, in pieces or chopped; dairy sausages.

Fig. 39. Diet No. 3

CLASSIFICATION OF PRODUCTS AND DISHES BY THEIR EFFECT ON INTESTINAL MOTILITY.

According to the classification, dishes that affect intestinal motility are divided into 3 groups (Fig. 40):

Fig.40. Classification of products and dishes by their effect on intestinal motility.

Fig.41. Dishes that enhance intestinal motility

Diet tables for intestinal diseases:

Diet №4. It is indicated for acute intestinal diseases with severe diarrhea and a sharp exacerbation of chronic diseases. The technology of cooking dishes consists of the following: the dishes are prepared liquid and semi-liquid, mashed, boiled in water and steamed, salted normally. Daily food intake - 4 times. Of the drinks allowed are tea without milk, cocoa on water with a small amount of milk. White wheat and gray bread from yesterday's baking, unsweetened bakery products and cookies, white crackers are allowed. Of the snacks allowed are mild cheese, low-fat herring, homemade meat pate. Of the milk and dairy products you can use: low-fat cottage cheese freshly prepared, three-day kefir, acidophilus milk, sour cream as a seasoning. Of fats: fresh butter 5 g per dish, ghee, olive oil. Of egg products - soft-boiled eggs up to one per day and per dish. Soups are prepared on low-fat weak meat and fish broth with the addition of slimy decoctions of cereals (semolina, rice), boiled and mashed meat, steamed quenelles and meatballs, egg flakes, homemade noodles, vermicelli. [33]

Varieties of diet No. 4 are shown in Fig. 42.

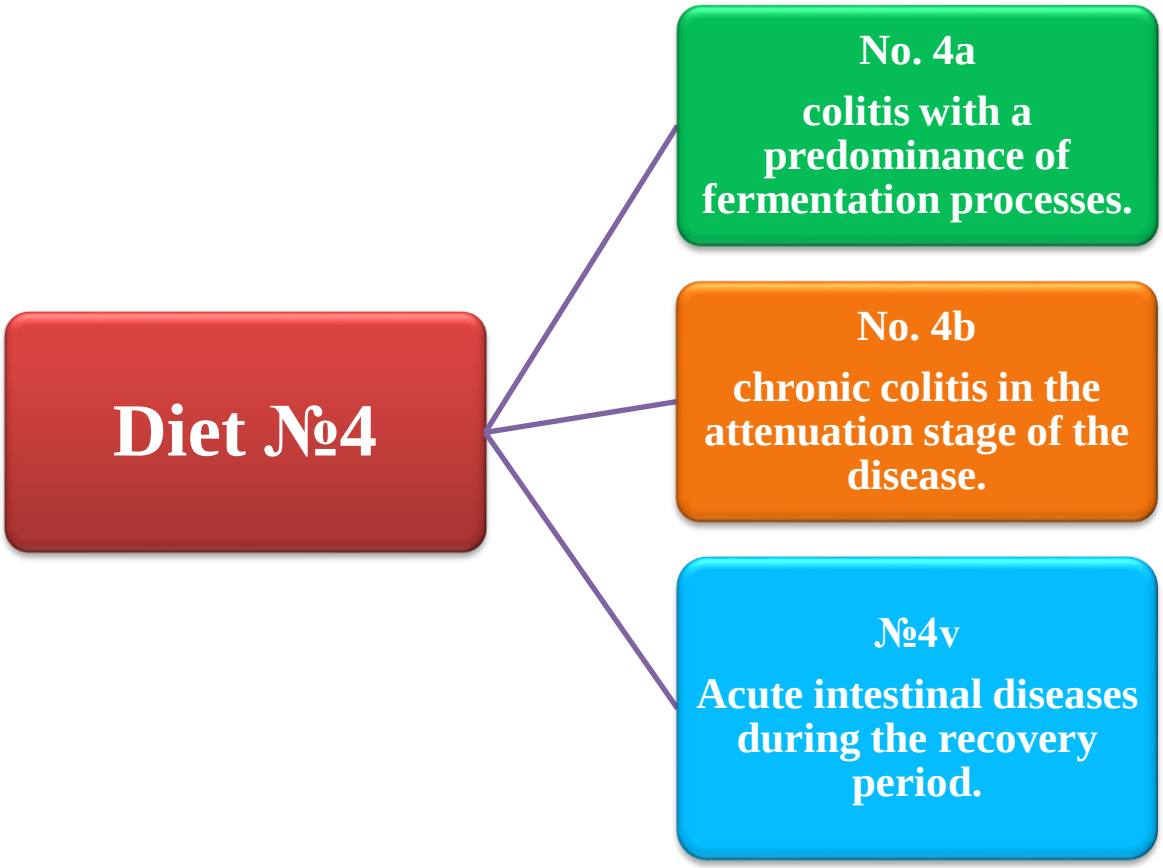


Fig. 42. Varieties of diets №4

Table No. 4a. Products rich in carbohydrates (porridge, bread, sugar) are sharply limited, but the consumption of protein foods (meat dishes, cottage cheese) is increased. Table No. 4b. Boiled, steamed, mashed, mucous food in warm form is allowed, as well as snacks (cheese, bologna, jellied meat and tongue), sauces. Table No. 4c. A complete diet, which is steamed, chopped, can be baked or boiled, with a limitation of salt and a slight increase in protein foods. You cannot eat foods that increase putrefaction and fermentation, increase the secretion of the intestines, pancreas and stomach.

Fig. 43. Varieties of diets №4

Table No. 4a. Products rich in carbohydrates (porridge, bread, sugar) are sharply limited, but the consumption of protein foods (meat dishes, cottage cheese) is increased. Table No. 4b. Boiled, steamed, mashed, mucous food in warm form is allowed, as well as snacks (cheese, bologna, jellied meat and tongue), sauces. Table No. 4c. A complete diet, which is steamed, chopped, can be baked or boiled, with a limitation of salt and a slight increase in protein foods. You cannot eat foods that increase putrefaction and fermentation, increase the secretion of the intestines, pancreas and stomach.

GENERAL NUTRITIONAL RECOMMENDATIONS FOR PATIENTS WITH LIVER AND BILIARY TRACT DISEASES

Fig.44. Nutrition for liver and biliary tract diseases

Recommendations for the diet of patients with liver and biliary tract diseases:

• Sufficient amount of complete, easily digestible protein.

• The quality and quantity of fats depend on the patient's condition (vegetable fats increase with constipation).

• The amount of carbohydrates in the physiological norm, reduced in patients with excess body weight.

• Cooking of food (boiling, chopped or mashed) for maximum sparing of the digestive tract.

• To improve intestinal motility and the choleretic effect of food, use frequent fractional meals with the inclusion in the diet of foods rich in dietary fiber, which remove cholesterol with stool.

Diet No. 5 and its modification diet No. 5a are intended for patients of hospitals and health resorts.

Diet table No. 5

Indications for use

• chronic hepatitis, outside of exacerbation;

• chronic cholecystitis;

• cholecystitis during recovery;

• liver cirrhosis, if there is no functional insufficiency;

• gallstone disease;

• acute hepatitis and cholecystitis during recovery;

• in addition, diet 5 is prescribed if there is no pronounced intestinal pathology.

Diet

• So, diet table number 5: 4-5 times a day in approximately equal portions.

• It is recommended to drink liquid on an empty stomach.

Daily diet (energy value and chemical composition):

• proteins - up to 80 g. (50% of which are of animal origin);

• fats - up to 80-90 g. (30% of which are of plant origin);

• carbohydrates - up to 400 g.;

• liquid 1.5 - 2 liters minimum;

• total energy value - approximately 2400 - 2800 kcal

• Salt intake no more than 10 g.

Fig.45. Diet №5

The diet is indicated for chronic hepatitis with a benign and progressive course; liver cirrhosis outside of exacerbation; chronic cholecystitis; cholelithiasis; acute hepatitis and cholecystitis during the recovery period and other diseases with impaired liver and biliary tract function. Daily food intake is 5 times. Unlimited duration of the diet. Boiled or baked dishes (after boiling) are used, mainly unchopped. [33]

Fig.46. Diet №5a

Table No.5a. Prescribed for acute hepatitis and cholecystitis; exacerbation of chronic hepatitis, cholecystitis, liver cirrhosis. Unlike diet No.5, it is allowed to consume more protein-containing products. The diet limits fats and carbohydrates, as well as dishes that promote increased fermentation and putrefaction in the intestines, including bile secretion stimulants and liver irritants. Foodshouldbewarm, boiledandmashed.

Fig.47. Diet for hepatitis

Cholelithiasis. Recommendations for cholelithiasis. In the diet of patients, it is necessary to limit products containing large amounts of cholesterol - these are offal, eggs, lard.

Fig. 48. Diet for gallstone disease

Due to the fact that vegetable oils have a choleretic effect, their quantity in the diet of patients with frequent attacks of hepatic colic is limited (Fig. 54).

Fig.49. Products that should not be eaten if you have gallstone disease

Because of good emulsification and vitamin A content, patients should consume butter from animal fats. Milk and dairy products that can be used in the diet include: fermented milk products, cottage cheese, and cheese. Vegetables (except pumpkin, legumes, and mushrooms) and berries (except lingonberries and red currants) are prescribed to patients because they alkalize bile. By prescribing patients plenty of fluids, it is possible to reduce the concentration of bile. The diet should include foods rich in magnesium: wheat bran, buckwheat, millet, watermelon, soy, crabs, and seaweed, because they reduce smooth muscle spasms, improve bile secretion, bowel movements, and the removal of cholesterol from the body, and also have a sedative effect (Fig. 55). Patients who are not experiencing an exacerbation of gallstone disease are prescribed diet №5c, and during an exacerbation of calculous cholecystitis, diet №5a.

Fig.50[a]. Products rich in magnesium.

Fig.50[b]. Products rich in magnesium.

NUTRITION FOR ACUTE PANCREATITIS AND EXACERBATION OF CHRONIC PANCREATITIS

In the acute form, when there is a severe digestive disorder, therapeutic fasting, bed rest and applying cold to the area of the affected organ are indicated. Non-irritating drinks are allowed. Taking enzymes at this stage is not necessary, since food does not enter the body. Fasting continues for 2-3 days. During this time, the patient's condition improves and you can gradually switch to a diet. You cannot eat too cold or hot, as well as solid food, dishes should be liquid or semi-liquid, mashed. The menu is mainly carbohydrate, low in components, without spices. As the inflammatory reaction decreases and symptoms decrease, the diet becomes more caloric. The menu should be expanded extremely carefully and gradually, so as not to provoke a relapse. On the 5th day, you can begin to introduce protein foods, as well as a little butter. except for vegetable oils. All dishes should still be boiled or steamed in chopped form. After the attack has been removed and the patient has recovered, it is recommended that he or she eat fractionally for another year, and eat healthy, low-fat foods. After the therapeutic fasting is completed, enzymes can be prescribed. Diet in the acute form of the disease is the most important element of treatment, as it allows you to stop the

process of self-digestion of the gland, relieve inflammation, and normalize the functioning of the digestive organs.

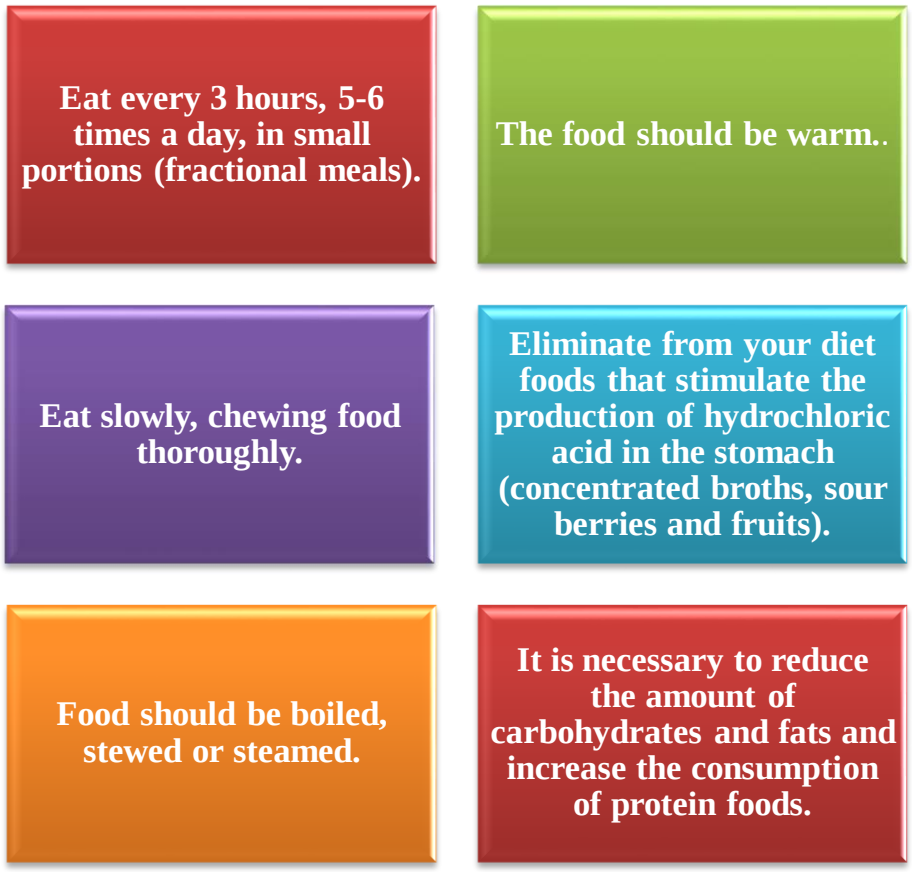


Fig. 51. Basic principles of nutrition outside periods of exacerbation of pancreatitis

CHAPTER IV. DIETARY NUTRITION FOR DISEASES OF THE CARDIOVASCULAR SYSTEM

Diet for atherosclerosis. The alimentary factors in the development of atherosclerosis are as follows: 1) excess energy value of food (over 15% of the norm), in combination with hypo- and adynamia;

2) excessive consumption of animal fats rich in saturated fatty acids; 3) excessive consumption of food containing easily digestible carbohydrates; 4) excessive consumption of animal proteins; 5) excessive consumption of total cholesterol and LDL cholesterol (low-density lipoproteins) with food; 6) lack of vegetable oils containing essential fatty acids in the diet; 7) insufficient intake of dietary fiber; 8) insufficient intake of lipotropic substances (methionine, choline, lecithin) with food; 9) insufficient intake of vitamins (C, P, B6, B12, PP, E, folate) with food;

10) excessive consumption of table salt; 11) insufficient intake of minerals with food: Mg, K, I, Zn, Cr and others; 12) rare and large meals; 13) alcohol abuse. [17,33]

Fig. 52. Balanced nutrition

To prevent atherogenic dyslipidemia, it is necessary to adhere to the following principles of diet therapy (Fig. 53):

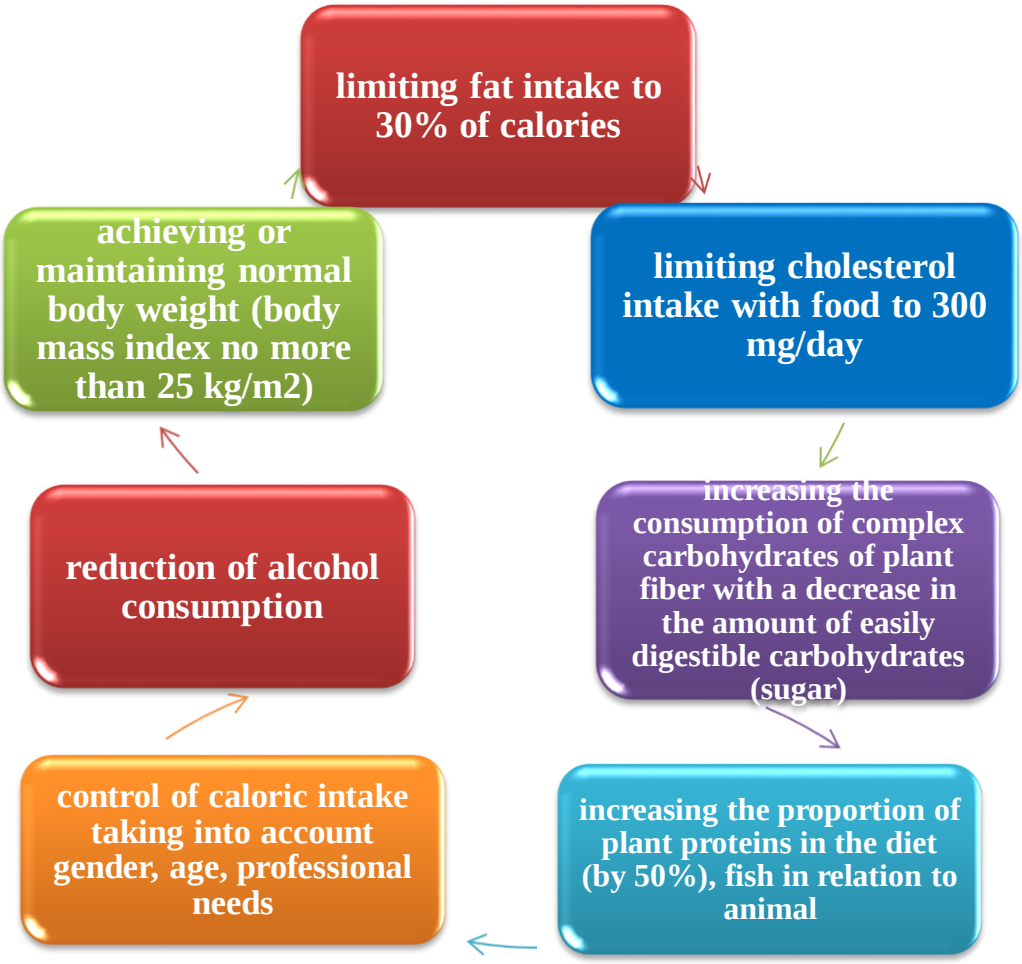


Fig.53. Prevention of atherogenic dyslipidemia

RECOMMENDED DIETARY TABLES FOR CARDIOVASCULAR DISEASES

Diet "table No. 10". Objective: to improve blood flow through the vessels of all organs and systems, as well as to normalize metabolism.

Fig. 54. Preventive nutrition for heart disease.

General characteristics of table №10. Reduction of caloric content by reducing the consumption of fats and carbohydrates. Limitation of salt, liquids (tea, coffee), products that stimulate the cardiovascular and nervous systems (coffee, strong tea, chocolate, fatty, spicy, fried foods) (Fig. 61).

Fig.55. Diet №10

Increase in the content of products (wheat bran, green peas, cucumbers, avocado, carrots, parsley, spinach, apples, watermelon, kiwi, melon, etc.) that contain potassium and magnesium to nourish the heart or prescription of certain drugs by a doctor (cardiomagnyl, etc.). Dailydiet 5-6 times, fractionalmeals.

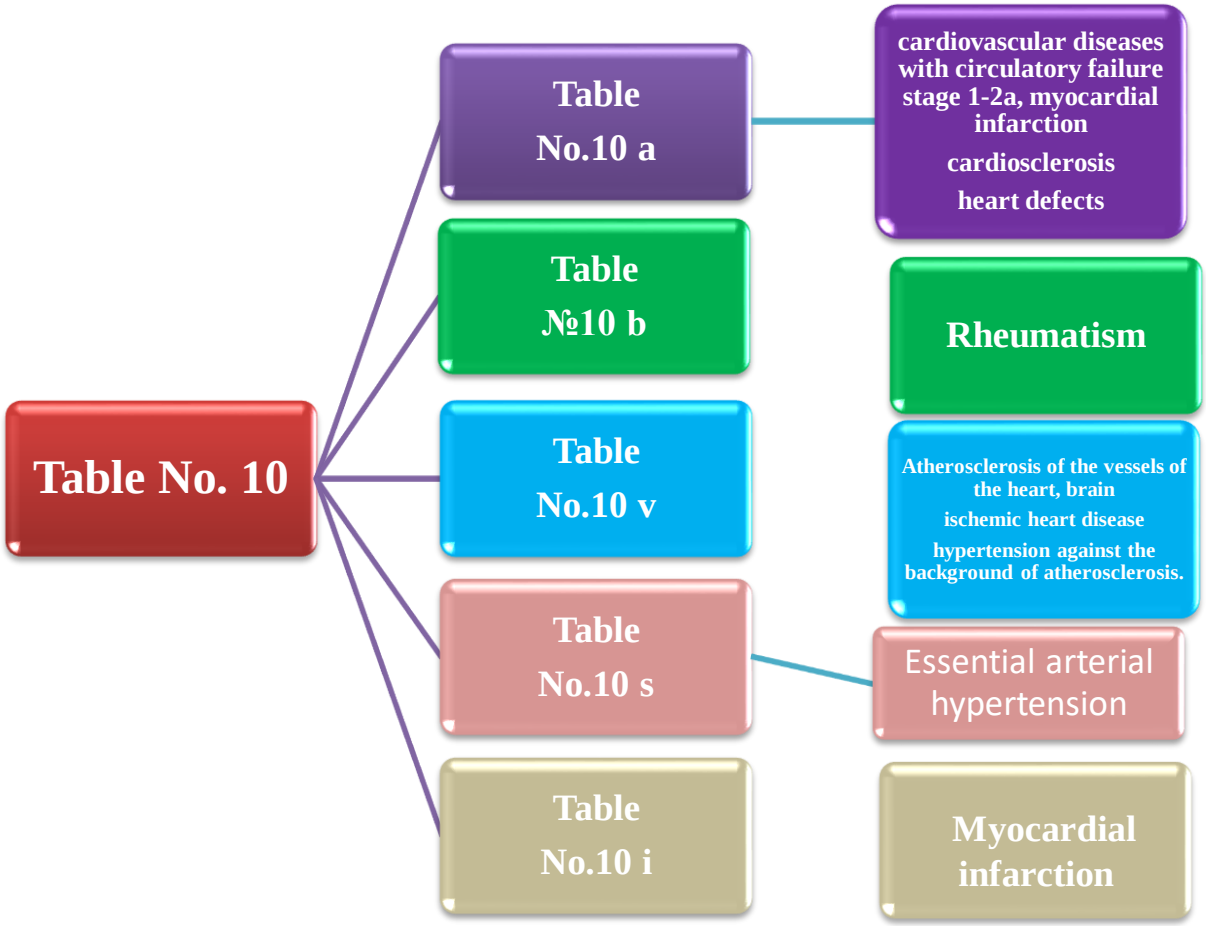


Fig.56. Types of tables in diet №10

Table №10a. The diet is characterized by protein content at the lower limit of the physiological norm, and fats and carbohydrates should be in moderate quantities. The diet fully provides the body with vitamins C, P, PP, B.

Table №10b. A diet with increased protein content and limited easily digestible carbohydrates. Allowed and prohibited products completely coincide with the general table #10. Vegetables are boiled or served raw, and dishes should be at normal temperature.

Table №10c. Dietary nutrition with limited table salt and fats in the diet. Animal fats are replaced with vegetable fats as much as possible. Be sure to include foods rich in ascorbic acid, B vitamins, potassium and magnesium salts in the diet. An abundance of seafood is also useful. Cooking of dishes, diet and restrictions remain in accordance with the basic diet №10.

Fig.57. Hypertension prevention

Table №10g. Salt-free diet. The diet provides for increased content of ascorbic acid, thiamine, riboflavin, vitamin P, magnesium and potassium salts. The diet includes products rich in cell membranes, as well as seafood containing organic iodine, such as seaweed.

Fig.58. Fruits are sources of potassium and magnesium

Potatoes, legumes, vegetables and fruits are the main sources of potassium. Sufficient magnesium intake with food is provided by whole grains, green leafy vegetables, nuts, etc.

Therapeutic diet №10. I for myocardial infarction. The main features of the diet are a decrease in energy value, sparing the digestive system, measures to improve blood circulation and restore the vital activity of the heart muscle. The diet for a heart attack contains three diets, which are successively prescribed by a doctor.

Diet I is prescribed in the first week, during the most acute period of the disease: pureed food is recommended, six meals a day. The caloric content of the diet after a heart attack is 1100-1300 calories, the weight of the diet is 1.6-1.7 kg. Salt is prohibited.

Diet II is used in the second-third week, or in the subacute period: food is consumed in chopped form, six meals a day. The caloric content of the diet is 1600-1800 calories, the weight of the diet is 2 kg. Salt - no more than 3 g.

Diet III is used in the fourth week, i.e. during the scarring period. Food is taken in chopped form and in small pieces in small portions five times a day. With all three diets, products are boiled without adding salt, cold dishes and drinks, the temperature of which does not exceed 15 degrees, are prohibited. The caloric content of the diet is 2100-2300 calories, the weight of the diet is 2.2-2.3 kg. 5-6 g of salt is given on hand.

To prevent coronary heart disease, the diet should include cereals, fruits, vegetables, low-fat dairy products, fish, vegetable oils containing polyunsaturated acids (olive, corn). [17]

DIET PRINCIPLES AND FOOD COMPOSITION FOR CARDIOVASCULAR DISEASES

In case of cardiosclerosis, the consumption of table salt, free liquid, food that stimulates the nervous and cardiovascular systems (alcohol, coffee, strong tea, cocoa), fried meat and fish, garlic, onions, radishes, horseradish, as well as products that promote flatulence (legumes, milk, cabbage); products containing

cholesterol (brains, egg yolks, internal organs of animals) is limited. The diet is salt-free. boiled, baking is allowed. Vegetables and fruits can be eaten raw and boiled.

Fig.59. Vegetables as sources of fiber

In case of rheumatism, substances that stimulate the central nervous and cardiovascular systems (alcohol, coffee, strong tea) should be excluded from the diet; foods rich in cholesterol (kidneys, liver); foods that cause flatulence (legumes, milk, radish, onions, garlic). The caloric content of the diet should be 2300-2600 kcal: vegetable proteins - 40 g, animal - 50 g, fats - 70 g, carbohydrates - 350-400 g (of which sugar no more than 75-80 g).

The diet is salt-free, boiled or steamed. In case of varicose veins, the consumption of salt and liquids is limited; Foods that stimulate the central nervous and cardiovascular systems (alcohol, coffee, strong tea, cocoa, chocolate, spicy foods, seasonings), foods that promote flatulence (cabbage, legumes, carbonated drinks), fatty and floury foods must be excluded. The patient must follow the diet for 3-4 weeks.

CHAPTER V. DIET FOR RESPIRATORY DISEASES

Diet tables prescribed for respiratory diseases. Due to the severe inflammatory process in the respiratory organs, the patient's body needs to increase

the caloric content of food, activate the immune capabilities of the body, strengthen resistance, which can be achieved by including appropriate food products in the diet.

For inflammatory diseases of the lungs, abundant, high-calorie liquid food (soups, purees) is recommended, which should not be cold or too hot, consumed frequently (6-7 times) and in small portions, salt up to 7-8 g.

Fig.60. Soups in the diet of patients

The caloric content of the diet should be 2000-2300 kcal: proteins up to 80-85 g, carbohydrates - up to 300 g and fats - up to 70 g, of which animal fats are over 50%. Dishes are steamed. Carbohydrate foods in the diet of patientsintensify the inflammatory process. At the same time, vitamins (especially A, C and group B) play a favorable role in recovery.

Fig.61. Set of fruit and vegetable juices

Liquid is recommended up to 2-2.5 liters and more, this includes fruit juices, compotes, fruit drinks, kissels, weak tea with lemon or jam, rosehip decoction, as it is rich in vitamins C, K and P, strong coffee, tea, alcohol are not recommended.

Fig. 62. Vegetables and fruits - sources of vitamins

The patient's diet must include milk and dairy products rich in calcium and phosphorus (kefir, sour milk, fermented baked milk, fruit yogurts, etc.), except for fatty cheeses, fatty sour cream and milk.

Fig. 63. Suzma - a source of calcium and phosphorus

Also exclude products that increase gas formation and flatulence (cauliflower and white cabbage, radish, legumes - peas, beans). AccordingtoPevzner, thisis diet №13.

Fig. 64. Diet №13

The diet is indicated for acute infectious diseases; conditions after extensive operations (but not on the gastrointestinal tract).

The diet is designed to activate the recovery and adaptive mechanisms and reparative processes in tissues.

The diet is varied in the set of dishes, but with a limitation of vegetables, milk in free form, spicy dishes, snacks and spices. Food is pureed, boiled or steamed. Meals are taken at least 6 times a day. The diet is usually prescribed for a short time - no more than 2 weeks.

According to the composition of the diet: proteins 80 grams, fats 80 grams, carbohydrates 300 grams, table salt 6 grams; caloric content 2100-2200 kcal.

In the diet of a patient with pulmonary pathology, after the inflammatory process has subsided, changes are made to increase the immune capabilities of the body and restore changes in the lung tissue. This diet corresponds to diet №11 according to Pevzner. [33]

Fig.65. Food set for diet №11

The caloric content of the diet should be 3200 kcal: proteins - 120 g, fats - 110 g, and carbohydrates - 350-400 g. The amount of salt is increased to 12 g, and liquid - to 1.5-2 l.

The diet includes all types of meat, fish, seafood and poultry, excluding very fatty varieties. Cooking canbeany, except fryingand smoking.

Fig.66. Food products for pulmonary pathology

DIETARY NUTRITION FOR SUPPURATIVE LUNG DISEASES

In chronic obstructive pulmonary diseases (COPD), patients are prescribed a high-protein diet (HPD) with high energy value. The caloric content of the diet should be 2080-2690 kcal, with an increased content of complete proteins - 110-

120 g (of which at least 60% of animal origin), fats 80-90 g and carbohydrates within the normal range of 250-350 g (in case of exacerbation of the process, the amount of carbohydrates is reduced to 200-250 g). The diet is aimed at reducing intoxication, increasing immunity, improving the regeneration of the epithelium of the bronchi and lungs, reducing effusion in the bronchi, which is achieved by replenishing the body with proteins, vitamins and mineral salts.

Therapeutic nutrition with a high-protein diet is based on increasing the amount of products in the diet of patients that are rich in vitamins A, C, group B (decoctions of wheat bran and rose hips, liver, yeast, fresh fruits and vegetables, their juices), calcium salts, phosphorus, copper and zinc. To achieve an anti-inflammatory effect, reduce sputum and exudate in the diet, limit the consumption of salt (up to 6 g / day) and free liquid.

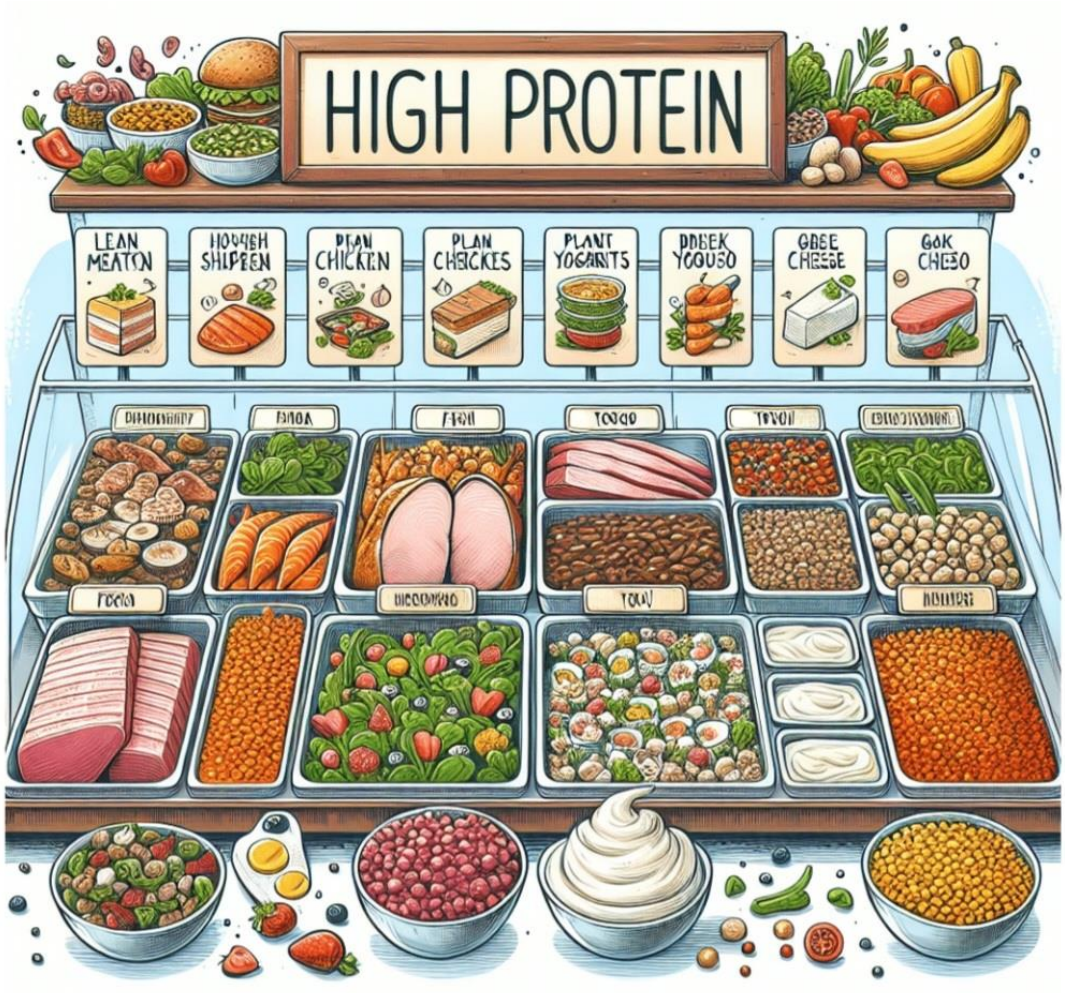


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Fig.67. List of products with high protein content

In case of suppurative processes in the lungs, the caloric content of the diet should be 2900-3000 kcal, which should be increased by proteins. Proteins in the patient's diet should be 120-150 g (more of animal origin), fats are limited to 70 g, carbohydrates 350-400 g, i.e. within the normal range. In case of suppurative diseases of the lungs, it is necessary to limit carbohydrate foods in the diet, since they promote the proliferation of bacteria and prevent the relief of inflammation. To reduce the phenomenon of exudation, limit the consumption of free liquid (daily amount: 1.2-1.4 liters).

Fig.68. Foods with high protein content

The patient's diet must include milk and dairy products rich in calcium and phosphorus, which have anti-inflammatory and desensitizing properties. The daily calcium content in the patient's diet should be 1.5 g or more, magnesium - up to 0.6 g, phosphorus - up to 1 g and vitamins: A - up to 3-4 mg, C - up to 270-310 mg and group B - up to 20-30 mg.

Fig.69. Vegetables and fruits in the treatment of lung diseases

DIETARY NUTRITION FOR BRONCHIAL ASTHMA

Bronchial asthma is an infectious-allergic disease, in connection with this, products causing allergies in the body and provoking an asthma attack are contraindicated in the diet. Due to the large amount of extractive substances in the diet of patients, honey, sweets, chocolate, coffee, cocoa, table salt, pickles, smoked and spicy dishes are limited.

Fig.70. Allergen-causing foods

The energy content of the diet should be 2600-2700 kcal, proteins - 100-130 g, fats - 85 g, carbohydrates - 300 g, 10-11 g of table salt and liquid up to 1.5-1.8 l. Daily food intake 4-5 times.

MAIN TASKS OF THERAPEUTIC NUTRITION IN PULMONARY TUBERCULOSIS

Therapeutic nutrition in tuberculosis depends on the stage of the disease, localization and activity of the process, complications, and the patient's condition. In this case, the nutritionist must take into account the reactivity of the body, the state of the digestive organs, concomitant diseases and complications.

The main principles of therapeutic nutrition for patients with tuberculosis are as follows:

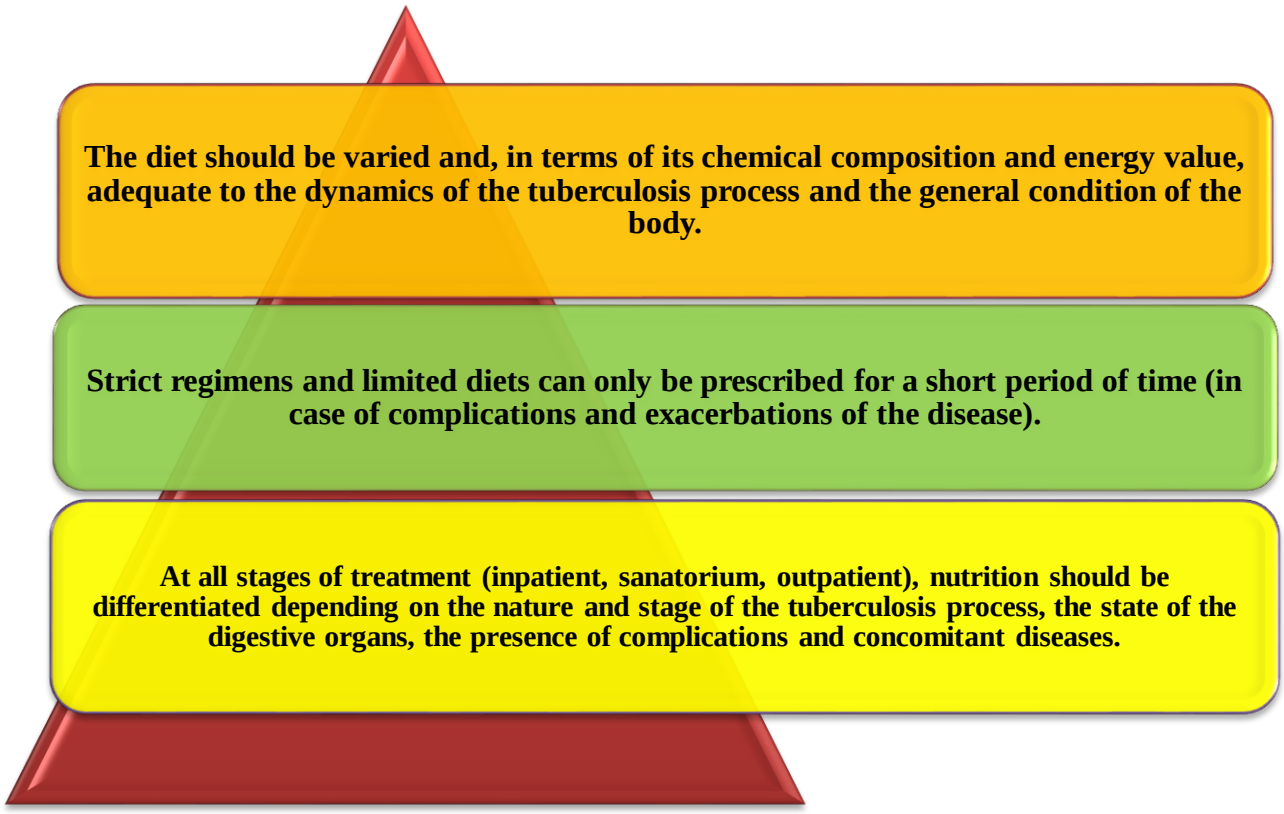


Fig.71. Basic principles of nutrition for patients with tuberculosis

The diet should contain a sufficient amount of nutrients, macro and micronutrients (vitamins, mineral salts). In the patient's body, there is a breakdown of proteins, the consumption of vitamins and minerals, problems with the absorption of fats and carbohydrates, therefore, with tuberculosis, the main thing is to provide adequate nutrition. [20,21,22]

The main tasks of therapeutic nutrition for pulmonary tuberculosis are (Fig.72):

Fig.72. Tasks of therapeutic nutrition in tuberculosis

During exacerbation of tuberculosis and bed rest of the patient, the diet should be - 2500-2600 kcal/day, with semi-bed rest - 2700 kcal; when the exacerbation subsides - 3000-3400 kcal. In case of chronic pulmonary tuberculosis, especially in young people, the caloric content of the diet increases and is - 3600 kkal.

Fig.73. Food set for tuberculosis

Proteins in the diet should be at least 120-140 g, carbohydrates and fats within the physiological norm, i.e. carbohydrates - 450-500 g, fats - 100-120 g (about a third - vegetable). Dailyfoodintake: every 3 hoursinsmallportions.

Fig.74. Therapeutic food for tuberculosis

If the patient's tuberculosis is accompanied by allergic diathesis, bronchial asthma, eczema and other allergic reactions, carbohydrates in the diet are limited to 300-400 g (easily digestible - sugar, honey, jam). With increased diuresis, the patient's fluid intake is increased (900-1000 ml per day). In case of vomiting, diarrhea and severe sweating, the intake of table salt is increased to 15 g/day.

CHAPTER VI. NUTRITIONAL FEATURES IN ENDOCRINE SYSTEM DISEASES

Diet in endocrine diseases. Nutrition in diabetes mellitus. There are two types of diabetes mellitus: type 1 diabetes, or insulin-dependent diabetes (IDD) and type 2 diabetes, or insulin-independent diabetes (NIDD), caused by relative tissue resistance to insulin. Insufficient insulin production by the pancreas is the cause of type 1 diabetes, which accounts for about 10% of patients with diabetes. The disease can begin in childhood, and can also occur against the background of hyperinsulinemia. This type of diabetes accounts for 90%, is more common after the age of 50 and develops against the background of obesity.

Insulin is used to treat IDD, so patients must strictly correlate the amount of carbohydrates consumed and the amount of insulin. Insulin is used extremely rarely in the treatment of type 2 diabetes (TIDD). The main thing is to restore tissue sensitivity to insulin, which is achieved by reducing the patient's weight. Therefore, the main thing is to follow a diet.

According to the recommendations of experts from the American Diabetes Association, treatment of diabetes mellitus consists of the following (Fig. 75):

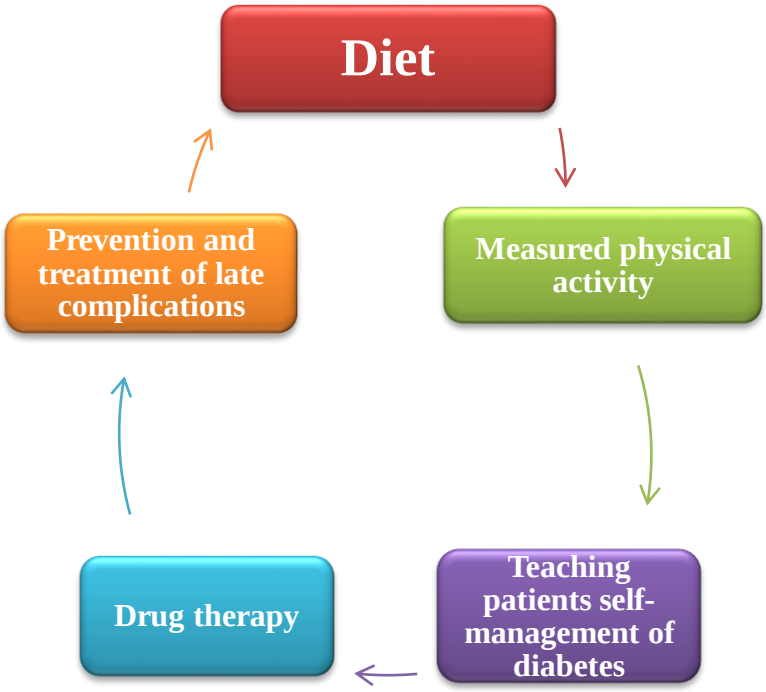


Fig.75. Complex treatment of diabetes mellitus of any type.

Alimentary risk factors for the development of type II diabetes mellitus include excessive fat consumption, therefore, its development prevention is based on body weight and fat consumption control, as well as ensuring a balanced diet in terms of nutrients, starting from childhood.

The energy balance of the diet should be built according to the physiological energy needs of a healthy person, taking into account gender, age, body weight, profession, and lifestyle. Carbohydrate control. The main attention should be paid to the total energy value of the carbohydrate part of the diet. Concentrated carbohydrate products (honey, grapes, mashed potatoes, semolina and rice porridge, etc.) pose a particular danger to patients, therefore, when choosing products, patients should know high-carbohydrate and low-carbohydrate foods.

Classification of plant products (by carbohydrate content per 100 g of product) (Fig.76):

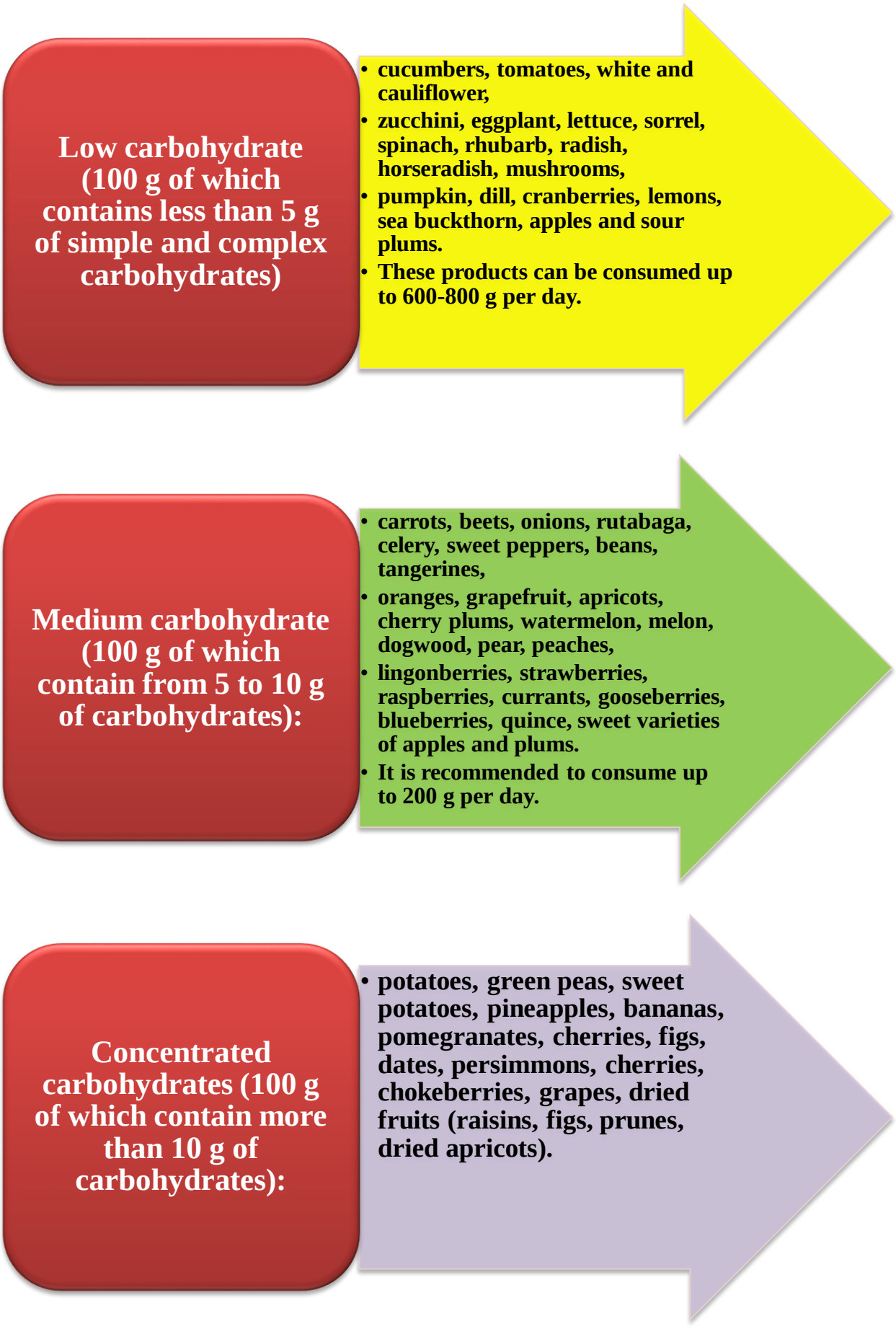


Fig.76. Plant products by carbohydrate content

Fat control. Patients with NIDDM should constantly monitor their weight, since body weight plays a critical role for them, so they should consume a low-fat (20-30%) and relatively high-carbohydrate (60%) diet. For patients with NIDDM, fat intake does not matter, since they often have normal weight.

Fig.77. Buckwheat porridge

About protein consumption. To ensure sufficient energy value in the diet of patients, the amount of proteins is: 16-20% (55% - animal proteins).

The daily diet for patients is 6 times a day: 25% is the first breakfast, 10-15% - the second breakfast, 25% - lunch, 5-10% - afternoon snack, 25% - first dinner and 5-10% - second dinner.

Fig.78. Pumpkin for dietary nutrition

DIETS №8, 9.

Diet №9. This diet is prescribed to patients with diabetes in hospital conditions. Indications: mild to moderate diabetes; establishing carbohydrate tolerance; selecting doses of insulin or other drugs. Diet: 5-6 times a day Duration of prescription: sometimes for life. Nutritional features: food is mainly boiled, steamed, baked, which contains easily digestible carbohydrates and animal fats.

№sugar or sweets, instead of sugar - xylitol, sorbitol, aspartame. For obese patients with diabetes, the therapeutic nutrition coincides with diet №8 - for obese patients.

Fig.79. Set of products for diabetes

Obesity (corpulence, lipomatosis) is an excessive accumulation of fat in the body and its deposition in tissues and organs. Body weight increases by 20% or more of the average weight. This leads to diseases of the musculoskeletal system (joints and spine suffer), sexual disorders, and also causes great discomfort to a person. People prone to obesity have a several-fold increased risk of developing diseases such as hypertension, atherosclerosis, stroke, myocardial infarction, kidney and liver disease. Many diseases in obese people are more severe and longer lasting. There is a high risk of complications. The main method of treatment is strict and systematic adherence to a diet and physical exercise (therapeutic gymnastics), matching the caloric content of food to the body's energy expenditure.

Fig.80. Buckwheat in the diet of patients

Based on this, it is necessary to reduce the consumption of high-calorie and easily digestible products (white bread, confectionery, pasta, potatoes, sweet berries and fruits, sugar, honey, jam) in the diet. Limit water consumption, do not drink alcohol, beer. The patient's diet must include vegetables, greens, unsweetened fruits and berries, since they contain carbohydrates and contribute to the feeling of satiety in the body.

Table №8. Indications: obesity as the main disease or concomitant with other diseases that do not require special diets.

The caloric content of the diet should be 1600-1800 kcal: proteins - 100-150 g, fats - 80-90 g (vegetable - 50%), carbohydrates - 120-150 g. In case of severe obesity, a diet of 1200 kcal is prescribed and only in hospital conditions. The amount of table salt to 3-5 g and limit products and dishes that stimulate the appetite (pepper, mustard, garlic). The amount of free liquid to 1-1.2 l. The total daily amount of food should be divided into 5-6 meals. Durationofprescription: long-term.

Fig.81. Soups for fasting meals

Food is mainly boiled, stewed, baked. Limit consumption of fried, mashed and chopped products. Alcohol is excluded. The diet should contain up to 400-500

g of protein products (fish, meat, cottage cheese, etc.). Seafood is recommended.

Fig.82. Low-calorie vegetables rich in fiber in the diet of patients

It is necessary to eat vegetables in large quantities, because they are rich in fiber. Of the fruits, low-calorie watermelon pulp is useful (100 g of watermelon contains about 38 kcal).

FASTING DAYS, TYPES, FEATURES

Diet No.8. Types and characteristics of fasting days. Diet No. 8 necessarily uses fasting days, which normalize the metabolism in the patient's body, facilitating and improving the functions of organs and systems, through a gentle regimen. When prescribing fasting days, the nature of the disease and the patient's tolerance are taken into account.

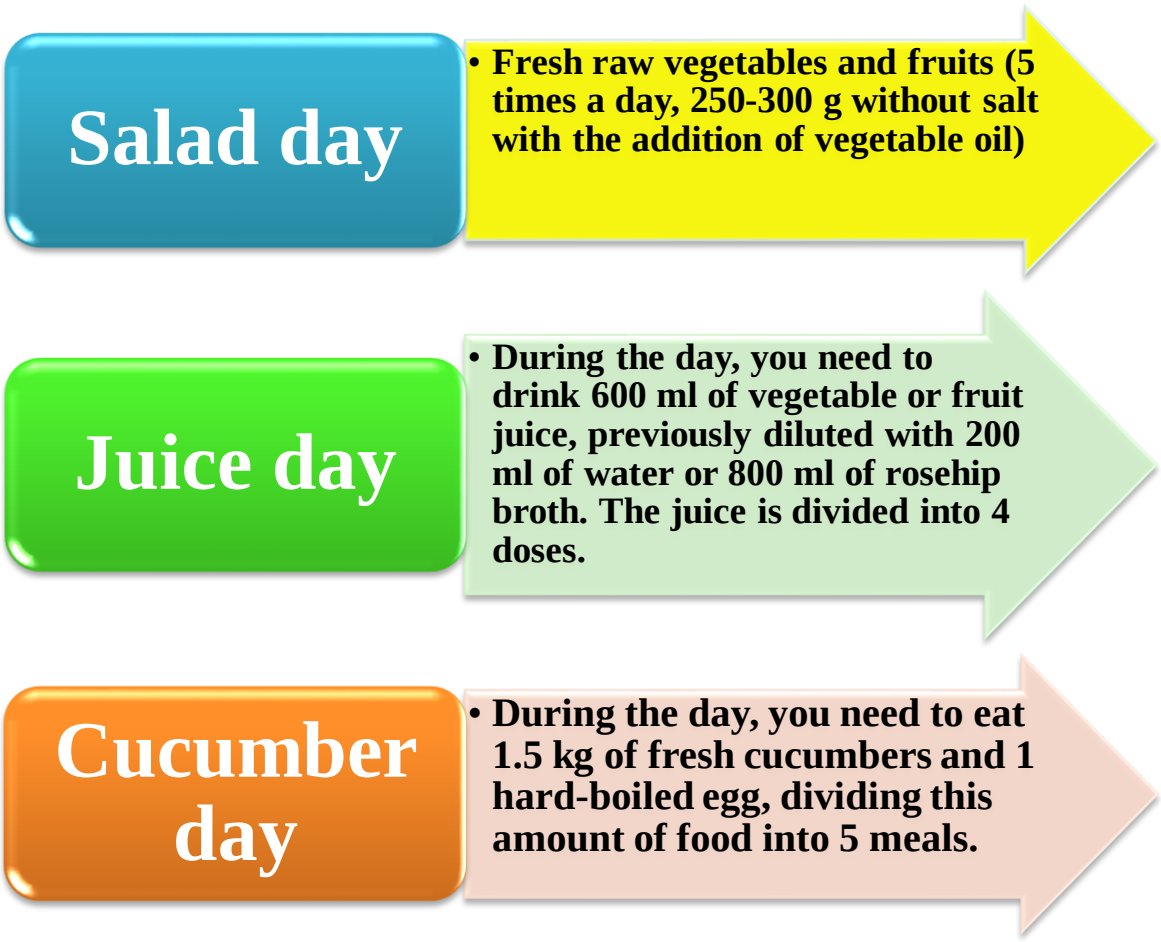


Fig.83. Examples of fasting days and their characteristics.

Fig.84. Juices on fasting days - blueberry

Duration of administration: 1-2 days and 1-2 times a week. The total daily amount of food should be divided into 5-6 meals. The caloric content shouldbe 600-1000 kkal.

Fig.85. Healing tea

CHAPTER VII. THERAPEUTIC-DIETARY NUTRITION FOR DISEASES OF THE URINARY SYSTEM

Dietary nutrition occupies a central place in the complex treatment of renal pathology. Due to the fact that kidney diseases occur with metabolic disorders, the patient needs a special gentle diet that will restore the body's water-salt balance. The daily diet is 4-6 times, salt-free food, patients with renal failure are an exception, they are given no more than 2-3 g of salt per day, and 0.8-1 liter of liquid per day.

A strict diet or table No. 7 is prescribed to patients with chronic renal failure, nephrotic syndrome or glomerulonephritis. For other pathologies, excessive dietary restrictions are not required. It is enough to reduce the consumption of salt, spices, hot seasonings and be sure to exclude alcohol. The main principles of proper nutrition for diseases in this area are limiting the consumption of protein, salt, reducing the caloric content of dishes. It is also necessary to arrange fasting days.

Fig.86. Basic requirements for diets

DIETS FOR PATIENTS WITH KIDNEY DISEASES AND RENAL FAILURE

Diets No. 7, 7a, 7b, 7c, 7d, 7r have been developed for kidney diseases.

Basic principles of diet construction. A strict diet, or table No. 7, is often prescribed to patients with chronic renal failure, nephrotic syndrome or glomerulonephritis. In other cases, strong changes in nutrition are not required. However, it is still recommended to limit the consumption of protein, salt, spices and alcoholic beverages. And patients taking diuretics should increase the amount of foods rich in potassium.

Reduced protein intake.

Protein is an essential building material for cells. However, in kidney disease, the body is unable to fully process this macronutrient. Therefore, protein restriction is an important aspect of therapeutic nutrition. Patients are advised to choose lean meats and fish. It is also advisable to cook food without oil. In chronic renal failure, the amount of protein per day should be limited to 20-50 g, depending on the severity of the disease and the patient's body weight.

Limit salt and sugar. Large amounts of sodium (salt) lead to fluid retention in the body and increased blood pressure. This has a negative impact on kidney health. It is advisable to limit the amount of salt to 2-4 g per day.

Regulate fluid intake. The recommended amount of fluid depends on the type and stage of the disease.

Recommended products. Vegetables and soups. Patients are recommended to eat cereal and milk soups, as well as raw or boiled vegetables. Meat and fish. It is better to choose lean fish, meat, and poultry. It is better to boil and chop or mash the products. Bread and cereals. Patients can eat bread: white, gray, with bran, baked without salt. Cereals and pasta are also allowed in the diet. Dairy products. Milk, fermented milk products, and cottage cheese are healthy products for kidney diseases. Fruits and berries. Berries and fruits such as dried apricots, dried apricots, pumpkin, watermelons, and melons are also included in the list of recommended products. However, they should be eaten in moderation.

Prohibited foods. Fatty meats (lamb, pork, beef) and sea fish; legumes, mushrooms; pickles, snacks, smoked and canned foods; onions and garlic; hot spices (such as pepper and mustard); chocolate, cakes; carbonated drinks and strong coffee.

Fig.87. Diet №7

A diet for renal failure is characterized not only by limiting spicy foods, spices and alcohol, but also protein, which helps improve the patient's condition.

On the recommendation of a doctor, some protein products (eggs, lean meats, poultry, fish) can be included in the patient's diet.

In diet №7, the following are completely excluded: broths (meat, fish and mushroom, bean broths), fried and stewed dishes, sauces, sausages, hot dogs, smoked meats, canned goods, cheeses, onions, garlic, radishes, radishes, sorrel, spinach, pepper, mustard, horseradish, salted, pickled and fermented vegetables, mushrooms, strong coffee, cocoa, chocolate.

Diet table №7a is aimed at maximum kidney sparing, which is achieved by unloading protein metabolism, increasing urination, by sharply limiting protein and liquid intake in food and minimal consumption of table salt (0.5 g per day). Diet №7 allows: milk, unsalted butter, cream, sour cream, various dishes made from cereals and pasta without salt, vegetables and fruits, berries, sugar, unsalted white bread. **Diet №7** completely excludes: table salt, meat and fish of all kinds, legumes, extractive substances. Caloric content of the diet: 2000 kcal, proteins - 25 g, fats - 60 g, carbohydrates - 350 g, daily ration of food intake 4-5 times, liquid up to 0.5 l per day (in the form of drinks and liquid dishes).

Diet table №7b is aimed at maximum sparing of the renal parenchyma, increasing the amount of urine and providing an anti-inflammatory effect. The caloric content of diet №7b is slightly increased compared to table №7a and is 2400 kcal, proteins - 55 g, fats - 75 g, carbohydrates - 400 g, daily ration of food intake 5 times, free liquid up to 0.6 l per day (in the form of drinks and liquid dishes).

Diet table №7v is prescribed for nephrotic syndrome with a sharp restriction of salt intake, proteins with the exclusion of products that irritate the kidneys (Fig. 95). The caloric content of the diet should be 2900 kcal, proteins - 120 g (50% - animal origin), 75 g fat (1/3 - vegetable origin), 450 g carbohydrates, daily ration of 6 meals, free liquid up to 0.7 l per day, table salt up to 2 g per day.

Fig. 88. Diet for nephrotic syndrome

Diet table №7g is prescribed for terminal conditions of chronic renal failure (while on hemodialysis - artificial kidney). Caloric content of the diet is 3000 kcal, proteins - 60 g (75% - animal origin), fats - 110 g, carbohydrates - 450 g, daily ration of food intake 6 times, free liquid up to 0.7 l and table salt up to 2 g per day.

Diet table No. 7r is prescribed for hyperuricemia. It is necessary to reduce sodium-rich foods in the diet. The caloric content of the diet should be 2800 kcal: 70 g of proteins (75% of plant origin), fats - 90 g, carbohydrates - 400-450 g, daily ration of food intake 6 times, salt-free diet. Diet table №7 is prescribed after table №7b. Its main goal is moderate sparing of kidney functions. The table is indicated for the abatement of acute and exacerbation of chronic processes in the kidneys. The caloric content of the diet is about 3000 kcal, proteins - 80 g, fats - 100 g, carbohydrates - 430 g, free liquid up to 0.8 l, and total - up to 1.5 l, on the recommendation of a doctor, salt is given to the patient up to 5 g per day. Diet table №7 is a transitional one to general nutrition.

NUTRITION FOR PYELONEPHRITIS

Diet therapy for pyelonephritis, i.e. inflammatory diseases of the urinary tract, is of an auxiliary nature. When the process in the kidneys becomes chronic, the diet is close to that of a healthy person, and when the disease worsens, the

patient is prescribed only plenty of fluids (at least 2 l/day) and, depending on the pH of the urine, a correction is made to the patient's diet.

Diet for pyelonephritis. Diet for pyelonephritis is one of the important factors in treatment, largely determining the further course of the disease. The goal of the diet is to achieve stable remission or complete cure of the disease, avoid repeated exacerbations and the transition of the disease to a chronic form. Therapeutic nutrition allows you to reduce the load on the kidneys by regulating the amount of salt, irritants and liquid in the diet. In acute pyelonephritis, which occurs with impaired nitrogen-excreting function of the kidneys, the content of proteins, water, and salt is limited. A gentle dairy-vegetable salt-free diet is prescribed.

The following are excluded: alcohol, salted, smoked, pickled products, strong coffee, cocoa, chocolate, and spicy extractive substances. All refractory fats are not allowed - mutton, beef, pork. Soy, peas, lentils, and beans are limited.

Allowed: milk and dairy products, lean meat and fish in small quantities, one egg per day. Vegetables - zucchini, potatoes, lettuce, beets, cauliflower, carrots, tomatoes, fresh cucumbers. Pasta and cereals are used to prepare dietary dishes.

Recommended: juices, fruits, vegetables, berries in any form, especially those containing potassium - watermelons, dried apricots, dried apricots, grapes, melon, pumpkin, strawberries.

Diet for chronic pyelonephritis.

The principle of the diet for chronic pyelonephritis differs from the previous one by increasing the amount of water consumed to 2 liters, protein to 80 g. The recommended amount of carbohydrates is no more than 350-400 g, fats - 70 g per day. Salt consumption is determined by the patient's condition, completely excluded or partially limited. Meals 5-6 times a day, the caloric content of the daily diet should not exceed 2270-2370 kcal.

The weekly menu includes milk, fruit and vegetarian soups, various types of porridges on water and milk, vegetable, pasta, cereal casseroles, omelettes, meat dishes are prepared from lean beef, poultry, rabbit. Potatoes, pasta, vegetable

dishes, porridges with white sauce, vegetable gravies are used as a side dish. Weak coffee, tea, jelly, juices, dried fruit compotes are allowed as drinks.

Fig.89. Allowed and prohibited food products for pyelonephritis

A diet for pyelonephritis is necessary first of all to relieve the kidneys and improve their function. It is necessary: to reduce or prevent the occurrence of edema, normalize blood pressure, reduce the tendency to inflammatory processes, which can be achieved primarily by reducing protein in the diet (meat and offal), salt, hot spices, pickles, smoked meats. Nutrition for pyelonephritis completely excludes: sausages, hot dogs, frankfurters; smoked meats and pickles; carbonated drinks, snacks, fast foods, fish, caviar, rich broths, especially meat. The therapeutic diet for pyelonephritis (acute or exacerbated) is mainly dairy and vegetable, but does not exclude a small amount of boiled meat and fish. It is necessary to drink plenty of fluids in the absence of medical contraindications. This will help to replenish the loss of fluid in the body, flush the urinary tract, and improve the elimination of toxins.

The diet of patients with acute and severe exacerbation of chronic pyelonephritis with signs of intoxication includes 1–2 fasting days (vegetable, fruit, melon).

Fig. 90. Weak tea with lemon

Depending on the pH of the urine of patients with cystitis and pyelocystitis, a correction is made to the diet. Patients are recommended to drink a lot of liquids, prohibited: foods that irritate the urinary tract (vegetables rich in essential oils, foods with a high content of oxalates, spices, strong broths).

NUTRITION IN CHRONIC RENAL FAILURE

Low-protein, hyposodium diets 7a and 7b are used in patients with renal failure. **"Table No. 7a".** This diet is prescribed for the first period of treatment during an exacerbation of the disease. Most often, this table is prescribed for acute forms of chronic nephritis and glomerulonephritis. The main tasks of the diet are to reduce the load on the kidneys and reduce overall swelling.

In the future, the patient receives mainly a diet close to vegetarian, since it is necessary to greatly reduce the consumption of protein products. On the day when there is a small amount of fermented milk products in the menu, any other protein product should be excluded from the diet. You can eat cereals in limited portions. Strictly prohibit the consumption of any legumes and rich broths. [28]

The level of liquid consumed per day should be under special control - about 400 ml. You cannot drink carbonated drinks, but you can - herbal decoctions, chicory, weak tea, natural juices.

Fig. 91. Sample diet menu

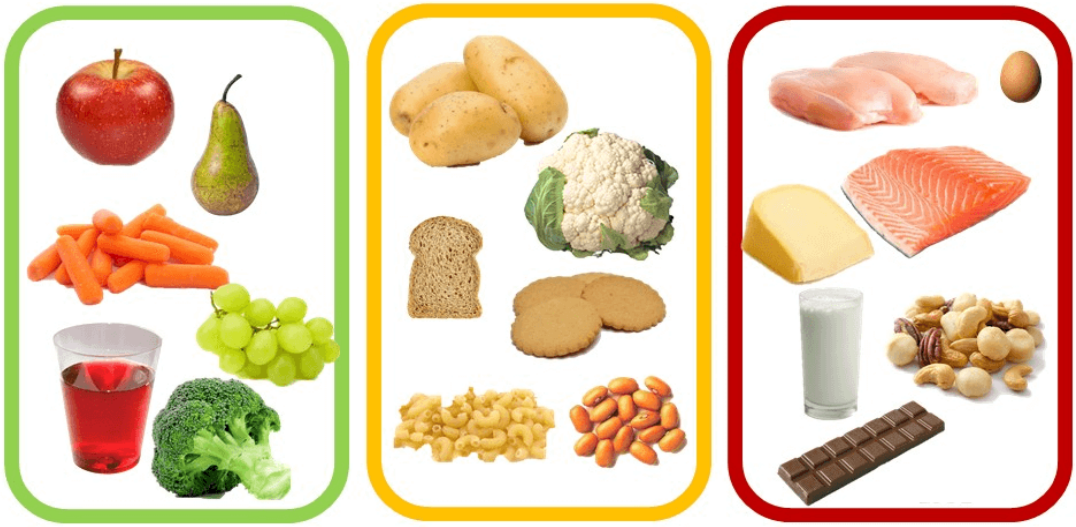
A low-protein diet limits protein to 0.3–0.8 g/kg of body weight (i.e. 20–60 g/day), table salt (1.5–3 g/day), and liquid (0.8–1l).

Reducing the amount of protein in the diet of a patient with CKD contributes to: - reducing the load on the nephrons → slowing down the progression of CKD → reducing proteinuria, - more effective control of blood pressure,

- reducing the risk of hyperphosphatemia (sources of animal and plant protein are closely related to phosphorus). In a diet with protein restriction to 0.6 g / kg of the patient's body weight, at least 60% should be protein of animal origin as the most complete in terms of the content of essential amino acids (AA). Of the plant proteins, soy protein is recommended, which is close to animal protein in terms of the spectrum of essential AA.

Fig. 92. Composition of a low-protein diet

In a low-protein diet, protein is mainly of animal origin. The energy value of the diet is provided by fats and carbohydrates, the amount of which is close to the physiological norms of a healthy person, the diet is salt-free.



Allowed **Restricted** **Prohibited**

Fig.93. Food for kidney failure for heart health

Basic principles of nutrition for patients

Fig. 94. Principles of nutrition for patients

NUTRITION FOR UROLITHIASIS

Depending on the type of stones, nutrition for kidney stones will have its own characteristics. However, there are several basic principles of nutrition that should be followed regardless of the composition of the stones.

The basic principles of nutrition for kidney stones are as follows (Fig. 95):

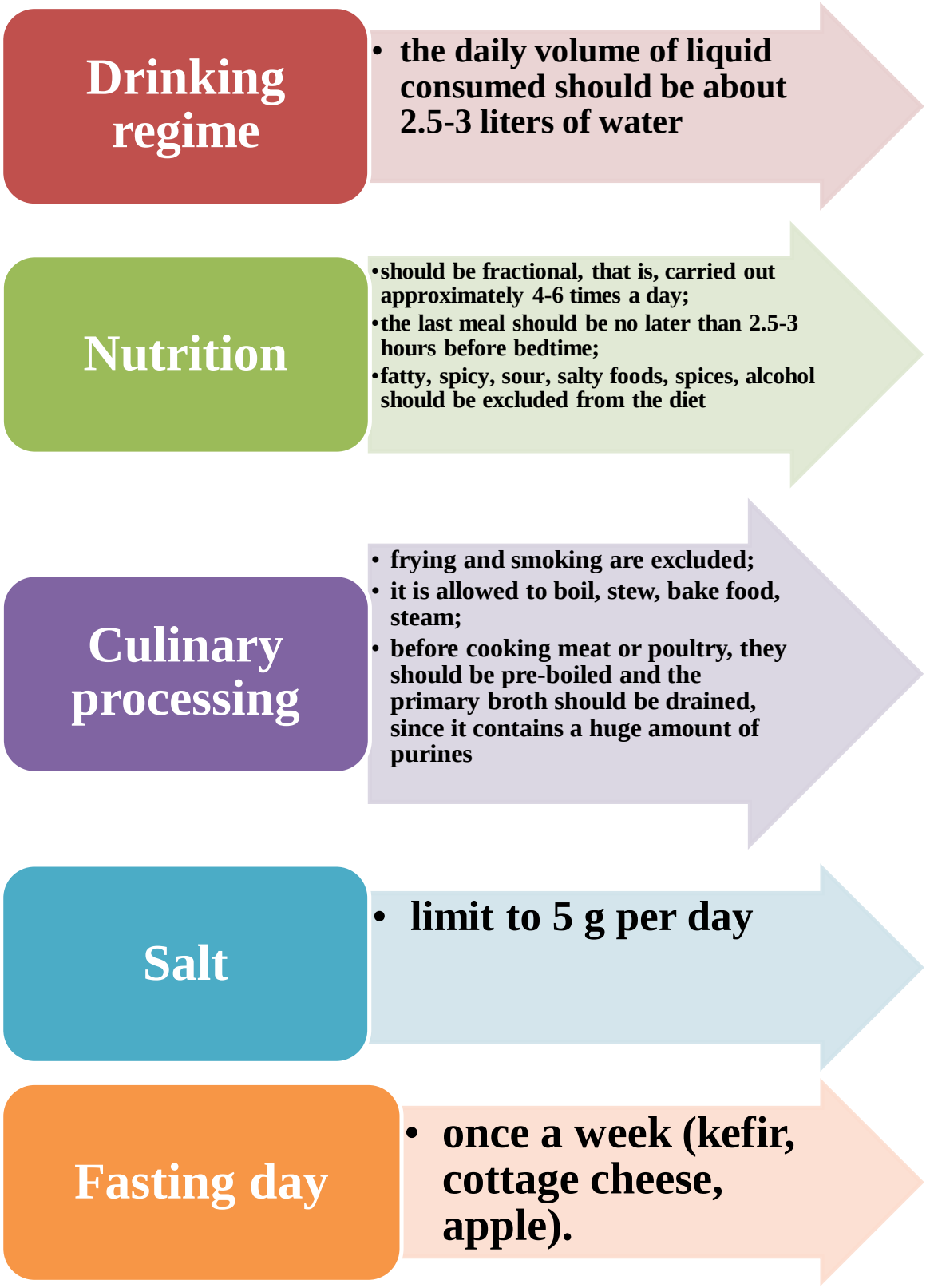


Fig. 95. Basic principles of nutrition for kidney stones

When choosing a diet, it is important what salts the calculus(es) consists of.

Table-5

Features of nutrition for patients with urolithiasis depending on the type of stones: oxalates, urates, phosphates.

Types of salts limit consumption	Excluded from the diet	Itisnecessaryto	Healthy products	Mineral water
OXALATES	Sub-fruits (liver, kidneys, brains, tongue); aspic; radish; spinach; sorrel; lettuce; rhubarb; horseradish; soybeans; plums; gooseberries; cocoa; coffee; chocolate.	Meat and fish broths; fried meat and fish; ham; sardines, sprats; eggs; dairy products; potatoes; beets; tomatoes; peas; beans; berries.	Products that help remove oxalic acid from the body: apples, pears, quince, dogwood, apricots, peaches. Rosehip, grape leaf and blackcurrant decoction. Fish oil. Butter, animal, vegetable. Cereals. Boiledmeat, fish. Honey. Lemon. Teawithmilk.	Low-mineralized water: Essentuki No. 20, Naftusya, Sairme.
PHOSPHATES	Dairy products (milk, cheese), egg yolk.	Potatoes, green vegetables, berries (gooseberries, strawberries).	Meat, fish, all kinds of cereals, butter, all types of vegetable oils, protein omelet, sugar, tea with milk, legumes, currants, pears, grapes.	Mineral waters that promote urine oxidation are recommended: "Naftusya"; "DolomitnyNarzan"; "Arzni".
URATES	Meat and fish soups; fried, stewed and smoked meat and fish; canned goods; jellied meat; offal; vegetables containing purines (sorrel, spinach, peas, бобы); чай, кофе, крепкиенапитки.	Foods with a high content of purines and promoting urine oxidation. Meat and fish are recommended no more than 2 times a week, low-fat varieties, boiled, portions no more than 200 grams.	Dairy products (sour cream, cottage cheese, kefir, yogurt); any vegetables, berries and fruits; lemons are useful; cereals, white and black bread; butter and vegetable oil; carrot and beetroot juice; weak tea with milk.	Alkaline mineral waters are recommended: for example, Essentuki No. 4, No. 17; Borjomi; Smirnovskaya.

CHAPTER VIII. NUTRITIONAL FEATURES OF PREGNANT WOMEN, WOMEN IN LABOR, AND LACTATING WOMEN

Rational healthy nutrition of the mother during pregnancy plays an important role in the course of pregnancy, normal development of the fetus and a favorable outcome of childbirth. It is important for a pregnant woman from the moment of conception to childbirth. There are the following three principles of rational nutrition of pregnant women (Fig. 96):

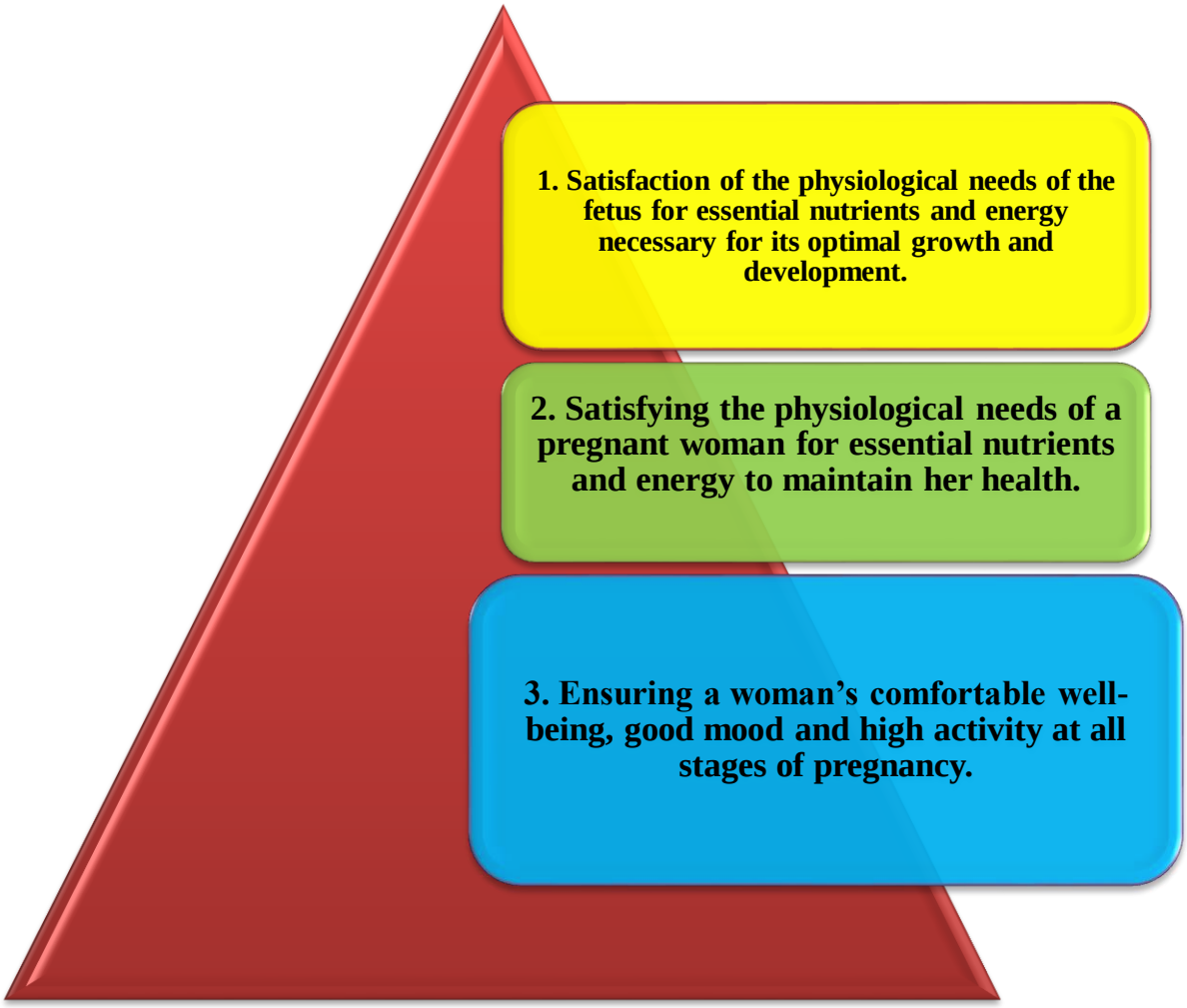


Fig. 96. Basic principles of rational nutrition for pregnant women

The health status and risk factors of a pregnant woman are assessed by a nutritionist based on the following (Fig.97):

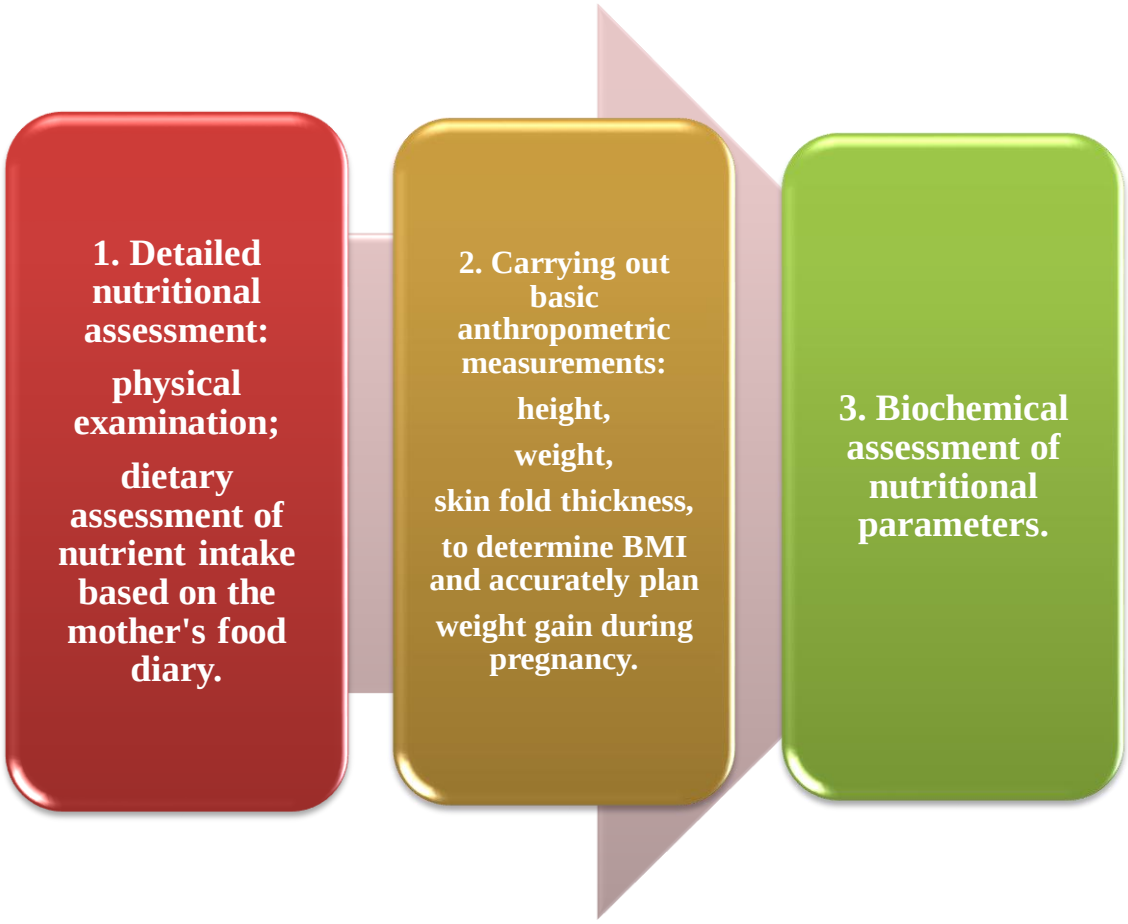


Fig.97. Tasks of a nutritionist to assess the nutrition of a pregnant woman

IMPACT OF THE MOTHER'S NUTRITIONAL STATUS ON THE OUTCOME OF BIRTH

An effective method of preventing pregnancy pathology and preventing the development of intrauterine diseases of the fetus is to create a balanced diet at the stage of pregnancy planning and in its early stages.

One of the important conditions for a woman's health, the normal course and successful outcome of pregnancy, ensuring adequate growth, development of the fetus and newborn is rational nutrition. Poor nutrition of a woman during pregnancy can cause the development of anemia, gestosis, fetoplacental insufficiency and fetal growth retardation. Macro- and micronutrient deficiencies in the nutrition of a pregnant woman negatively affect the weight and length of the fetus. [37]

Significant disruption in fetal development occurs with prolonged starvation and irrational nutrition of the pregnant woman. This may include the likelihood of the birth of a large fetus with the ensuing consequences.

Proteins. Protein deficiency is reflected in the delay in development and weight loss of the fetus, as well as internal organs (weight of the brain, liver, heart, etc.). Lack of protein in a woman's diet can be the cause of spontaneous abortions, premature births, and increases mortality.

Fig.98. A set of products containing protein

Fats. The composition of fat in the diet of a pregnant woman is also important for the intrauterine development of the fetus. The fetus may have changes in the nervous system due to a lack of polyunsaturated fatty acids (linoleic and linolenic) in the diet.

Carbohydrates. The predominance of easily digestible carbohydrates in the diet of a pregnant woman may be the cause of intrauterine fetal death.

Fig.99. Milk dairy products for fetal development

Vitamins and minerals. Vitamins (especially vitamins of group B (B1), D) and minerals in the diet of a pregnant woman are important for the intrauterine development of the fetus. Deficiency of vitamin B I and minerals can cause abnormalities of the organs and systems of the fetus and even its death, and deficiency of vitamins B6 and B12, as well as iron, can cause anemia in the pregnant woman and the fetus. Deficiency of vitamin B6 often leads to toxicosis and contributes to the destruction of the tooth enamel of the pregnant woman.

Fig. 100. Set of products containing vitamins

The cause of premature births, miscarriages, and the birth of handicapped children is influenced by a lack of vitamin C in a woman's food. If there is an excess of vitamin C in the diet, it can cause abortion in a pregnant woman.

Fig.101. Fruits rich in vitamin C

Folic acid plays an important role in the diet of a pregnant woman, if there is a deficiency, children with low weight and nervous system diseases may be born. Therefore, an adequate amount of it should be included in the diet of a pregnant woman already in the first six weeks.

Fig. 102.A set of vegetables and greens in the diet of pregnant women.

Also, a deficiency of zinc, copper, magnesium, cobalt, selenium, etc. in the pregnant woman's food products contributes to a decrease in the growth rate and weight of the fetus and the development of its deformities.

Fig.103. Food products in the diet of a pregnant woman containing iron

A lack of magnesium in the diet of a pregnant woman leads to the destruction of tooth enamel, which results in caries. For normal development of the fetal skeleton, the ratio of phosphorus and calcium in the diet of a pregnant woman should be 1: 1.5.

Fig.104. Wholesome food in the diet of a pregnant woman.

A common cause of complications in the second half of pregnancy is excessive salt consumption, which contributes to fluid accumulation, the development of edema, and increased blood pressure.

The cause of gestational pathology, impaired fetal maturation, and thyroid insufficiency is a lack of the trace element iodine in the diet of a pregnant woman.

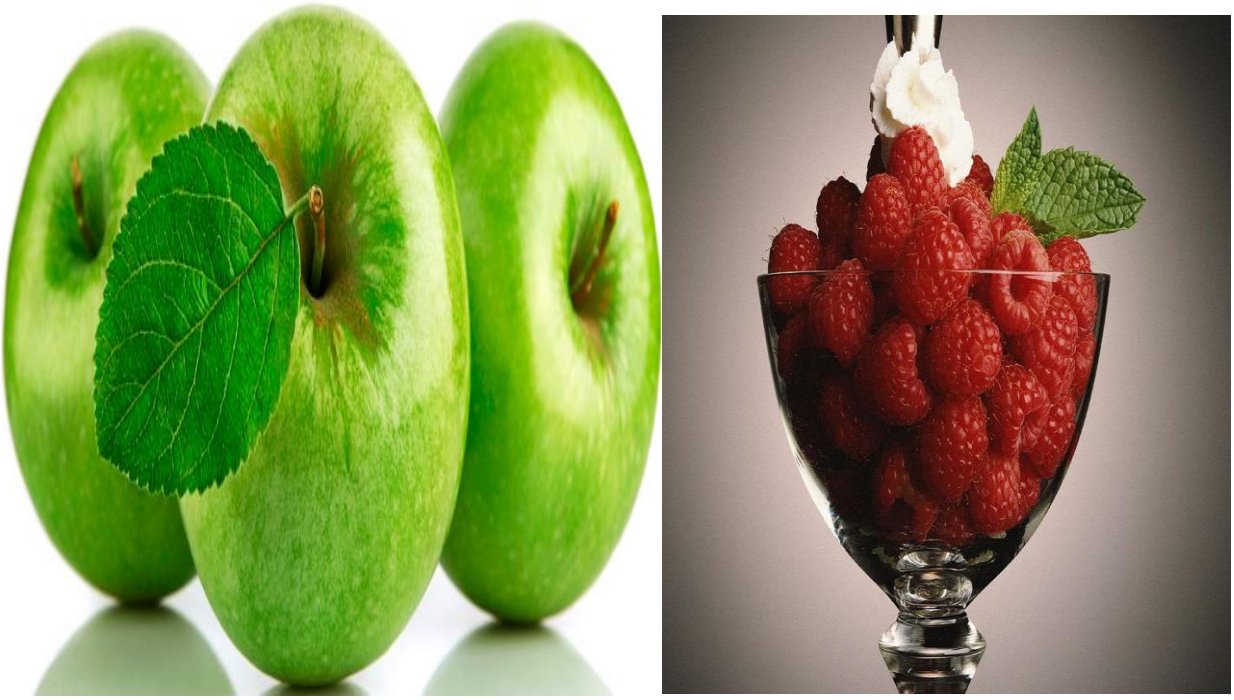


Fig. 105. Fruit and berry assortment

Numerous studies have shown that the reason for mothers giving birth to large children is the consumption of foods with a high content of fat, easily digestible carbohydrates (1:1.4:5.5), while their consumption of vegetables and fruits is reduced. In women who have given birth to children with an average weight, the nutrient ratio is 1:1:3.7. When a large fetus is born, there may be complications during childbirth (birth trauma, ruptures, fetal asphyxia, risk of postnatal death). [28]

NUTRITIONAL REQUIREMENTS FOR PREGNANT WOMEN

Basic rules for women's nutrition during pregnancy (Fig. 106):

Fig.106. Nutrition rules for pregnant women.

To meet the physiological needs of a pregnant woman, an adequate supply of the entire complex of nutrients is necessary, which changes in the dynamics of pregnancy. In the first trimester of pregnancy, energy expenditure changes insignificantly, since the woman continues to work and lead an active lifestyle, and the additional energy needs required to ensure fetal growth are small.

Fig. 107. Basic food products in the second half of pregnancy

The main conditions for proper nutrition during this period are sufficient variety of the diet with the inclusion of all food groups, as well as enrichment with all the necessary vitamins and microelements. At the beginning of pregnancy, women often experience changes in eating behavior (changes in appetite and food perversions: the need for salty and sour foods, the desire to eat chalk, eggshells, etc.), which require attention from obstetricians aimed at providing women with all the necessary nutrients, through individual selection of products and dishes.

The second and third trimesters of pregnancy are characterized by a significant increase in the need for energy and nutrients, which is associated with the growth of the placenta, a significant increase in the size of the fetus and the need for additional provision of nutrients and energy. [28]

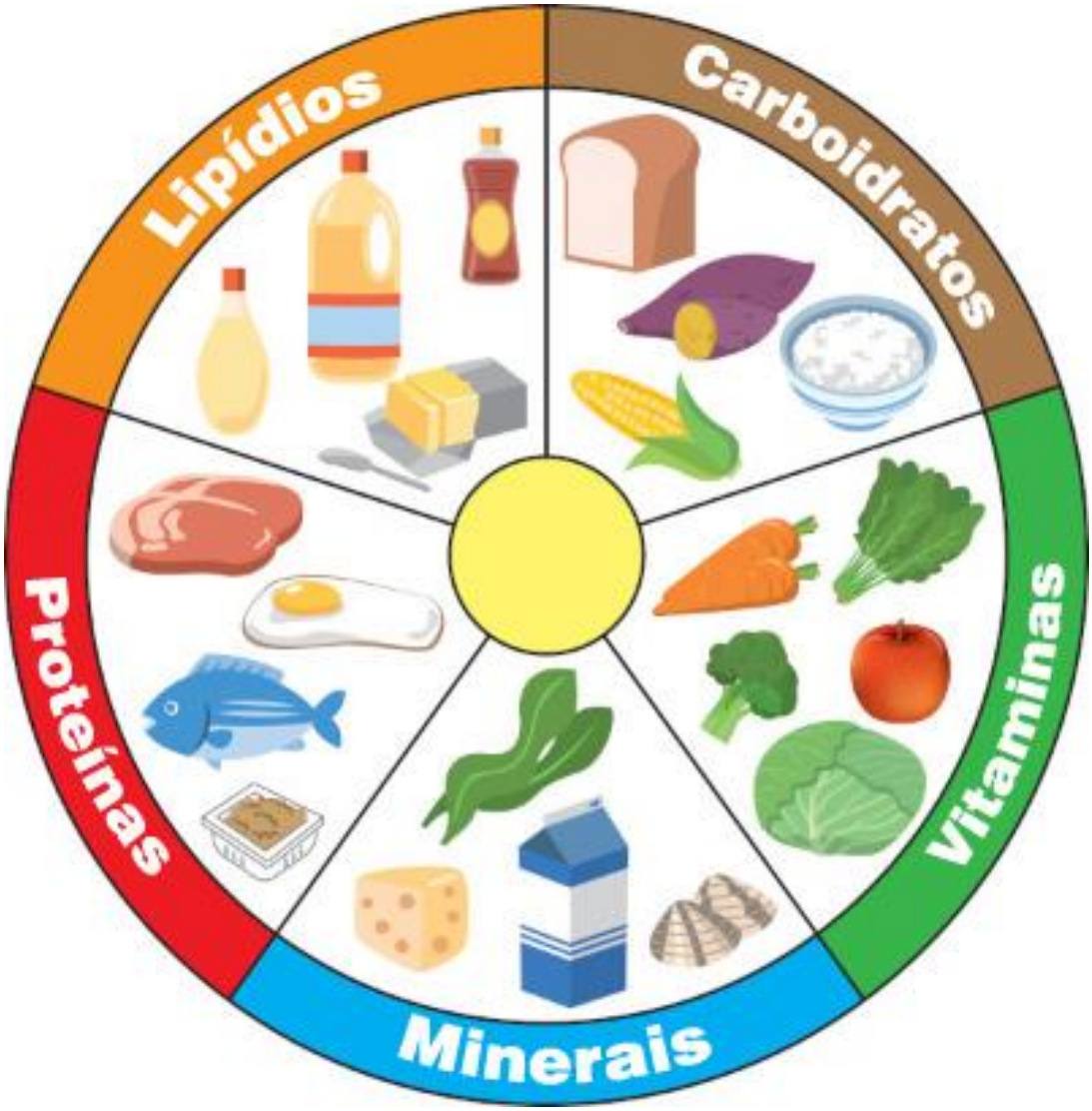


Fig.108. A set of products containing nutrients, macro- and micronutrients for the nutrition of a pregnant woman

Pregnant women have an increased need for vitamins, macro- and microelements, which is necessary for the normal growth and development of the fetus.

Harmful factors for a pregnant woman and fetus:

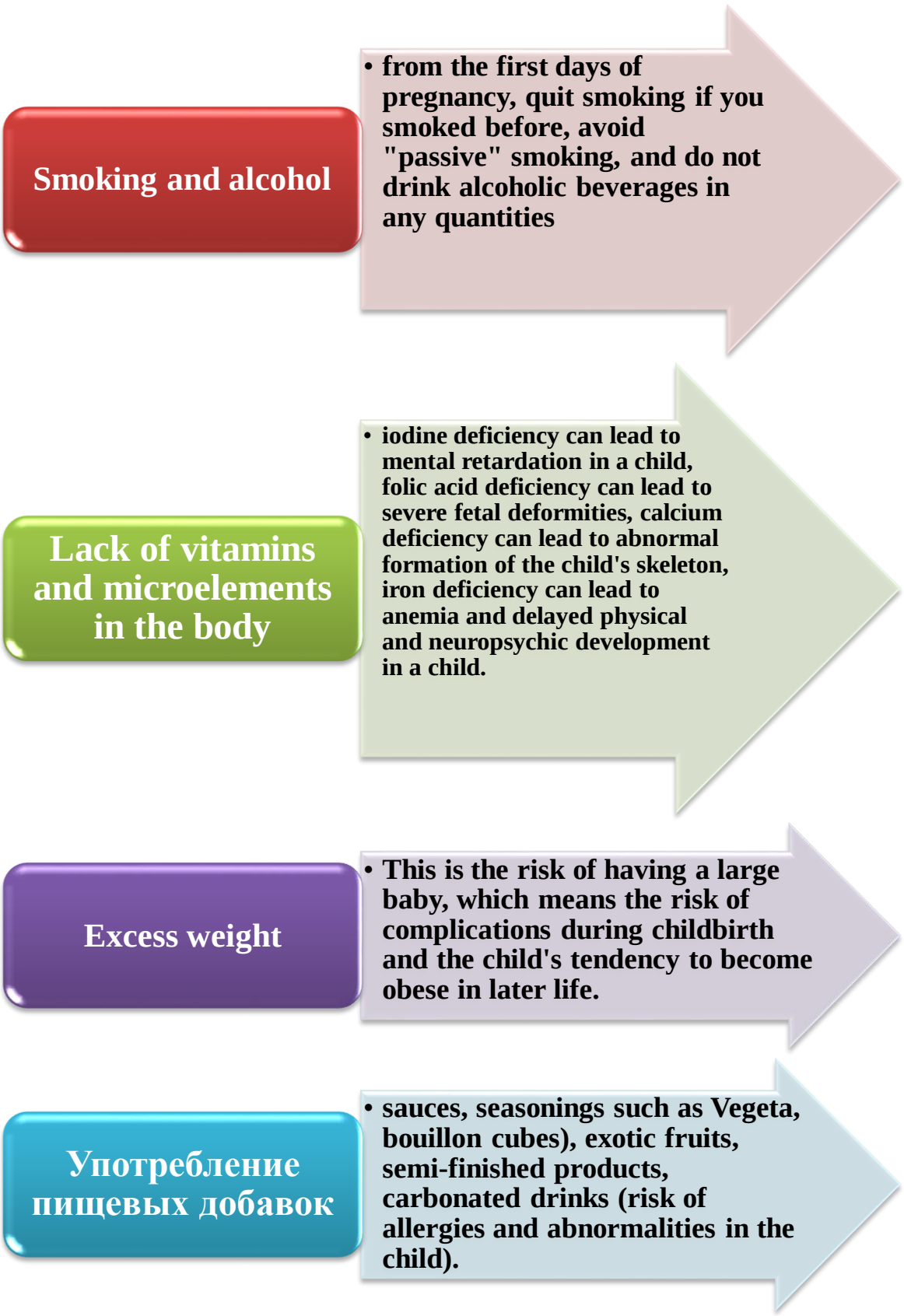


Fig. 109. Harmful factors for pregnant women and fetus

Approximate diet for pregnant women. In the first half of pregnancy, the most physiological diet is 4 meals a day (Fig.110).

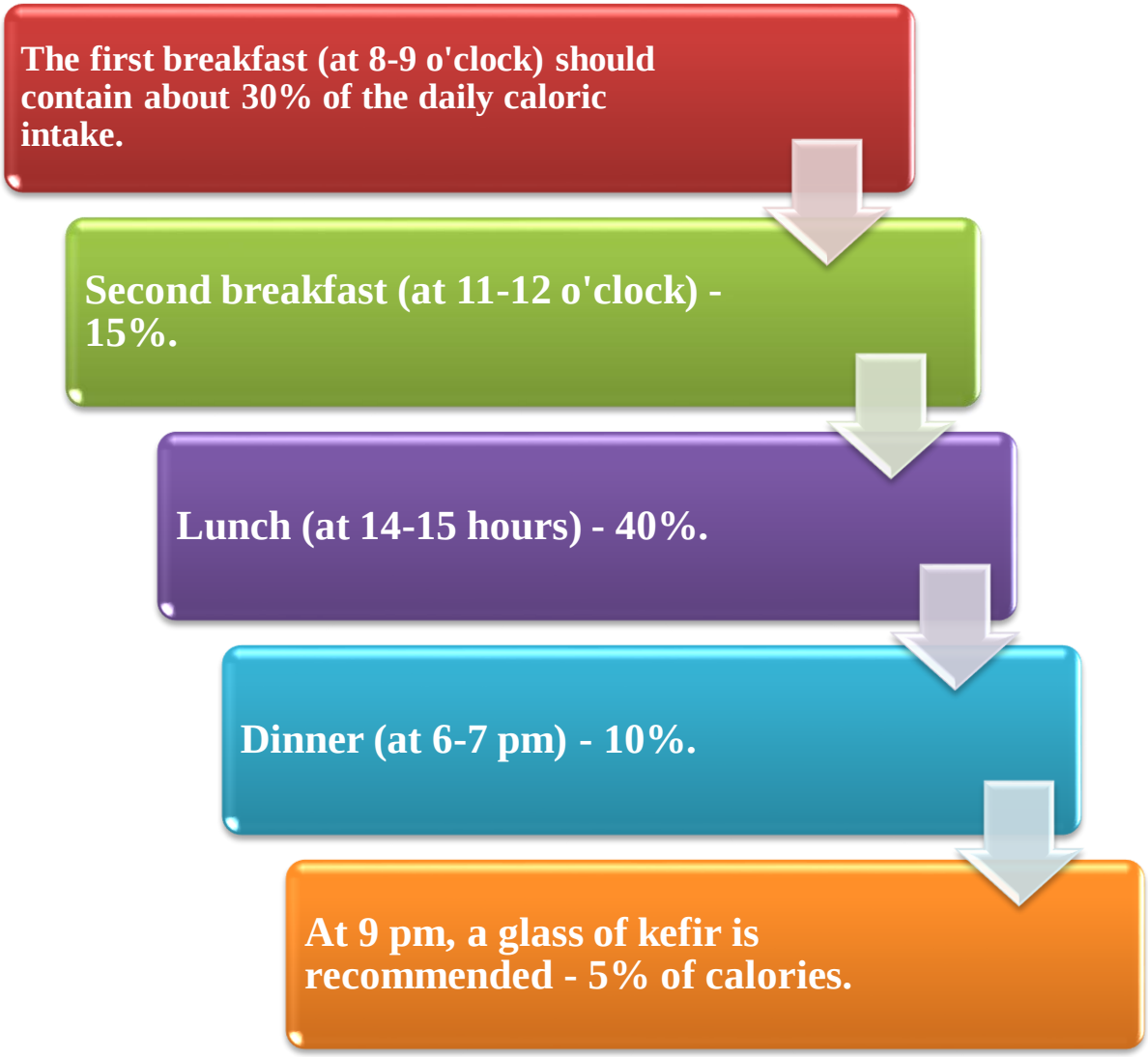


Fig.110. Approximate diet for a pregnant woman in the first half of pregnancy

After eating, you cannot rest lying down. You can eat 2-3 hours before bedtime. In the second half of pregnancy, 5-6 meals a day are recommended. Meat, fish, cereals should be eaten for breakfast and lunch, and dairy and plant foods for dinner. You should not eat foods that cause allergies or rashes. Based on the weight gain of a pregnant woman, which should not exceed 300-350 g per week, and 8-10 kg for the entire period of pregnancy, we can conclude that the food in the diet is selected correctly. With bed rest, the caloric content of food naturally decreases by 20-40%.

The total energy value of a pregnant woman's daily diet depends on her growth and weight indicators, nutritional status, and physical activity. Caloric

content should be 2200-2700 kcal: proteins - 60-90 g, fats - 50-70 g, carbohydrates - 325-450 g.

A woman in the second half of pregnancy should receive 80-110 g/day of protein (of which at least 60% should be of animal origin, including 30% of meat and fish proteins, up to 25% of milk and dairy products, and up to 5% of eggs), 50-70 g/day of fat, and 325-450 g/day of carbohydrates, which is necessary for fetal growth and the formation of its internal organs and systems. Caloric content should be 2300-2800 kcal.

It is important for a pregnant woman to drink fluids. According to the standards, the daily fluid requirement of a pregnant woman is about 35 g per 1 kg of body weight, i.e. with a weight of 60 kg - about 2 liters, of which no more than 1-1.2 liters in the form of tea, milk, jelly, compote, juices, soup. If a pregnant woman is prone to edema, then to prevent toxicosis in the second half of pregnancy, fluid intake is limited to 0.6-0.8 liters per day.

NUTRITION OF NURSING WOMEN

The nutrition of a nursing woman should provide:

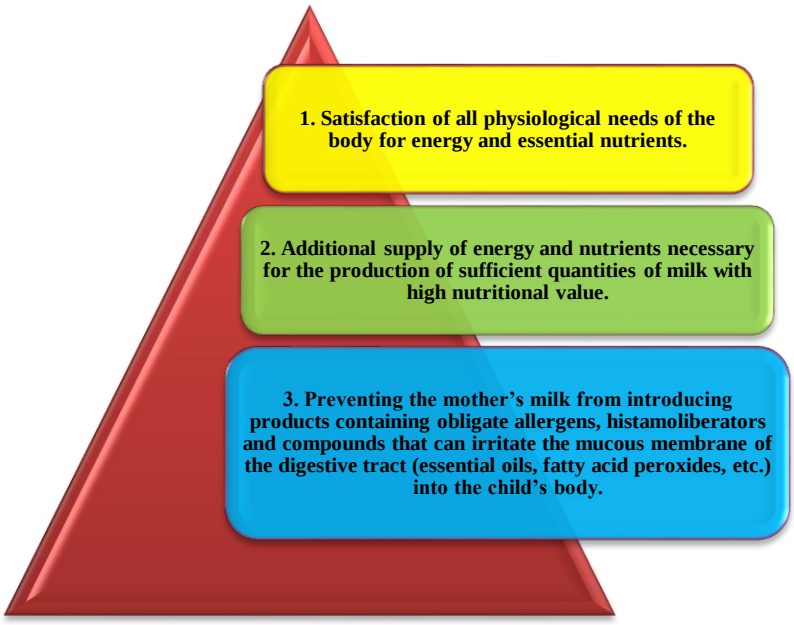


Fig.111. The importance of nutrition for a nursing mother

The nutrient composition of a nursing mother's food affects lactation and the composition of breast milk. After giving birth, she should receive a complete

healthy diet, which should be high-calorie and balanced. Depending on her height and weight, nutritional status and physical activity, a nursing mother should receive: - 110-120 (up to 140) g/day of protein; - 80-110 g/day of fat; - 325-450 g/day of carbohydrates. The total energy value of the daily diet is 2500-3200 kcal. This is especially important in the first months of lactation, when its volume can reach 1 liter or more. As the quota of complementary foods in the baby's diet increases (5-6 months of life and older), the volume of breast milk he needs decreases, and, accordingly, the mother's need for additional amounts of energy and nutrients decreases. Taking into account the sensitivity and reaction of the newborn, the diet of a nursing mother is expanded gradually. A new product is introduced into the diet in small quantities once every 5-7 days, if there is no reaction from the newborn, its quantity is increased and only after 5-7 days the next one is introduced. The nursing mother should only use heat-treated fruits and vegetables.Since the newborn may have allergic reactions, the nursing mother should not eat spicy, fried, smoked foods, canned food, chocolate, citrus fruits, or coffee. Usually, the nursing mother should eat food 20-30 minutes before feeding, the daily diet is 5-6 times. The daily fluid intake is 2-2.5 liters, which should include: herbal teas, water, dried fruit compotes, 200-300 ml should be fermented milk products. The daily diet of the nursing mother should include all the main food groups: meat and fish, milk and dairy products (cottage cheese, cheese, kefir, yogurt, fermented baked milk, etc.); eggs; bread and bakery products, cereals, pasta; vegetable oils; butter; vegetables, fruits, juices; pastries. You can increase the amount of protein in the diet with cottage cheese and cheese. To stimulate intestinal peristalsis, a nursing mother should consume at least 400 g of heat-treated vegetables (carrots, beets, zucchini, pumpkin, etc.), about 300 g of fruits and berries (apples, pears, plums, currants, cherries) and about 200-300 ml of juices, both canned and fresh, which contain dietary fiber.In addition to the above-mentioned foods, porridges (millet, buckwheat and oatmeal), as well as wholemeal bread and dried fruits (prunes, dried apricots) are rich in dietary fiber. [34]

Allergic reactions in newborns can be caused by orange and red tropical fruits, so they should be excluded from the diet, except for bananas.

A nursing mother should consume 25 g of butter and 15 g of vegetable oils (sunflower, corn, soybean, olive) per day. The diet should limit the consumption of sugar and confectionery products, as they can cause allergies in the child.

Fig. 112. One-day set of dishes for women during lactation

The daily diet of a pregnant and lactating woman should be rich in products containing a variety of nutrients, both macro and micro, rich in protein, vitamins and minerals (especially calcium and iron)._It is necessary to exclude taking medications without a doctor's prescription, smoking, drinking alcohol and large amounts of caffeine.

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