



**1. Relevance of the topic:**

Good feeding is one of the most important parts of human's life and health. Human's life is impossible without regular feeding. Food is a source of energy for organism, it helps the processes of growth and restoration of tissues, normal functioning of all physiological systems. Bad feeding causes very bad conditions of organism and even appearance of acute and chronic alimentary diseases. It's very important for future doctor to know the reasons of development and mechanisms of prevention these diseases.

**2. The aims of the training course:**

To know, to learn: main terms of safety of feeding.

To be able to: recognize dangers which are connected with human's feeding.

**3. Materials for the before-class work and self-preparation work,**  
habits which are necessary for learning the theme.

<b>Names of previous disciplines</b>	<b>Getting habits</b>
1. Chemistry	1. To determine the main principles of safe feeding of man.
2. Physics	2. To recognize and value dangerous for life and health food and make professional decisions in different situations.
3. M. biology	
4. Physiology	
5. Anatomy of human	

**4. Tasks for independent work during preparation for the lesson.**

**4.1. A list of the main terms, parameters, characteristics that a student should take when preparing for the class**

<b>Term</b>	<b>Definition</b>
1. Functions of food	The Energetic, the Plastic, Biorestructive, Adaptive-Regulatory, Protective-Immune, Rehabilitation, Signal-Motivational
2. The main exchange	is the energy consumption of the body in support of the functioning of vital systems: cardiovascular, respiratory, excretory and others in a state of complete rest. It is determined in the morning on the nose, lying, in a state of muscular and nervous-psychic rest in comfortable meteorological conditions in the room.
3. Nutritional Supplements	are substances of natural or synthetic origin, which are added specifically to a food product
4. Genetically modified organisms	These are organisms whose genetic material has been altered by a path that does not occur in natural conditions, in contrast to cross-breeding or natural recombination.

**4.2. Theoretical questions to the class:**

1. Influence of feeding on human's vital functions.
2. Standards of quality and safety of food.
3. Ways of coming harmful substances to the food.
4. Creation of toxic substances during the process of cooking.
5. Food additions as possible sailor.
6. The results of soiling of food by pesticides.
7. Stimulators of growth and other chemical substances that are used in agriculture.
8. Principles of protection of food from the soiling be chemical substances.

**5. Contest of theme:**

**Influence of feeding on human's life.**

Feeding is a complicated process of interaction of organism through the food with environment that influence its growth, development, health.

Function of food:

### **1. Energetic function.**

Food gives an energy to organism. Energetic substances are proteins, fats and carbohydrate . After the oxydation of 1 gram of proteins, fats and carbohydrate in hyman's organism is educed accordingly 4 kkal ( 16,7 KJ ), 9 kkal ( 37,7 KJ )and 4 kkal ( 16,7 KJ ) of energy.

### **2. Plastic function**

It is enshuring of organism by plastic substances. In alive organizme constantly exchange processes are flowing. Exchange of substances consist of 2 processes: assinvilation and dissimilation. Process of dissimilation – ruination of cells, tissues and substances and getting out them from organism. Assimilation is a process of creation of new tissues and cells, growth and development, restoration of organism.

Plastic substances are proteins and minerals, fats and carbohydrates. Plastic function is securing by main sources of protein ( meat, fish, milk, eggs ) and vegetables.

### **3. Bioregulatory function**

It is an ensuring or regulation of exchange process by ferments and hormones which are created in organism from the components of food. The main role in creation of these substances belongs to proteins, vitamins, microelements and polyunsatable fat acids (PFA).

Bioregulatory function in organism is ensured by products – sources of proteins, vegetables, fruits, berries, natural oils.

### **4. Adaptative regulatory function**

This function helps to adapt and regulate activity of functional systems of organism that enshure its vital functions. This systems are digestive, secretive and thermoregulative. Adaptative regulatory function is enshured by such products as bread, grain products, vegetables , fruits, water.

### **5. Protective immunological function**

It is how food can help organism to protect itself from harmful biological agents. It is possible with creation of antibody chemical agents ( xenobiotics) which are sorbed , detoxicated and getting out of the organism, physical factors.

This function of food is connected with presence in it proteins, vitamins, microelements, PFA, This function is done by products – sources of proteins, vegetables, fruits, natural oils.

### **6. Signal motivatinous function of food**

This function helps to eshure organism with testable substances that helps to keep the balance of feeding motivations.

### **7. Rehabilitati function**

It is now food can help to rehabilitation of people after disease. It can be enshured by using special diets and dictical products which are used in medical feeding.

Daily spending of energy byorganism of human consist of unregulated and regulated spendings.

**Basical exchange** – it is the spending of energy by organism on keeping the functioning of the most important systems of human's body. It is determined in the morning in the condition of quiet. Basical exchange can be increased after feeding and after physical exercises.

### **Gradation of population on groups based on physical and biochemical specialities of organism.**

*I group* – workers of mind: doctors , teachers, chiefs of organizations, scientists, poets, students, operators

*II group* – workers of light physical work: engeneers, nurses and junior nurses, seamstresses, instructors, sellers, teachers of physical culture, trainers.

*III group* – workers of average physical work: fitters, drivers, surgeons.

*IV group* - workers of hard physical work: builders, miners, metallurgists.

*V group* - workers of very hard physical work: miners in underground works, masons and loaders.

### **Main demands to feeding ration:**

#### **1.) Adecvation**

The quantity of energy of food must be the same as quantity of energy that a human spend a day.

Need of healthy man in energy depends on mass of the body, age, sex and size of the basically exchange (SBE), mind and physical activity, conditions of environment, climate, physiological condition of organism

## **2.) Balance**

Physiological needs of organism must be unshured by the feeding substances in that quantity that would make a useful effect.

## **3.) Chemical composition**

Of feeding ration must correspond to fermentative system of organism.

## **4.) Regime of feeding**

Ration of feeding must be regularly distributed during the day.

## **5.) Ration of feeding**

Must not contain harmful for health spoilers chemical or biological nature.

### **Factors that influence an acquiring of food**

1. Origin of food
2. Presence of appetite
3. Chemical composition of food
4. Cooking of food
5. Keeping of regime of feeding.

### **Demands to quantity and safety of feeding products.**

Feeding products are a complicate complex of different chemical substances (nutritious, antifeeding and unfamiliar substances – xenobiotics).

### **Ways of coming harmful substances into the feeding products**

Antifeeding substances are not toxic but they block the mechanisms of acquiring of useful products.

Unfamiliar chemical substances (USC) comes to the feeding products from the wasted environment.

Food additives are substances that become part of a food product when they are added during the processing or making of that food.

Direct food additives are often added during processing to:

- Add nutrients
- Help process or prepare the food
- Keep the product fresh
- Make the food more appealing

Direct additives may be man-made or natural. Natural additives include:

- Adding herbs or spices to foods
- Pickling foods in vinegar
- Using salt to preserve meats

Indirect food additives are substances that may be found in food during or after it is processed. They were not used or placed in the food on purpose. These additives are present in small amounts in the final product.

Food additives can be divided into several groups, although there is some overlap between them.

### **Acids**

Food acids are added to make flavors "sharper", and also act as preservatives and antioxidants. Common food acids include [vinegar](#), [citric acid](#), [tartaric acid](#), [malic acid](#), [fumaric acid](#), and [lactic acid](#).

### **Acidity regulators**

[Acidity regulators](#) are used to change or otherwise control the acidity and [alkalinity](#) of foods.

### **Anticaking agents**

[Anticaking agents](#) keep powders such as milk powder from caking or sticking.

### **Antifoaming agents**

[Antifoaming agents](#) reduce or prevent foaming in foods.

### **Antioxidants**

[Antioxidants](#) such as [vitamin C](#) act as preservatives by inhibiting the effects of [oxygen](#) on food, and can be beneficial to health.

### **Bulking agents**

Bulking agents such as [starch](#) are additives that increase the bulk of a food without affecting its taste.

### **Food coloring**

[Colorings](#) are added to food to replace colors lost during preparation, or to make food look more attractive.

### **Color retention agents**

In contrast to colorings, [color retention agents](#) are used to preserve a food's existing color.

### **Emulsifiers**

[Emulsifiers](#) allow water and oils to remain mixed together in an [emulsion](#), as in [mayonnaise](#), [ice cream](#), and homogenized [milk](#).

### **Flavors**

[Flavors](#) are additives that give food a particular taste or smell, and may be derived from natural ingredients or created artificially.

### **Flavor enhancers**

[Flavor enhancers](#) enhance a food's existing flavors. They may be extracted from natural sources (through [distillation](#), [solvent extraction](#), maceration, among other methods) or created artificially.

### **Flour treatment agents**

[Flour treatment agents](#) are added to [flour](#) to improve its color or its use in [baking](#).

### **Glazing agents**

[Glazing agents](#) provide a shiny appearance or protective coating to foods.

### **Humectants**

[Humectants](#) prevent foods from drying out.

### **Tracer gas**

[Tracer gas](#) allow for package integrity testing to prevent foods from being exposed to atmosphere, thus guaranteeing shelf life.

### **Preservatives**

[Preservatives](#) prevent or inhibit spoilage of food due to [fungi](#), [bacteria](#) and other [microorganisms](#).

### **Stabilizers**

[Stabilizers](#), thickeners and gelling agents, like [agar](#) or [pectin](#) (used in [jam](#) for example) give foods a firmer texture. While they are not true emulsifiers, they help to stabilize [emulsions](#).

### **Sweeteners**

[Sweeteners](#) are added to foods for flavoring. Sweeteners other than [sugar](#) are added to keep the [food energy](#) ([calories](#)) low, or because they have beneficial effects for [diabetes mellitus](#) and [tooth decay](#) and [diarrhea](#).

### **Thickeners**

[Thickening agents](#) are substances which, when added to the mixture, increase its [viscosity](#) without substantially modifying its other properties.

### **Genetically modified organisms**

GMOs, or “genetically modified organisms,” are plants or animals created through the gene splicing techniques of biotechnology (also called genetic engineering, or GE). This experimental technology merges DNA from different species, creating unstable combinations of plant, animal, bacterial and viral genes that cannot occur in nature or in traditional crossbreeding.

### **Tasks for self-check:**

Choose the correct answer:

*1. Adequacy of nutrition – is:*

- A. Strict following all hygienic demands
- B. Eating of all necessary components of food in determined quantity and correlation.

C. Accordance of nutrition to all state standards  
D. The quantity of energy of food must be the same as the quantity of energy that a person spend a day.

E. Therapeutic and prophylactic action of nutrition.

2. During the oxydotic in organism 1gr of fats is educed the energy in quantity:

- A. 4 kkal
- B. 9 kkal
- C. 12 kkal
- D. 1 kkal
- E. 2 kkal

3. The most rational frequency of feeding is:

- A. 2 times a day
- B. 3 times a day
- C. 4 times a day
- D. It is not determined
- E. According to a wish of man

4. Energetic value of feeding is determined by presence in it:

- A. Carbohydrates, fats
- B. Proteins, fats, vitamins, minerals, water
- C. Proteins, fats, vitamins, minerals
- D. Proteins, fats, carbohydrates
- E. Minerals, water, vitamins, fats

5. To which group accordingly the character of work belong junior nurses:

- A. I
- B. II
- C. III
- D. IV
- E. V

## **7. Literature**

Basic:

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