MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

STATE HIGHER EDUCATIONAL ESTABLISHMENT

“UZHGOROD NATIONAL UNIVERSITY”

MEDICAL FACULTY №2

DEPARTMENT OF PUBLIC HEALTH AND HUMANITARIAN DISCIPLINES

Pohorilyak R.Yu.

Shyp D.Ya.

Goncharuk-Khomyn M.Yu.

METHODICAL RECOMMENDATIONS

ON “HYGIENE AND ECOLOGY”

for preparation to practical classes of foreign students II year of study

Uzhgorod, 2018

Methodical recommendation on “Hygiene and Ecology” for independent preparation to practical classes of foreign student of 2 th course of the field of knowledge: “Medicine”, specialty “Medical case” / complied: R.Yu. Pohorilyak,D.Ya.Shyp., Goncharuk-Khomyn M.Yu.- – “UzhNU”, 2018

Compliers: **Pohorilyak Renata Yuriyivna, Ph.D**., associate professor, head of the department of public health and humanitarian disciplines, medical faculty №2, SHEE “UzhNU”

Shyp Denys Yaroslavovich, assistant of the department of public health and humanitarian disciplines, medical faculty №2, SHEE “UzhNU”

Goncharuk-Khomyn Myroslav Yuriyevich, assistant of the department of public health and humanitarian disciplines, medical faculty №2, SHEE “UzhNU”

Reviewers: Doctor of Medicine (D.M.), full professor **V.V. Kaliy** – dean of the medical faulty №2, SHEE “UzhNU”

Approved at the meeting of the Department of public health and humanitarian disciplines of Medical faulty №2 from “_____” _____2018 y., protocol №_____

Approved by the decision of the scientific and methodical board of Medical faculty №2 from “_____” _____2018 y., protocol №_____

№	Theme	Number of hours
	Module 2	
1.	Method of hygienic assessment of dangerous and harmful factors of the industrial environment and organism response to their impact.	2
2.	Method of hygienic assessment of noise and vibration.	2
3.	Methods of investigation of occupational diseases	2
4.	Methods of assessment of the children's and adolescent's health .Groups of health	2
5.	Methods of studying of age, psychological and physiological peculiarities of the organism of children.	2
6.	Methods of hygienic assessment of equipment and maintenance of educational establishments.	2
7.	Method of chemical and physical examination of children goods(toys and books)	2
8.	Method of hygienic control of organization the physical and labour training of children and adolescents.	2
9.	Hygienic assessment of location and planning of some structural hospital divisions according to the project materials.	2
10.	Hygienic assessment of the patients stay and medical personnel labour hygeine at patient care institutions	2
11.	Hygienic assessment of radiation protection of personnel and radiation safety.	2
12	Healthy life-style and personal hygiene. Sleep hygiene	2
13	Psycho-hygienic basics of the daily activity optimization	2
14	Water and water supply hygiene in tropical climate conditions	2
15	Final control	2
	Together	30

Topic № 1

Method of hygienic assessment of dangerous and harmful factors of the industrial environment and organism response to their impact

1. Learning objective

1.1. Learn about general hazards caused by industrial environment and occupational injuries and diseases as their consequences.

1.2. Learn about methods and techniques for determination of the most common types of occupational hazards and their impact on worker's organism and health; about legislative, administrative, technical measures for health protection and prevention of occupational diseases.

2. Basics

2.1. You should know:

2.1.1. Fundamentals of Ukrainian legislation in the field of hygiene and labour protection.

2.1.2. Classification and characteristics of occupational hazards.

2.1.3. Physiologic, biochemical and pathophysiological signs and characteristics of organism's response to occupational hazards.

2.2. You should have the following skills:

2.2.1. To determine basic agents of industrial environment and work process that may have negative impact on the worker, to reveal and assess signs of such impact on organism.

2.2.2. To substantiate and carry out sanitary and hygienic measures regarding safe working conditions.

3. Self-training questions

3.1. Work and labour as physical and philosophical concepts. Labour as social category. Division of labor in society.

3.2. Articles about labour protection in the Constitution of Ukraine.

3.3. Sanitary legislation in the field of labour protection. Labour Code (LC), its basic constituent regulations.

3.4. Occupational hazards' classification according to State Standard 12.0-003-74 "Dangerous and hazardous industrial agents".

3.5. Physical occupational hazards, their classification and significance in the professional pathology.

3.6. Chemical occupational hazards. Classification of dangerous and hazardous chemical agents of industrial environment, variety of their impact on organism. Occupational poisonings.

3.7. Biological agents as occupational hazards. Occupational infections, invasions and other kinds of pathology.

3.8. Psycho-physiological dangerous and hazardous industrial agents, kinds of pathology caused by these agents.

3.9. Labour physiology and main issues, which it studies. Concept of labour hardness and intensity.

3.10. Characteristics of methods and measuring devices of occupational hazards and their impact on organism and health.

3.11. Methods and measures of occupational pathology prevention and labour protection in industry.

GENERAL INFORMATION FOR PREPARATION TO THE PRACTICAL CLASS

Labour protection legislation in Ukraine is regulated by government (High Council (Verkhovna Rada), Cabinet of Ministers, Ministry of Labour and Ministry of Public Health), trade union organizations and other institutions and public organizations.

1) Constitution of Ukraine guarantees: "everybody has right to work , to safe working conditions. It is forbidden to use the labour of women and adolescents at dangerous for health works" (Article 43); "Everybody who works has the right to rest. This right is guaranteed by half day work for the workers of a number of professions and productions that are determined by the law, and by working time reduction at night " (Article 45); "Everybody has the right to health protection, medical care and medical insurance" (Article 49) etc.
2) Law of Ukraine "On provision of sanitary and epidemic safety of the population approved" by Rada on 24.02.1994. Also this law states "Citizenry has the right to: safe for health labour conditions; reparation of damages, inflicted to their health…compulsory medical examinations." It is envisaged to remove from work those individuals who refuse compulsory medical examinations and vaccinations.

Legislation provides for a single state list-register of dangerous hazards, make of a state sanitary examination of industrial construction projects, production techniques, raw materials, half-finished products, integrated products, prevention of diseases, injuries, poisonings etc.

3) Law of Ukraine on labour protection approved by Cabinet of Ministers of Ukraine by в„– 64 from 1993 provides for creation of proper hygiene and sanitary conditions in industry, prevention of injury causes, occupational diseases and poisonings, reduction of noise, vibration and other harmful effects, waste treatment and extermination etc.

According to this standard all dangerous industrial hazards are divided into **4 groups:** physical, chemical, biological and psycho-physiological.

Industrial physical hazards are:

- movable machines, mechanisms, unprotected movable elements of production equipment,

feedstock, materials, goods that move, other mechanical agents;

-hot or cold microclimate of the working zone, high levels of infrared radiation (hot shops in

- metallurgy industry, boiler shops etc.), hot water or steam;
- increased or decreased barometric pressure and its leaps;
- high noise level, vibration, infra- and ultra-mechanical fluctuations of air or hard surfaces;

high levels of radio region electromagnetic oscillations, electric magnetic fields of commercial

- frequency, static electricity;
- high levels of ionizing radiation (X-radiation, gamma-radiation, corpuscular radiation);

-insufficient or excessive illumination of work places, low contrast, high luminosity, its dazzle,

- unevenness, pulsation of the light, stroboscopic effect;
- high dust content in the air, fuel and explosive gases (methane in the coal mines).

Group of chemical dangerous industrial hazards includes:

- according to their action on organism - irritant, general toxic, sensibilizing, carcinogenic, mutagenic and teratogenic;
- according to their penetration route into organism: through respiratory tract, digestive system, skin (chemical burns);

according to their tropism: pneumo-, neuro-, hepato-, hemato-, nephro-, dermato- and polytropic;

- according to level of toxicity: extremely toxic (MAC in the air < 0.1 mg/m^3), highly toxic (MAC 0.1 - 1.0 mg/m^3), medium toxic (MAC 1.0 - 10.0 mg/m^3), low toxic (MAC > 10,0 mg/m^3).

Group of biological dangerous industrial hazards includes those biological objects, which impact on the workers causes diseases, poisonings and injuries:

- zoonotic bacterial, viral, fungal infections (anthrax, foot-and-mouth disease, Bovine Spongiform Encephalophaty (BSE), tularemia), invasions, allergies (from animal and plantdust) etc.;
- plant toxins and venoms (like snake hunters) etc.;
- biological production objects: antibiotics, protein-vitaminous concentrates, growth agents, bioactive preparations etc.

Group of psycho-physiological industrial hazards includes:

- excessive physical activities: static (hold of heavy loads); dynamic (lifting and displacement of heavy loads and their intensity); hypodynamia, forced body position, overstrain of some organs;

- neuropsychic overstrains: mental overstrains, overstrains of attention and analyzers, very rapid change of production processes, information, work monotony, psychological and emotional overloads (like "chief- subordinate" interrelations).

According to its tension, mental, **operator's work is divided into**: **non-tensioned, slightly tensioned, tensioned, super tensioned.**

Occupational diseases caused solely by industrial and occupational hazards, their consequences in the near and distant future as well as consequences of non-occupational diseases caused by occupational hazards (like arterial hypertonia caused by vibration) were put on the list.

Acute and chronic occupational diseases and poisonings are recognized.

Acute occupational disease (intoxication) begins suddenly, after only one impact of a relatively high concentration of toxic chemical agents (during one shift) in the air of the working zone or levels or doses of other hazards.

Chronic occupational diseases occur as the result of long-term exposure to low (but exceeding MAC, MAL, MAD) concentrations, levels and doses of occupational and industrial hazards.

According to approved list occupational diseases are divided into 7 groups:

1. diseases caused by chemical agents: acute and chronic intoxications of different tropism (neuro-, hemo-, hepato-, nephro-, poli-, dermatotropic, allergic etc.);

2. diseases caused by industrial particulate pollutants: black-lung diseases, dust bronchitis, rhino-pharyngolaryngitis, allergies;

3. diseases caused by physical agents: ionizing radiations (acute, chronic radiation sickness, local radiation injuries, long-term consequences " malignant tumors); non-ionizing radiations (laser, ultraviolet, infrared); decompression - caisson sickness; acute, chronic overheating; noise, vibratory diseases etc.;

4. diseases caused by overload and overstrain of certain organs and systems: coordination neurosis (at milkmaidens, violin players, linotypers), radiculitis, tendovaginitis, arthrosis, bursitis, thrombophlebitis; laryngitis at singers, teachers, progressive myopia etc.;

5. diseases caused by biological agents: infectious and parasitogenic diseases at stock-breeders, vets, infectiologists, bacterial laboratory assistants etc.;

6. allergic diseases: conjunctivitis, rhinitis, bronchial asthma, dermatitis, eczema, urticaria etc., that occur when one works with corresponding agents of plant or animal origin;

7.neoplasms - malignant tumors when working with carcinogenic substances of physical (ionizing radiations, ultraviolet radiation) and chemical (3,B 4-benzpyrene, resins etc.) origin.

Optimal standards of temperature, relative humidity and air movement in the working zone of workshops

Season	*Work category*	*Temperature,C*	*Relative humidity, %*	*Air movement, m/sec*
Cold and transitional seasons	Light - I	20-23	60-40	0.2
	Moderate – II a	18-20	60-40	0.2
	Moderate – II b	17-19	60-40	0.3
	Hard - III	16-18	60-40	0.3
Warm season	Light - I	22-25	60-40	0.2
	Moderate – II a	21-23	60-40	0.3
	Moderate – II b	20-22	60-40	0.4
	Hard - III	18-21	60-40	0.5

1.2. Allowable standards of temperature, relative humidity and air movement in the working zone of the workshops during cold and transitional seasons

Work category	*Air temperature,C*	*Relative humidity, %*	*Air movement, m/sec*	*Air temperature outside workplace,*C
Light - I	19 - 25	75	0.2	15 - 26
Moderate – II a	17 - 23	75	0.3	13 - 24
Moderate – II b	15 - 21	75	0.4	13 - 24
Hard - III	13 - 19	75	0.5	12 - 19

Topic №2

Method of hygienic assessment of noise and vibration

1. Learning objective

1.1. Strengthen and enlarge theoretical knowledge of students about noise and vibration as elements of industrial environment and their influence on organism and health.

1.2. Master techniques and means of measurement and hygienic assessment of noise and vibration parameters.

2. Basics

2.1. You should know:

2.1.1. Fundamentals of anatomy and physiology of auditory analyzer.

2.1.2. Physical fundamentals of acoustics and vibration.

2.1.3. Classification and fundamentals of noise and vibration source.

2.1.4. Biological effect of noise and vibration, and prevention of their negative influence on human organism.

3. Self-training questions

3.1. Sound, noise, their definition.

3.2. Physical characteristics of noise, its measurement units.

3.3. Sound energy flux density, definition of volume.

3.4. Sound frequency band that human organ of hearing perceives.

3.5. Noise classification.

3.6. Noise influence on hearing organ. Specific and non-specific noise effect. Noise disease. Sound comfort notion, combating the noise.

3.7. Detection of vibration. Classification of vibration.

3.8. Physical characteristics of vibration. Vibration rate and vibration acceleration. Units of vibration measurement parameters, their spectral distribution. Concussions. Rectilinear and angular accelerations and overloads.

3.9. Biological effect of vibration, main symptoms of vibration disease.

3.10. Instruments for measurement of noise and vibration levels and spectral distribution, operation techniques.

3.11. Measures for reduction of noise and vibration harmful impact on human organism. Fundamentals and principals of noise and vibration hygienic control.

GENERAL INFORMATION FOR PREPARATION TO THE PRACTICAL CLASS

Vibration

- Vibration is the mechanical oscillations of an object about an equilibrium point.
- The oscillations may be regular such as the motion of a pendulum or random such as the movement of a tire on a gravel road.
- If we could watch a vibrating object in slow motion, you could see movements in different directions.

Any vibration has two measurable quantities. How far (amplitude or intensity), and how fast (frequency) the object moves helps determine its vibrational characteristics.

Frequency

- The number of cycles that a vibrating object completes in one second is called frequency.
- The unit of frequency is hertz (Hz).
- One hertz equals one cycle per second.

Amplitude - Amplitude is the distance from the stationary position to the extreme position on either side and is measured in metres (m). The intensity of vibration depends on amplitude.

Vibration can be classified into:

- transport vibration, which affects the operators of mobile machines and carriers for movement on the roads and locality;

- transport and process induced vibration, which affects operators of machines of limited motion in a workshop, mine opening etc.;

- process induced vibration, which affects the operators of stationary machines and carriers and other workers through the floor:

a) at permanent workplaces of industrial premises;

b) at workplaces in storages, eating establishments, alimentary and other premises without vibration sources;

c) at workplaces in plant management premises, medical posts вЂ¦ and other premises for mental work people.

According to mechanism of action, vibration can be divided into:

- general vibration of workplace (floor, seat) that can be vertical ("up and down") and horizontal ("onward - backward", "lateral");

- local vibration of control mechanisms (scales, handles of instruments), which affects hands and legs, and often a chest when it is necessary to press instrument both by hands and the chest.

Diseases caused by vibration influence:

1) Hand-arm vibration comes from the use of hand-held power tools and is the cause of significant ill health (painful and disabling disorders of the blood vessels, nerves and joints).
2) Hand-arm vibration exposure may cause Raynaud's phenomenon: cold provoked episodes of well-demarcated distal blanching (whiteness) in one or more fingers. Vibration induced white finger (VWF) is defined as first appearance of RP after start of professional exposure to hand-arm vibration and no other probable causes of RP]. The pathogenic mechanism of VWF is not completely understood but digital artery vasospasm is a probable cause.

Noise

When air molecules surrounding our wars vibrate, parts inside the ear can sense the changes in pressure. These parts amplify the vibrations and ultimately cause tiny hairs in the inner ear to bend. Bending those hairs creates nerve impulses that the brain perceives as sound.The hairs can easily deform and return to their original position. However, if the vibrations are too strong, or they last for an extended period, the hairs can be permanently damaged causing hearing loss.In general, noise is an unwanted sound. When it comes to the workplace, noise is sound that is intense enough to cause hearing damage.

From hygienic point of view noise represents various sounds that hinder a person to work, rest, and sleep, and has negative, irritating effect on him.

Sound or vibration frequency is expressed in Hertz (Hz) - quantity of vibrations per second, and by octave - audio band, the upper level of which is 2 times bigger than the lower one (16-32 Hz; 100-200 Hz etc.). Perceived by human ear frequency is in the range of 16-20000 Hz that is enclosed in 10 octaves.

According to frequency noise is classified into: low frequency, medium frequency, high frequency, sonic frequency (when one single frequency sounds), narrow-band frequency (1-3 octaves sound), wideband frequency (4-6 octaves sound) and ''white noise''(all frequencies sound).

Noise is one of the most common occupational health hazards. In heavy industrial and manufacturing environments, as well as in farms, cafeterias, permanent hearing loss is the main health concern. Annoyance, stress and interference with speech communication are the main concerns in noisy offices, schools and computer rooms.

To prevent adverse outcomes of noise exposure, noise levels should be reduced to acceptable levels. The best method of noise reduction is to use engineering modifications to the noise source itself, or to the workplace environment. Where technology cannot adequately control the problem, personal hearing protection (such as ear muffs or plugs) can be used. Personal protection, however, should be considered as an interim measure while other means of reducing workplace noise are being explored and implemented.

As a first step in dealing with noise, workplaces need to identify areas or operations where excessive exposure to noise occurs.

Topic №3

Methods of investigation of occupational diseases and poisonings cases

1. Learning objective

1.1. Acquire knowledge about the effect of occupational hazards on workers' health as well as regulations and procedure of investigation concerning occupational diseases and poisonings, proper paperwork.

1.2. Substantiate and take the indispensable therapeutic and prophylactic measures.

2.Basics

2.1. **You should know**:

2.1.1. Fundamentals of toxicology of chemical compounds - routes of penetration into organism, their transformation, mechanism of action, excretion.

2.1.2. Methods and techniques of intoxication prophylaxis, basic criteria of hygienic standardization of chemical compounds in the working zone air, in the other environments.

3.Self-training questions

3.1. Classification of industrial poisonous substances by their origin, chemical structure, degree of danger for organism, cumulative properties and tropism.

3.2. Main penetration routes of industrial poisonous substances into the organism, their complex, combined, synergistic, isolated action.

3.3. Most characteristic indices which indicate the effect of industrial poisonous substances on the organism.

3.4. Types of occupational intoxication and peculiarities of clinical presentation when poisoning with the most widely spread poisonous substances.

3.5. Transformation of occupational poisonous substances in the organism (decomposition, transformation, intermediate products and by-products, their effect on intoxication clinical course).

3.6. Material and functional cumulation of occupational poisonous substances, its significance in the development of occupational poisonings, tropism of poisonous substances.

3.7. Acute and chronic occupational diseases and poisonings, their peculiarities.

GENERAL INFORMATION FOR PREPARATION TO THE PRACTICAL CLASS

Occupation Hygiene is a branch of hygiene, which studies influence of industrial environment on workers' activity and develops arrangements, directed on improving working conditions and the increase of men capacity.

The subject of Occupation Hygiene is:

1. To study working processes and physiological disorders in an organism, caused by these processes;

2. To study man's workability and to develop physiological bases of rational working mode and rest;

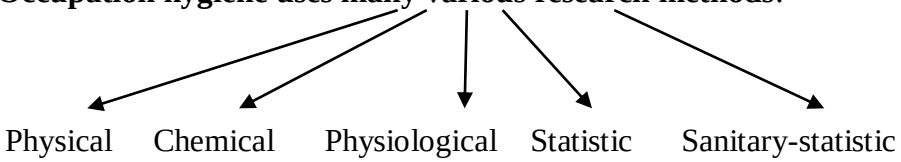
3. To study the factors (meteorological, chemical, physical) of working environment with the aim of development a hygienic rate;

4. To study the peculiarities of production processes, equipment and materials, raw materials and other products of production; with the purpose of removal of the influence on the working organism.

5. To study worker's state of health (professional and non-specific diseases);

6. To study the state and the effectiveness of sanitary-technical (ventilation, illumination) and sanitary-domestic devices and equipment, methods of individual defence etc.

Occupation hygiene uses many various research methods:



All types of muscular work

1) light

2) middle heaviness

3) hard work

- light physical works (category I)
- physical works of middle heaviness (II A and II B categories)
- hard works (III category).

Tiredness

Tiredness is a reduction of working ability, which is caused by the fulfilment of certain work.

Objectively, the process of tiredness expresses in reduction of working capacity and *subjectively* into feeling tired

Tiredness, that develops quickly, can appear by reason of big physical efforts or execution of work task, which is not suitable for functional organism possibilities.

Such tiredness characterizes by:

- violation of functions coordination of central nervous system and
- beginnings of hearths of special disorders.

The difference of tiredness, that quickly develops, is a fast organism functions renewing after suppression of work.

Tiredness, which develops slowly, characterizes by gradual capacity reduction by reason of usual, but extremely long or monotonous work. Under this braking develops slowly, it is unsteady, superficial and gradually acquires disposition stage.

There is observed:

- *some weakening of reception functions*, specially of visual and auditory analysers, and
- *some violations of motion coordination*

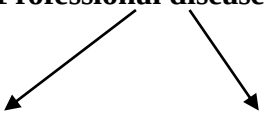
Secondary tiredness can gradually congest and cause an overstrain (a pathological state)

The main overstraining process signs are:

- headache,
- sleeplessness (insomnia) ,
- appetite loss,
- raised irritation,
- weakness of memory,
- lowering of organism immunity.

An overstrain is a typical working conditions peculiarity. The main arrangement against overstraining is a *rational combinations of working period and rest*. A break must be long enough for full renewing of physiological functions. Positive influences have physical exercises during the break time, automatism and production mechanization. The problems of working capacity and the prevention of tiredness can be solved by different ways, specifically by the use of wide mechanization of hard intensive works, automatism of production processes, rationalization of technological equipment etc.

The Professional diseases can be:



Specific **Non-specific**

Typical professional diseases:

1) Asbestos-related lung diseases
2) Silicosis

3) Black lung disease(is the common name for coal workers' pneumoconiosis (CWP) or anthracosis, a lung disease of older workers in the coal industry, caused by inhalation, over many years, of small amounts of coal dust.

Organizational causes of worker's trauma :

1. Incorrect organization of working process,
2. Application of dangerous labour methods,
3. Non-observance of accident prevention regulations,
4. A lack of individual defence methods

Sanitary-hygienic causes of worker's trauma :

1. Violation of sanitary-hygienic mode on production,
2. Bad illumination,
3. High temperature and air humidity or superfluously low temperature,
4. Production dust,
5. High concentration of toxic matters in air,
6. Workplace pollution,

Basic arrangements for the preventing of traumatism are:

- Control over equipment, and running instruments;
- Improvement of natural and electrical illumination;
- Systematic supervision for execution of accident prevention regulations;
- Equipment of all of the workers by methods of individual defence and control of their use during the work time;
- Improving arrangements against tiredness, taking out of external production environment,
- Working mode rationalization and rest.

Topic №4

Methods of assessment of the children's and adolescent health .Groups of health.

1.Learning objective

1.1. Strengthen theoretical knowledge about factors and conditions of environment which influence the formation of children's health, general patterns of the child and adolescent organism growth and development, main criteria and indices of the children and adolescents health.

1.2. Master methods of complex assessment of the children and adolescents health and physical development.

2. Basics

2.1. You should know:

2.1.1. Principal factors of environment and social conditions of life, which influence health of children and adolescents.

2.1.2. Main patterns of growth, development and peculiarities of morphological and functional state of the child and adolescent organism.

2.1.3. Methods of assessment of the children and adolescents health and physical development and criteria of allocation by health groups.

3. Self-training questions

3.1. Factors of environment and social conditions of life which influence the children and adolescent health formation.

3.2. General patterns of the child and adolescent organism growth and development. Assessment criteria and indices of the children's and adolescent's health.

3.3. Method of complex assessment of the children's and adolescent's health. Peculiarities of allocation of children and adolescents by health groups.

3.4. Physical development as a main criterion of assessment of health. Main incides of physical development.

3.5. Rules of anthropometry. Requirements to tables of regional standards of physical development.

3.6. Biological and chronological age. Indices of the biological development level of children and adolescents. Modern concepts of epochal and interage acceleration and deceleration (retardation).

3.7. Methods of assessment of the children's and adolescent's physical development (method of sigmal deviations, assessment by regression scales, complex and centile methods).

GENERAL INFORMATION FOR PREPARATION TO THE PRACTICAL CLASS

Assessment of health state is the most important role of a physician, who works with children and adolescents. It's main importance lies in the fact, that the formation of physical and psychological human health, organism's resistance to influence of unfavourable environmetnal factors and social contitions takes place in childhood.

The following *criteria of complex assessment of the children and adolescents health state* are used nowadays in everday practice of sanitary doctors, doctors of general education establishments, pediatricians, general practitioners and family doctors*:*

· Presence or absence of chronical diseases during examination;
· Functional state of main systems of organism;
· Level of organism resistance to unfavourable influence of environemntal factors;
· Current level of nervous and psychological, and physical development, its harmonicity.

According to listed above criteria, allocation scheme of children and adolescents by health groups was elaborated. There are ***5 health groups***:

First health group includes healthy children and adolescents with harmonious development and development level of organism functional systems corresponding to the age.

Second health group includes healthy children and adolescents who have functional and some morphological deviations, low resistance to acute and chroonic diseases, they are ill frequently during long period of time.

Third health group includes children and adolescents suffering from chronic diseases in compensation stage, with normal fucntional resources of organism.

Fourth health group includes children and adolescents suffering from chronic diseases in subcompensation stage with lowered funcional resources of organism.

Fifth health group includes children and adolescents suffering from chronic diseases in decompensation stage with significantelly lowered funcional resources of organism.

Patterns of rank distribution of diseases in different age groups

Rank place	*Age group, years old*			
	0-3	**3-6**	**7-14**	**15-17**
I	Diseases of respiratory organs	Diseases of respiratory organs	Diseases of respiratory organs	Diseases of respiratory organs
II	Diseases of nervous system and sense organs	Diseases of nervous system and sense organs	Diseases of nervous system and sense organs	Diseases of nervous system and sense organs
III	Diseases of gastrointestinal tract	Diseases of skin and subcutaneous fat layer	Diseases of gastrointestinal tract	Diseases of gastrointestinal tract
IV	Diseases of endocrine system	Diseases of blood and hemopoietic organs	Diseases of endocrine system	Diseases of endocrine system
V	Diseases of skin and subcutaneous fat layer	Infectious and parasitic diseases	Diseases of musculoskeletal system	Diseases of musculoskeletal system

Physical development of children and adolescents is assessed based on somatoscopic (anthroposcopic), somatometric (anthropometric) and physiometric indices with their further interpretation using method of sigmal deviations, regression scales, complex or centile methods.

There are following *somatoscopic indices*: condition of skin and mucous membranes, degree of fat diposity, characteristics of musculoskeletal system (bearing, form of chest, sceleton, legs and feet), also signs of sexual development (pilosis/hair distribution on armpit and pubis, mammary glands development for girls, hair distribution on face, development of larynx thyroid cartilage, voice mutation for boys).

Main *somatometric incides* are the following: body length and weight, thorax circumference and other (circumferences of head, shoulder, hip etc.), and they are determined using special anthrpometric points.

Sanitary (health-improving) factors are the follwoing:

rational regime of daily activity;

adequate and balanced nutrition;

correspondence of environment to hygienic standards;

optimal motor activity;

tempering;

healthy lifestyle and following of the everyday hygienic rules.

Unfavourable (risk factors) are the following:

disturbances in day regime, educational process;

disadvantages in organization of nutrition;

breaches of hygienic requirements to game, educational, extracurricular and labour activity;

insufficient or excess motor activity;

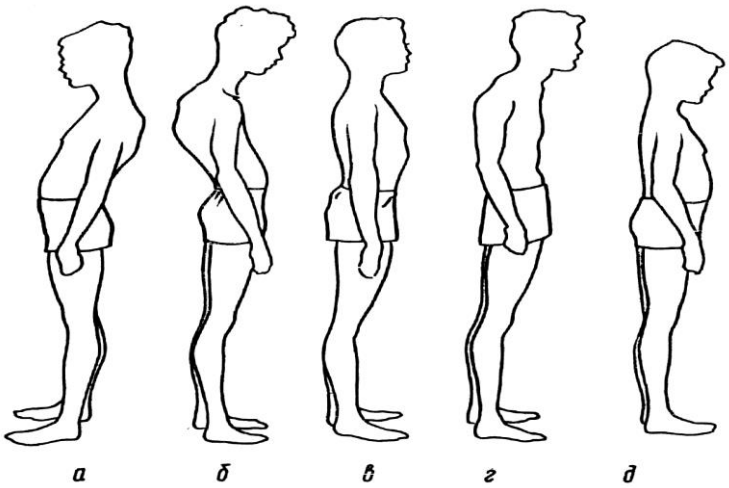
unfavourable psychological climate in family and collective;

Harmful habits and ignorance of the everyday hygienic rules.

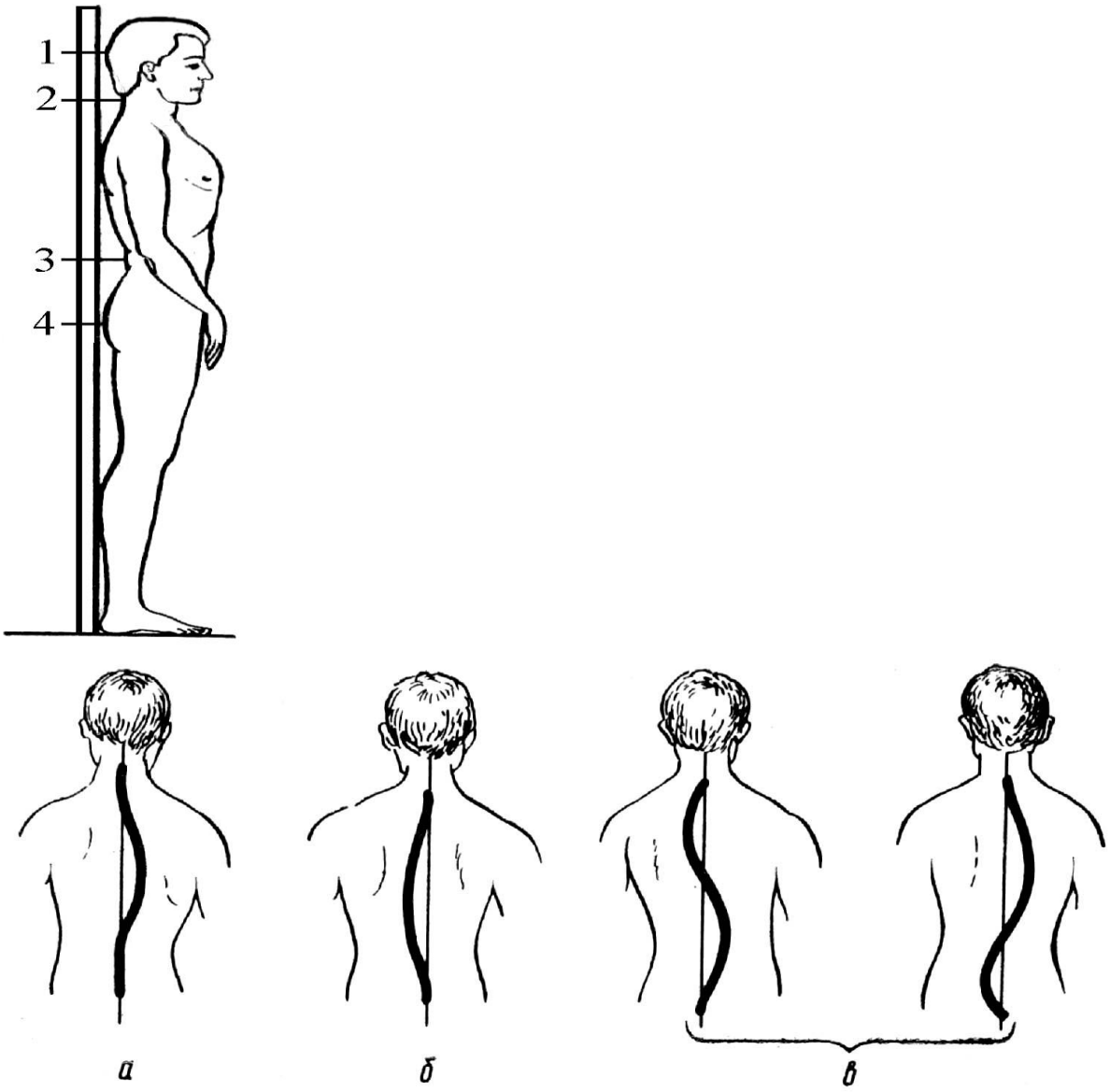
The seven priority areas about heath of childre are:

- childhood morbidity and mortality,
- chronic disease conditions,
- preventable common health conditions (especially mental and behavioral health and oral health),
- functional status,
- end-of-life conditions,
- health disparities, and
- social determinants of health.

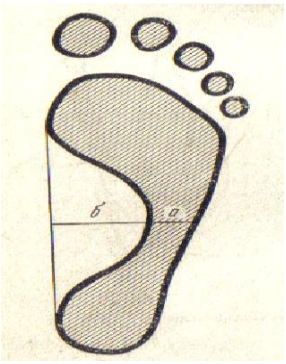
The main types of attitude (а - lordotic б - kyfotic;
в - correct г - stooped, д - straightened



Methods of measuring the depth of the physiological curves of the spine and the main types of scoliosis

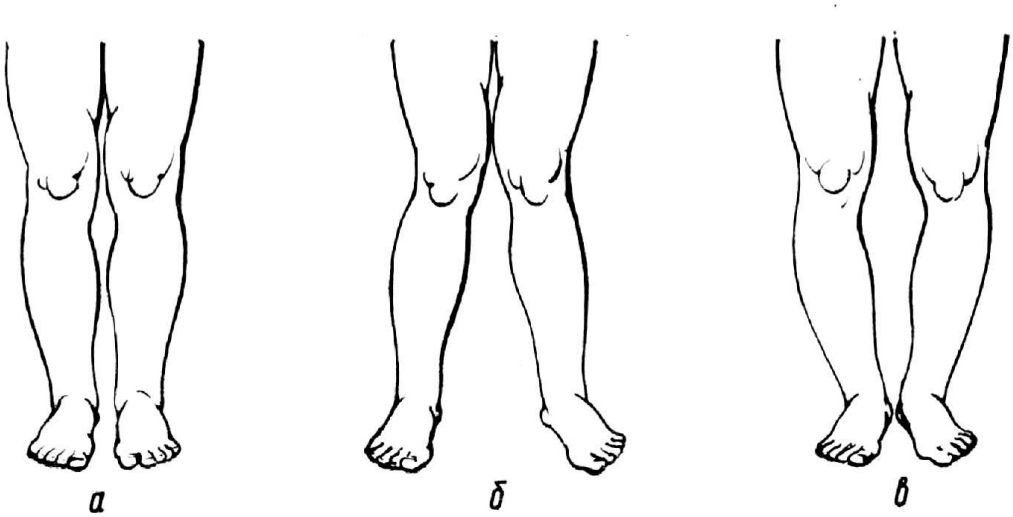


**(1-4 - length of the spine, 2 - cervical curve, 3 - lumbar curve;
and - December rightside b - total nearside c - S-shaped)**



Flatfoot Determination

Forms of foot extremities



Forms of lower extremities
(а - a normal, б - X-shaped, and в - like O

Age periods:

- Social periods, based on experience with child and adolescent contingents, establishes the following age periods:
  • Pre-preschool to 3 years;
  • Preschool from 3 to 7 (6) years;
  • Primary school from 7 (6) to 10 years;
  • Secondary school from 11 to 14 years;
  • Teenager from 15 to 18 years .

Biological periods:

- • newborn, 1 to 10 days;
  • chest age from 11 days to one year;
  • early childhood from 1 to 3 years;
  • first childhood from 4 to 7 years;
  • second childhood: boys 8 to 12 years, girls from 8 to 11 years;
  • adolescence: boys from 13 to 16 years, girls from 12 to 15 years;
  • Youth age: young men from 17 to 21 years, girls from 16 to 20 years.

Types of higher nervous activity

- Optimal stimulant, balanced, fast (reaction force adequate stimuly, the bark of the brain is in a state of optimal efficiency, conditional reflexes stable, are easily and quickly, children friendly, optimistic, disciplined).
- Strong, raised-inflammatory, unbalanced (reduced function of adjusting the brain cortex, the processes of excitation substantially predominate over the process of braking reaction quite often inadequate, there is heightened emotions, sometimes even aggressive).

Topic №5

Methods of studying of age, psychological and physiological peculiarities of the organism of children.

1.Learning objective

1.1. Become familiar with methods of studying of age, psychological and physiological peculairities of the organism of children and adolescents.

1.2. Master the method of examination of children functional readiness to training at school.

1.3. Master methods of making up and hygienic assessment of day regimen and time-table for different age pupils.

1.4. Determine main principles of hygienic assessment of school textbooks and manuals.

1.5. Become acquainted with the method of hygienic assessment of organization of the pupils off-hour activity and free time.

2.Basics

2.1. You should know:

2.1.1. Anatomical and physiological, psychological and physiological peculiarities of the child and adolescent organism of different age and sex.

2.1.2. Medical, physiological, psychological and pedagogic assessment criteria of the child development level.

2.1.3. Methods of studying of fucntional state of the child and adolescent organism.

2.1.4. Health disorders and diseases caused by irrational organization of training and education.

3.Self-training questions

3.1. Anatomical and physiological, psychological and physiological peculiarities of the child and adolescent organism depending on age and sex.

3.2. Medical, physiological, psychological and pedagogic assessment criteria of the child development level. Methods of studying of psychological and physiological peculiarities of the child and adolescent organism depending on age.

3.3. Health disorders and diseases caused by irrational organization of training and education.

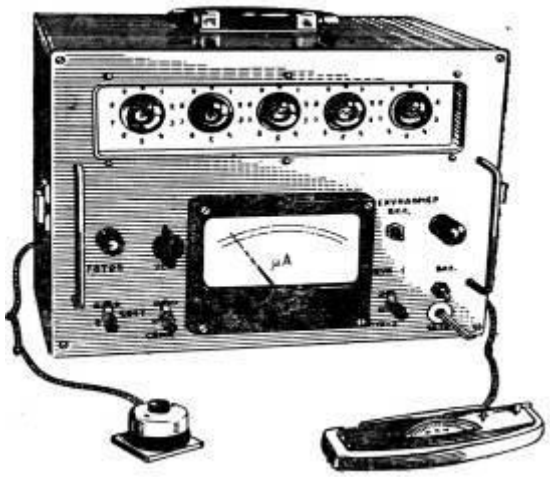
3.4. Concept of school maturity. Hygienic basics and method of examination of functional readiness of a child to training at school.

3.5. Hygienic requirements to organization of training and education in modern general educational establishments.

GENERAL INFORMATION FOR PREPARATION TO THE PRACTICAL CLASS

Research of speed of the visual and motor reaction. Chronoreflexmetry is used for determination of speed of the simple visual and motor reaction (fig. 40.1). The examined person receives following instruction: if light signal appears on the device board you have to press the button or vice versa (depending on the construction of the chronoreflexmeter) release it with maximum speed. Research repeats from 10 to 100 times. Average value of latent period of the visual and

motor reaction is registered. During exanimation of the differentiated (complex) visual and motor reaction the examined person has to react differently depending on white (yellow), green and red colours of appearing light signal. The examined person has to press or release the button with maximum speed if white (yellow) and green colour light signal appear and not react on the red one. Research repeats from 5 to 25 times. Average value of latent period of the differentiated visual and motor reaction on appearance of white (yellow) light is registered.



Research of the nervous processes mobility. Steps of research are the same to described before. Number of the conditioned responses disturbances is registered due to differentiated stimulus - red colour light signal - appears.

Research of the nervous processes steadiness. Number of mistakes revealed during the examination of reaction on mobile object (point of electrodynamic chronoreflexmeter) is used as a criterion of the nervous processes steadiness. The examined person has to press the button for fixing the point as mentioned before. Research repeats from 10 to 100 times. Average number of mistakes is registered.

Research of attention switching. During the research of the attention switching 3 variants of red-black tables of Schultze-Platonov are proposed to the examined person. Example of one of them is represented on fig. 40.2. The examined person has to show with maximum speed all black numbers from 1 to 25 in increasing order on the first table, all red numbers from 24 to 1 in decreasing order on table 2 and, at last, black and red numbers simultaneously by turns: black one- in increasing order, red one - in decreasing order. Example: 1(black) - 24(red), 2(black) -23(red) etc.

Time of this task finishing and number of mistakes during tests with tables are registered for assessment of the attention switching. Value of integral index of the attention switching (T) is calculated according to the following formula:

T= C - (A + B),

where A, B and C are the times taken for the test performance on first, second and third tables correspondently, sec.

9	*15*	*9*	**12**	*16*	**3**	*10*
24	*23*	**1**	*19*	**15**	*8*	**17**
18	**14**	*13*	**6**	*2*	**10**	*25*
11	**2**	*24*	**23**	**5**	*12*	**21**
20	*17*	**11**	*22*	**19**	*3*	**13**
7	**16**	*6*	**22**	*14*	**8**	*4*
7	*1*	*20*	**4**	*5*	**18**	*21*

Research of the linear eye. Eye ruler of Hamilton is used for examination of accuracy of the linear eye. One of the ruler marks is put so, that it makes an interval of certain length. Then the examined person should make the interval of the same size using the other mark, by moving it first from the center of the ruler to its edge, and then vice versa. Research repeats 10 times (5 times for each attempt). Average mistake in representation of required distance is registered.

Research of kinesthesia. Zhukovskiy kinematometer is fixed to the hand, bent under 90B° in elbow joint. Then the examined person has to unbend the hand and then turns to the starting position with maximum possible accuracy. Research repeats 3 times. Average mistake during representation of the position in space is registered.

Research of coordination of movements. The examined person should sit comfortably near the thremormeter. Then he/she takes special gage probe on the hand and passes with them over maze slits with average speed and maximum accuracy trying no to touch the slit edges. Research repeats 3 times. Integral index of coordination of movements is calculated by division of the number of touches by the time for the maze passage. Number of touches and integral index of coordination of movements are registered.

Research of muscle strength and muscle stamina. Hand and mercury dynamometers are used for exanimation of the muscle force and muscle stamina. The examined person has to press the device with maximum possible force in first case, hold efforts which equal 1/2 or 2/3 from maximum muscle force at longest period of time - in second case. Based on data of three measurements maximum results concerning the muscle force and the muscle stamina are registered.

Express assessment of functional readiness of the child to training at school

Express assessment of functional readiness of the child to systematic training at school is carried out based on results of the complex psychological and physiological **Kern-Irasik** test, research indices of quality of the sound pronounciation and accuracy of coordination of movements.

Kern-Irasik test includes three tasks: 1) draw a man; 2) redraw short 3-4 word phrase; 3) redraw group of dots. Each task is assessed in points (the best - 1 point, the worst - 5 points). Sum of data of performed separate tasks is the general research result.

First task means than the child has to draw a man without any directions from researcher, second one - the child copies a short phrase from an example prepared beforehand, for example: *''He ate the soup''* or *''She drank the juice''*, third one - the child looks at the stencil during 1 minute and then tries to represent arrangement and number of dots on the sheet of paper. *Criteria of general assessment of test results are the following:* good level of readiness to training at

school - up to 5 points, normal level of readiness – 6-10 points, low level of readiness - above 11 points.

Assessment of quality and clearness of the sound pronounciation is carried out during verbal pronounciation of difficult for articulation words.

Accuracy of coordination of movements and readiness to perception of writing is determined using the test ‘’Cutting the circle’’. The map with seven circles located at 1B mm distance from each other is proposed to the child. Middle circle is marked with bold line and has 50B mm diameter. Then pupil has to cut the circle on bold line during 1 minute. Time is started if scissors touch the bold line. Time and quality of the test are assessed.

Main *hygienic principles of the pupil's free time optimization* are the following:

1) taking into account psychological and physiological peculiarities of individual organism, especially formation and development of psychological and physiological functions during adolescent age;
2) taking into account the health state, peculiarities of individual, chronological and biological characteristics of the organism;
3) increasing of mobile activity during free time up to optimal values substantiated hygienically;
4) presence of *conceptual model of the free time effective usage* (application of the optimal movable activity; usage of traditional and non-traditional forms of physical training; usage of means of psychological and physiological influence on the pupil organism; carrying out independent trainings during free time) and *adequate methods of purposive influence on development processes of the individual during out-of-school activity* (psychological and physical training; psychotechnical games; elements of traditional forms of physical training, occupational and applied physical training; exercises of non-traditional forms of physical training, including exercises for
· increasing of the cerebral circulation, visual, isometric and asymmetric exercises) etc.

Topic №6

Methods of hygienic assessment of equipment and maintenance of educational establishments.

1. Learning objective

1.1. Strengthen theoretical knowledge about significance of optimal hygienic conditions maintenance during organization of training and education for preservation and strengthening of schoolchildren health, prevention of ‘’school diseases’’ appearance.

11.2. Become familiar with methods of hygienic assessment of land plot and building of educational establishment, its main premises (school class), inspection of conditions for schoolchildren in educational establishment, working out and substantiation of hygienic recommendations for improvement of the training and education organization.

1.3. Master method of hygienic assessment of school furniture.

2. Basics

2.1. You should know:

2.1.1. Peculiarities of main environmental factors and conditions, training and education, which influence the children and adolescents health.

2.1.2. Health disorders and diseases caused by influence of environmental conditions, training and education.

2.1.3. Hygienic requirements to land plot and building, planning, sanitary and technical infrastructure (microclimate parameters, illumination, ventilation, water-supply etc.) of main premises of training and educational establishments.

2.1.4. Hygienic requirements to construction and certain parameters of school furniture.

3.Self-training questions

3.1. Factors and conditions of environment, training and education which influence the children and adolescents health.
3.2. Health disorders and diseases caused by influence of environment factors and conditions during the stay at the educational establishment.
3.3. Hygienic requirements to land plot, building and group section of children preschool establishment. Principle of group isolation and its significance.
3.4. Hygienic requirements to land plot and building of general (not specialized) schoolhouse. Principle of functional zoning and its significance.
3.5. Hygienic requirements to planning, maintenance, equipment, microclimate, ventilation and illumination, sanitary and technical infrastructure of main schoolhouse premises.
3.6. Method of hygienic assessment of pupils stay and education in modern schoolhouses.
3.7.Hygienic requirements to school furniture and their physiological substantiation.
3.8. Rules of school desks and other school furniture marking, pupils seating. Hygienic requirements to school desks location in school class.
3.9. Main preventive measures concerning improvement of sanitary and hygienic conditions of pupils stay in modern school houses.

GENERAL INFORMATION FOR PREPARATION TO THE PRACTICAL CLASS

Buildings of general schools are located not more than 25 meters distance from red line of the land plot. Distance from border of school plot to residential building walls with entrances and windows must be more than 10 meters.

Green protection zone (trees, bushes, laws) of 1.5 meters wide (from street side вЂ“ not more than 3 meters) is provided along the perimeter of the land plot.

There is 1.2 meters high fence around the territory of educational establishment. It is allowed to use 1 meter high green fence if schoolhouse is located inside residential areas.

Green area of land plot of general education establishment must be 45-50% from its total area. Green area may be decreased to 30% if land plot is adjoin to green areas (parks, gardens, squares) or school is located in rural area.

Type of allocation and orientation of main functional premises in general establishments must provide permanent 3-hour duration insolation per day. Due to this, tall trees are planted not more than 10B meters distance from educational establishment walls with windows, bushes вЂ“ not more than 5B meters distance. It is prohibited to plant thorn trees, bushes and plants with poisonous berries, grow mushrooms near the school.

Land plot of general educational establishment is divided on following *functional zones*: training zone, training and labour zone, training and research zone, physical training and sport zone, rest zone, economical zone, residential zone and agricultural zone (for schools in rural areas).

It is useful to locate the ***physical training and sport zone*** along the land plot from North to South near the training zone but not near the windows of elementary school premises.

Areas for outdoor games with ball and throwing of sport equipment are located not more than 25B meters distance from windows of training and training and additional premises of schoolhouse building, areas for other types of physical training вЂ“ not more than 10B meters distance.

Sport areas must be with hard and obligatory flat surface for trauma prevention. Running track is equipped around football ground and includes straight 100 meters running track for sprinter competition.

Pits for high and broad jumping must be filled with sand mixed with sawdust, their borders are covered with rubber except front one. Drainage systems are necessary in the design of running tracks and sport areas (for volleyball, basketball, handball).

Combined area (if they are equipped) may be paved with asphalt or cement, but football ground must be covered with grass obligatory. It is prohibited to carry out physical training in damped areas.

Areas for 1-4 years pupils must be equipped with shadow shelters, descending hills, swing, cement wall for playing with ball, benches, hard surface tracks for roller skating and bicycling, shallow swimming pool etc.

All children must be familiar with rules of the sport inventory and equipment usage. Sportswear and shoes must obligatory be dressed during physical training at sports grounds.

Areas for physical training are fenced with green plantations from each other. Play areas are sown with low grass if they are near the schoolhouse building.

Economical zone has separate entrance and is located near the training (training and field) zone and canteen premises. There are repair shops, storehouses, garages, garbage recipients, barn and manufacture premises in this zone. Garbage tanks are closed with lids tightly and located at not more than 25B meters distance from canteen windows and entrance on asphalted or cemented ground under the shelter.

There is an asphalt or cement surface on approaches to schoolhouse building (not more than 100 meters distance), driveway, pedestrian approaches to economical premises and outdoor public conveniences in rural schools without sewerage.

Campuses for pupils, and if required - teachers and other personnel are located in the *residential area* of the land plot, which must have separate entrance from the streets and driveways and be at least 100 meters far and isolated from the economical zone.

Sanitary gaps between sleeping buildings and residential zone border must be not less than 50B meters distance. Distance between sleeping buildings and motorway must be not less than 150 meters, to economical zone - not less than 100 meters.

Areas for outdoor games of *rest zone* are located near premises exit and divided between pupils of each age group for their maximum usage during breaks.

It is prohibited to use enclosed court of schoolhouses for economical needs (car parking, location of furniture, equipment, spoil sheet, metal scrap and construction materials).

Training and research zone must be not more than 25% of total land parcel area. This zone may be decreased in urban schools to make room for hotbeds, greenhouses and conservatories, connected with complex of studying rooms of natural direction (biology, chemistry).

Land parcels of rural schools may be enlarged at the account of hotbeds, greenhouses, conservatories, premises for agricultural engineering, lawn-and-garden inventory storage.

Building of general educational establishment must provide optimal conditions for the pupils- training and education, rest and nutrition. Based on the above, it is necessary to locate this building such way that lighting and insolation level of training premises would be optimal, connection between land parcel and building - the most rational.

The basic principles of hygienic design schools are:

- Providing an enabling environment for the educational process;

- Ensure optimal light regime;

- Creating conditions for physical education;

- Creating conditions for Guidance;

- Ensure the rational organization of food
students;

- Create conditions for recreation for children and adolescents;

- Creation of conditions for organization of cultural and media work.

Buildings educational institutions is carried out in three major systems:

a)compact (centralized) b)block (sectional)

c)pavilions (decentralized)

Requirements for Classroom:

- The best form of classroom - rectangular (depth 6-6,3 m in length - 8-8,4 m) of depth to width ratio of 3:4. The distance from the first row of desks to the board should be 1.6 - 2 m, ceiling height - 3, 5 m. Location ups - nearside, consider the angle (angle between the line of sight and plane blackboard in the horizontal plane) must be at least as 30 ° -35 °.

Topic №7

Method of chemical and physical examination of children goods(toys and books)

1.Learning objective

1.1. Master theoretical knowledge on the children and adolescent organism development depending on anatomical and physiological peculiarities and age, main criteria and indices of hygienic assessment of children toys, manuals and school textbooks.

1.2. Become familiar with methods of the sanitary and chemical research of children toys.

1.3. Master the method of hygienic assessment of manuals and school textbooks.

2.Basics

2.1. You should know:

2.1.1. Peculiarities of the children and adolescent organism depending on sex and age, anatomy and physiology, psychology and physiology.

2.1.2. Physical and chemical criteria for assessment of children toys.

2.1.3. Hygienic requirements to manuals.

3.Self-training questions

3.1. Physiological and hygienic substantiation of correspondence of children toys to sex and age peculiarities of the child.
3.2. Characteristic of toys by target age and didactic destination.
3.3. Hygienic requirements to raw stocks, materials and paints which are used during the toys production.
3.4. Methods of hygienic assessment of toys.
3.5. Conditions which are determinative to the visual load level while reading.
3.6. Requirements to the publishing and polygraphic design of school textbooks.
3.7. Requirements to the type families, type sizes and their composition.
3.8. Method of hygienic assessment of manuals for schoolchildren.

GENERAL INFORMATION FOR PREPARATION TO THE PRACTICAL CLASS

Hygienic assessment of school textbooks

Quality of polygraphic materials and paper determines **sanitary state of the textbook** (cover quality, application of shaggy, unsized paper which becomes wet easily and leads to quick pollution and destruction of the textbook, interferes into formation of hygienic skills of children and has epidemic risk).

Cover of the textbook must be hard, made from the minimum polluted material. Hard covers wrapped with paper, film or fabric folder with edge, fabric or paper back and soft woven and non-woven fabric covers are used for textbooks. Textbooks are joined with threads, bindings (glue or clip) without threads are prohibited.

Maximum weight of the school textbook must not exceed 300 g. Total weight of textbooks per one study day together with writing equipment (without weight of briefcase or satchel) may not exceed allowable standards for the load transportation on up to 3 km distance for I-III form pupils from 1.5 to 2 kg, IV-V form pupils - from 2 to 2.5 kg, VI-VII form pupils - from 3 to 3.5 kg, VIII-X form pupils - from 4 to 4.5 kg.

Degree of the visual loading during reading depends on such factors as:

· conditions of *visibility of the text*;
· *easiness* for reading.

Visibility of the text is determines by following parameters:

**** quality of paper*** (colour, showthrough, smoothness). The paper has to be of white or slightly yellow colour with reflection coefficient at level 0.7-0.8, smooth, non see-through and not grossy. The showthrough of the paper is determined as a reflection coefficient difference before and after putting of the black plate under the sheet. The printing paper в,,–1 and offset paper в,,–1 and в,,–2 satisfy the above requirements completely. The printing paper в,,–2 is allowable for usage, but the printing paper в,,–3 and news-print is prohibited.
**** quality of printing*** (contrast between letters and background, saturation, colour and fixation of ink).

Easiness for reading is determined by the following parameters:

· characteristics of type (type family, type size);
· composition density;
· line length;
· line spacing;
· aprosh.

Type family is the appearance or type face design. Type family must be simple contour with direct letters drawing, be clear and expressive. This is reached by certain correlation of the letter width to their height and width of down (vertical) and joining (horizontal and slash) strokes.

Type size is the size of font and composition which includes the height of the letter and gaps above and under the letter, and is measured in printer's points (point equals 0.376 mm).

Type size must correspond to age peculiarities of the visual perception and development of the reading skills. Textbooks for 1st form (including ABC books etc.) are printed by large

type family with contours approaching the square, and letter difference of width of down and joining strokes, without serifs at the end of the letter. It significantly eases reading and conforms to peculiarities of the visual perception of children, who are learning to read. All texts of ABC book must be of the same type family. It is prohibited to change the type face design in the ABC book. New letters in the ABC book are printed, but not drawn with not smaller than 48 type family, except examples of writing.

Children get over recognition of separate letters to easy reading in the second form. Then the type with serifs at the ends, which leads the children's sight from the letter to the letter, is perceived the easiest. Gradual transition from large type sizes to smaller ones with correlation of the letter width to their height 1:1.5 - 1:1.75 and correlation of width of down and joining strokes 2:1-3:1in textbooks for middle and high school age pupils.

Additional texts (notes, explanations, indices, dictionaries etc.) may be printed with standard or medium, Roman or Italic type and also Italic type size not less than 8 in textbooks for III-X(XI) forms. It is recommended to italicize words and phrases with medium or bold type, spacing is allowed only for separate words.

Correct connection of requirements to printing and composition, aside from the decreasing of the type size with the age of children, demands shortening of line length. It is prohibited to use two-column composition in design of textbooks for primary and middle school pupils due to the complication of the text perception and visual fatigue resulting from frequent line changing. The *two-column composition* of ten point type with the not less than 63B mm line length and not less than 9-10B mm column space is allowable in textbooks for VP†P†P†-PЃP† forms on subjects which do not need prolonged reading (anatomy and physiology of human, geography, dictionaries, indices etc.).

Surrounding margins of the type area must be legible, that leads to easier reading of the text. These margins must be contrast with the type area, white and sufficient sizes. If the child reads a book of such design, his side vision percepts beginning and end of the line distinctly while moving eyes along the line and changing lines. Optimal margin sizes are defined as a difference between the recommended edition format and type area. Blanks not less than 12 point for black-and-white and 18 points for colour pictures are made to percept clearly the text between it and pictures.

Composition density is defined as number of marks per 1B cm^2 area, must be not more than 10 marks of fourteen and more body-size and not more than 15 marks of nine-twelve body-sizes. Composition density is sufficient if there are two lines per 1B cm^2 area. All lines except headings and indentions must begin from one vertical level based on the correct eye movement along the line.

Additional text is printed after small gap from vertical that allows to find it easily in the textbook.

Composition density is researched by putting the special metal plate with five apertures each with 1B cm^2 area onto the sheet, reflection coefficient of the paper by photometer.

Number of transpositions is limited by 3-4 per sheet, especially in textbooks for primary school.

Colour illustrations made with light, low-saturated inks with distinguished boundary details are recommended in textbooks especially for primary school.

Line spacing is defined as distance between lines, margin sizes.

Scheme of sanitary research of toys

Date of examination _____

1. Characteristics of toy

1.1. Name of the toy and its short description.

1.2. Size, weight of the toy (the weight of the toy may not exceed 100 g for up to three year old children, not more than 400g - for up to 7 year old children and 800 g - for up to 10 year old children).

1.3. Colour of the toy.

1.4. Material (parent and complementary), which parts it is present in.

1.5. Filler.

1.6. Form and construction.

1.7. Durability and tidiness of production.

1.8. Easiness of separation of small parts, presence of sharp, cutting and weakly protected parts which may be dangerous form the children traumatism point of view.

2. Sanitary characteristic of material

2.1. Dirtiness of the material (raw stocks), application of waste material.

2.2. Fixation stability of colorants (dry lies smooth, rough, has seediness, fissures, paint defects, package hardness).

2.3. Peculiar and special sanitary properties (fire risk, ability to scatter etc.).

3. Aesthetic and educational characteristic of the toy (develops primary movements and perception, acquaints children with elements of science and engineering, leads to artistic and musical development of children, reflects subjects and examples of environment).

4. Organoleptic assessment of the toy (odour degree for up to 3 year old children вЂ“ not more than 1 point, from 3 to 7 year old children - 2, up to 7 year old children - not more than 3 points).

5. Chemical composition of the toy.

6. Sanitary and hygienic (general) assessment and recommendations.

Method of chemical analysis:

1. Laboratory examination of the fixation stability of the colorant:

a/ colorant transfer on paper after washing with cold water;

b/ wipe: +weak, ++middle, +++high,x- colorant can not be wiped:

- with dry tampon;

- while washing with hot water (60 C°) with soap during not less than 3 minutes,

- while washing during 3 minutes in 2 % solution of bleaching powder (chlorinated lime) at room temperature (18 C°).

2. Examination of colorant's resistance to the influence of 1 % solution of HCI, KOH, $NaHCO_3$ during 2 minutes.

Take the cotton tampon wetted in acid, soda solution and clear painted parts of the toy in turns. If colorant dissolves, the cotton gets coloured.

If the toy is painted with different colours, dissolving of each type of paint has to be tested.

If such disturbances, as changes of colour of the used solutions, cotton tampon, the toy appearance (darkening of the colorant, stickiness of the toy surface) are registered during this test, it means than fixation of colorant is insufficient.

3. Determination of lead content in colorant.

If the colorant is soluble the lead content has to be determined. For this purpose the cotton tampon is wetted with 3-5% solution of acetic acid and the painted toy surface is wiped. Then 5% potassium iodide solution is dropped on the cotton.

If the lead content is more than 0.1% the cotton becomes yellow due to formation of PbI.

Except mentioned above it is necessary to determine the following parameters during hygienic assessment of **optical toys**:

a/ magnification force (the height of reflected letters may be not less than 2.75B mm);

b/ approaching the subject to eyes (must be not closer than 250B mm during examination);

c/ center-to-center distance of the stereoscope systems (standard is 50-64B mm).

Topic №8

Method of hygienic control of organization the physical and labour training of children and adolescents.

1. Learning objective

1.1.Master theoretic knowledge on hygienic basics of rational organization of physical and labour training, occupational orientation of schoolchildren in modern conditions.

1.2. Become familiar with methods of hygienic assessment of organization of physical and labour training for children and adolescents.

1.3. Master methods of medical and occupational consultations, occupational selection and prognosis of the level of pupilsвЂ™ occupational activity success.

2. Basics

2.1. You should know:

2.1.1. Hygienic basics of rational organization of physical and labour training of children and adolescents.

2.1.2. Hygienic requirements to organization of physical and labour training in modern general educational establishments.

2.1.3. Main stages and hygienic principles of occupational orientation, medical and occupational consultations and occupational selection of pupils.

3.Self-training questions

.

3.1. Hygienic principles of rational organization of physical training for children and adolescents. Types, means and forms of the physical training in modern educational establishments.

3.2. Definition of locomotor activity. Scientific backgrounds and methods of quantitative measurement and hygienic assessment of the locomotor activity. Hypokinesia prevention.

3.3. Physiological and hygienic backgrounds of assessment of the physical training lesson. Hygienic requirements to places for the physical training.

3.4. Medical control of organization of physical training lessons and hygienic aspects of medical provision of the physical training for children and adolescents.

3.5. Physiological and hygienic basics of tempering of the child and adolescent organism. Main types, principles and methods of organization of tempering.

3.6. Hygienic principles of the rational organization of the handcraft and polytechnical training of children and adolescents.

3.7. Physiological and hygienic basics of control on handcraft training of schoolchildren..

3.8. Hygienic requirements to content, regime, organization and conduct of the handcraft training in different types of modern educational establishments.

GENERAL INFORMATION FOR PREPARATION TO THE PRACTICAL CLASS

Main *external indices of the fatigue development* include following: changing of complexion, especially intensive red colour of the face, disturbances of breathing characteristics, especially dyspnea appearance, worsening of the health state, decreasing of the coordination of attention, appearance of sweating and difficulties during coordinated movements etc..

Examination of *the physical readiness* includes assessment of speed (results of 30 (60, 100) meters running), muscle (data of squeezes from the floor, rising the body from laying position, tightenings on horizontal bar) and speed and muscle (results of broad jump from the spot) efficiency, and also level of the physical tolerance (data of 2000 (3000) meters running).

Medical support of the physical training lesson means than certain group of physical training is determined for each children based on the data of deep medical examination.

There are three groups of physical training of children and adolescents in school. *Main group of physical training* consists of children and adolescents without any deviations in the health state or have slight deviations, and sufficient physical condition. Among pupils of the main group the physical training is carried out in accordance to syllabuses on the subject completely, and control standards are checked with differentiated mark.

Preparatory group of physical training consists of children and adolescnts who have deviations on the health state and insufficient physical condition, and children-reconvalescents. The physical training among pupils of the preparatory group is carried out in accordance to syllabuses on the subject, obligatory following principles of sequence and succession.

Data concerning approximate terms of recovery for physical training after acute diseases are represented in table 1.

Terms of recovery for physical training after acute diseases

Disease	*Term of recovery for physical training after disease*
Acute respiratory and viral infections	1- 3 weeks
Sore throat	2 - 4 weeks
Acute otitis	2 - 4 weeks
Acute bronchitis	1 - 3 weeks
Pneumonia	1 - 2 weeks
Pleuritis	1 - 2 weeks
Influenza	2 - 4 weeks
Acute infectious diseases	1 - 2 weeks
Acute nephritis	2 weeks
Viral hepatitis	8 - 12 weeks

Appendicitis (after operation)	1 - 2 weeks
Fractures of extremete bones	1 - 3 weeks
Concussion of the brain	3 - 12 months and more

Special group of physical training includes children and adolescents with significant temporary or permanent deviations of the health state. The physical training with them is carried out according to the special differentiated syllabuses or programs of therapeutic physical training.

Sanitary and hygienic assessment of the handcraft lesson of pupils includes time-keeping observations, control of content (characteristics of main handcraft operations, peculiarities of the material choose and provision of profile polytechnical training, compliance to standards concerning duration and volume of handcraft, lifting and dislocation of loads), regime (place of the lesson in schedule and its structure, peculiarities of the study materials representation, usage of visual methods of training and form of active rest) and conditions of training (examination of sanitary and hygienic conditions of training and correspondence of workshop equipment to the pupil's height, following safety instructions), revealing signs of the fatigue development among pupils during training and research of functional state of children and adolescents during handcraft activity.

Main stages of occupational consultation and occupational selection

Main stages of occupational consultation and occupational selection are following:

*study of the health state and adaptive resources of the organism;

*determination of main psychological and physiological functions for examined profession based on the analysis of literature data, time-keeping during occupational training and working process;

*carrying out the expert assessment of occupational significance of psychological and physiological functions, physical qualities involving highly qualified specialists, physiologists, hygienists, masters of professional training in this process;
*selection of adequate, informative, reliable and simple methods of research of occupationally significant functions;
*taking into account the motivation direction, individual and typological, nervous and psychological peculiarities of the organism and initial level of main functions development;
*correspondence of received results to requirements of professiogram and psychophysiogram of examined specialty;
*scientifically substantiated prediction of the occupational training success and further occupational activity.

Methods of prediction of success of occupational activity

The most widespread *methods of occupational selection and prediction of the success of professional training and future occupational activity* are the following:

*method of delimitation of physiological fluctuations of criteria functions, which means studying types of reflex phenomena and their further assessment;

*vector analysis of occupational perspective;

*method of assessment of development of main occupationally significant functions (in points) and prediction of success of the occupational training;

*prediction of professional aptitude resulted from fundamental basis of fuzzy logic, neural networks.

Delimitation of physiological fluctuations of criteria functions and determination of the type of reflex phenomena of the organism allow to define people with high, average or low level of the development of main occupationally significant functions, identify both individual character of their formation and general mechanism of development of physiological reactions caused by the age and sex peculiarities.

Vector analysis of occupational perspective is the most demonstrative method of occupational selection of pupils, and it allows to define peculiarities of individual development of criteria functions with further graphic image of profile of psychological and physiological development of the schoolchild's organism.

Determination of success of professional training based on the point assessment of level of the development of occupationally significant functions means the research of development peculiarities of criteria characteristics of the organism functional state, proper point assessment of the development of the main functions and general definition of prediction of the occupational training success and further occupational activity .

Topic №9

Hygienic assessment of location and planning of some structural hospital divisions according to the project materials.

1.Learning objective

1.1. To strengthen the student's knowledge of the hygienic requirements concerning the patient care institution's location and planning on the basis of assessment and analysis of the study project materials and the normative documents; to teach the students to draw the hygienic conclusions, substantiated resolutions and give the recommendations.

2.Basics

2.1. You should know:

2.1.1. Basic hygienic requirements concerning the planning and regime of exploitation of the patient care institutions, the therapeutic, surgical, infectious diseases and other specialized departments.

3. Self-training questions

3.1. Preventive sanitary inspection of the patient care institution's project and building; its main stages. Constituents of the project.

3.2. Hygienic requirements concerning the location of the hospital within the settlement taking into account the adjacent objects and ''wind rose''. The situational layout.

3.3. Hygienic requirements concerning the hospital area general layout, the territory functional zoning, accomplishment, density of housing and green area.

3.4. Modern systems of the hospitals site development (centralized, blocked, decentralized-pavilion, mixed), their comparative characteristics, influence on the exploitation and equipment conditions.

3.5. Hygienic significance of the hospital constructions and department's internal planning for the provision of the personnel labour and patient treatment hygienic conditions.

3.6. Hygienic requirements concerning the planning of the hospital admission departments; its significance for the exploitation regime and the hospital nosocomial infections prevention.

3.7. Hygienic requirements concerning the planning and the work regime of the therapeutic, surgical and infectious diseases departments.

3.8. Hygienic characteristics of the ward sections, the requirements for these sections rooms at different departments.

3.9. Hygienic requirements concerning the planning and equipment of wards and different purpose departments. Peculiarities of infectious diseases and intensive care unit's planning and equipment.

3.10. Hygienic requirements concerning the planning, equipment and the exploitation regime of the surgical departments operating blocks.

GENERAL INFORMATION FOR PREPARATION TO THE PRACTICAL CLASS

Methods of the hospital expert hygienic assessment according to the project materials

The hospital sanitary and hygienic project appraisal begins with the explanatory note, in which there are the registration certificate data of the projected hospital (name, amount of beds, the polyclinic visitor's amount), the peculiarities of architectural and building, sanitary and technical solutions, and other reference data which can't be demonstrated on the drawings (the hospital group of building's store, systems of water, gas, heat and electricity supply, systems of ventilation, collection, removal and elimination of hard and liquid wastes, measures on the environment protection).

After this the situational layout is examined - a zoomed copy of the area marked for the site development topographic map, all the existing and projected objects around the area are also noted. Taking into account the ‘’wind rose’’, possible unfavourable influence of these objects on the projected hospital territory (air and soil pollution, noise etc.), the distance of the hospital from the settlement or its region which it will serve, from the railway, motorway etc are found.

After this the hospital general layout is studied: size, configuration of the site taking into account the reserve for possible widening or reconstruction. The territory zoning, percentage of the site development, green area, communications of the accomplishment (water supply and sewerage systems, electricity, heat and gas supply), passages and drives to the buildings etc are determined.

Then central building facades, plans and slits, distribution within it and the assessment of some departments are examined. The admission department and any other building department (either surgical or therapeutic one) are subject to especially thorough assessment.

The number of rooms in ward section, its area, cubic capacity, window orientation, natural lighting indices, ventilation and the distribution of beds within one or two wards are then studied.

After that, the planning of the operating block of surgical, obstetric and gynecological or neurosurgical departments, also the peculiarities of the infectious diseases building wards planning (boxes, semi-boxes, isolation/isolated wards) are assessed.

Hygienic requirements for the patient care institutions planning and accomplishment

The patient care institution site development area is selected taking into account several reasons:

- a distance from the farthest settlements of the population service zone: land plot must be connected with population service zone favorably (patient must be taken to the hospital in no more than 30 minutes);

- a distance from the possible air or soil pollution sources; the sources of noise, vibration, EMF, the emission of the industries, airports, railway stations, speed motorways and other, taking into account their sanitary and protection zones and ‘’wind rose’’;

- usage of the existing green area (park, wood);

- a flat countryside or a flank of hill towards the Southern points and others.

The site land area depends on the power, specialization and system of the hospital group of buildings site development (table 1).

Standards to calculate the site land area for the adult’s in-patient hospital with the accessory buildings and constructions*

Number of beds	*Area norm per 1 bed, m2*	*Number of beds*	*Area norm per 1 bed, m2*
up to 50	300	> 400 to 800	100-80

> 50 to 100	300-200	> 800 to 1B 000	80-60
> 100 to 200	200-140	> 1B 000	60
>200 to 400	140-100		

Systems of hospital site development are:

- decentralized (pavilion), when each department is situated in the separate building;
- centralized-blocked, when all departments are situated in one (semidetached) building;
- mixed, when the majority of departments are situated in the central building but some separate ones (infectious diseases, children's, psychiatric departments and so on) - in the isolated buildings.

The positive feature of the decentralized system is the possibility of patients to stay more outdoors; the drawback is the difficulty during the usage of the diagnostic, physiotherapeutic measures or their doubling, which increases the capital expenditure.

The drawback of the centralized system is the difficulty of nosocomial infections prevention, decreased time or impossibility of the patients to stay outdoors.

The mixed system, when the infectious, psychiatric and children's departments are situated in the separate buildings, has none of abovementioned drawbacks, and that's why it is the most suitable.

The site land project of the patient care institution includes the following zones:

- a zone of the patient care buildings for non-infectious patients;
- a zone of the patient care building with infectious diseases;
- a polyclinic zone;
- a zone of morbid anatomical department;
- a household zone;
- a landscape zone.

The hospital territory is divided into the following zones: the in-patient, the out-patient buildings (polyclinic), the infectious diseases unit, the household and accessory premises and landscape area.

The central building departments should occupy the next floors:

1st floor - the obstetric department, the children's department for 30 beds for the children till 1 year old, the admission department and the central hospital entrance;

2nd floor - the rehabilitation, obstetric and children's (for 30 beds for children till the age of 6) departments ;

3rd floor - the rehabilitation, intensive care and children's (for 30 beds for children after the age of 6) departments;

4th floor - the therapeutic department consisting of 2 sections for 30 beds and rehabilitation;

5th floor - the neurological department for 30 beds, the therapeutic section for 30 beds and the X-ray department;

6th floor - the functional diagnostics department, the gynecological department consisting of 2 ward sections for 30 beds;

7th floor - the chemist's shop, the otolaryngological department for 30 beds and the ophthalmologic one for 30 beds as well;

8th floor - the surgical department consisting of 2 ward sections for 30 beds and the clinical diagnostic laboratory;

9th floor - the trauma unit for 30 beds and the operating block

Topic №10

Hygienic assessment of the patients stay and medical personnel labour hygeine at patient care institutions

1.Learning objective

1.1. Master the knowledge on the hygienic conditions and harmful factors influencing the efficacy of patient's treatment and medical worker's health.
1.2. Become familiar with the legislative and organizational measures of the provision of the optimal regime, hygienic conditions for patients of the in-patient departments and the medical worker's labour protection.

2.Basics

1.1.You should know:

1.1.1. Basic hygienic requirements concerning the planning, equipment, regime, exploitation of the treatment, diagnostic, accessory and consumer subdivision of t in-patient departments.

1.1.2. Hygienic standards of microclimate, air, ventilation, natural and artificial lighting of different subdivisions of the medical institution, their importance in the patient's treatment efficacy and the conditions of medical personnel labour.

1.1.3. Harmful and dangerous factors of different subdivisions of the medical institution (diagnostic, physiotherapeutic, balneal etc.), their influence on the patient's and medical personnel health.

3.Self - training questions

3.1. Hygienic significance of the planning, equipment, optimal regime of exploitation of the patient care institutions as conditions for the increase of patient's treatment efficacy, prophylaxis of nosocomial infections and creation of safe medical personnel labour conditions.

3.2. Hygienic requirements concerning the planning, sanitary appliance of the different type admission department and patient's discharge.

3.3. Hygienic requirements concerning the planning, sanitary appliance, optimal regime of exploitation of the therapeutic, surgical departments, the operating block and the intensive care units.

3.4. Hygienic peculiarities of planning, sanitary appliance, optimal regime of exploitation of the infectious, children's, physiatric and other specialized departments.

3.5. Hygienic requirements concerning the planning, sanitary appliance, optimal regime of exploitation of the ward sections and the wards of different departments of patient care institutions.

GENERAL INFORMATION FOR PREPARATION TO THE PRACTICAL CLASS

Speaking about the regime of exploitation of medical in-patient subdivisions, it should be noted that the main requirement concerning the favourable influence on patient's treatment efficacy and conditions of medical personnel labour consists in the maintaining of optimal microclimate conditions, i.e. the rational heating of the premises in winter and air conditioning in summer. The optimal air temperature in the wards in winter and during the transitional period should range from 19 to 22°C, the relative humidity should be 40-60 %, the air movement speed within the limits of 0.05-0.1 m/sec.

In the nursery, post-operative wards, burns units and in case of fever of the infectious patients the air temperature should be a bit higher - 22 - 25°C, and for patients with thyrotoxicosis - lower - 18 - 22°C.

Insolation and its UV component are of great importance; therefore the majority of windows (more than 50 %) face towards the south-east and south. Having less than 50% of windows with northern, north-eastern and north-western orientation is permissible in the geographic latitude of Ukraine.

Natural ward lighting should provide the daylight factor (DF) of not less than 1%, the lighting coefficient (LC) 1:5 - 1:6; in the procedure, manipulating, dressing and operating - DF respectively is 1.5 - 2 %, LC - 1:3 - 1:5.

Artificial illumination by the incandescent lamps should be not less than 30 lux in the wards, 100 - 150 lux in the procedure, manipulating and dressing rooms, 200 - 1 000 lux in the operating rooms.

Illumination by the luminescent lamps in the abovementioned rooms should be twice as higher. To combat with the noise is also of great importance in the hospital wards.

Hygienic characteristics of occupational hazards for different medical personnel

The occupational exercise load and hazards of the surgical specialties doctors include:

1) the number of surgical interventions - up to 150 per year in general surgery, 170 - in otorhinolaryngology, 370 - in obstetrics and gynecology. The number and complexity of the operations increase with the raising the level of the surgeon's skill;
2) the forced body position with the trunk frontal bending and the prolonged static tension of muscles of the shoulder girdle, back and stretched forward arms;
3) the hot microclimate of the operating room with high streams of the radioactive heat from the artificial lighting sources (shadowless lamp);
4) the ionizing radiation during the X-ray examinations, especially in traumatology, vascular surgery, neurosurgery;
5) the toxic effect of the narcosis agents (nitrous oxide, halothane, chloroform, diethyl ether) and anesthetics;
6) high mental and nervous-emotional exertion, connected with the complexity and duration of the surgical intervention, possible post-operative complications and responsibility for patient's life.

Occupational diseases of therapeutic doctors, first of all of the phthisiatricians, infectiologists, specialists in skin and venereal diseases, helminthologists, the laboratory assistants at the bacteriological, virological, helminthological laboratories include the corresponding infections; phthisiatricians, X-ray doctors, radiologists suffer from dermatitis, eczemas, toxicodermia, melanomas, leucosis, skin cancer, radiation sickness; psychiatrists - psychoneurosis and others.

One of the main occupational hazards for dental doctors is their forced standing with the bending and turning trunk position which leads to the prolonged static tension of the corresponding muscles groups; noise and vibration due to drilling machine, sight exertion, blinding effect of the photopolymer lamp, penetration of mercury fumes from the mercury amalgam into the respiratory organs, fumes of the polymer materials solvents, danger of infection from the patient with the upper respiratory tract diseases during the incubation or convalescence stage, while performing the manipulations connected with the patientвЂ™s mucosal membrane or blood contact.

Abovementioned hazards can result in bearing disorder (34-45%), varix dilatation of the lower extremities (19-49%), signs of the vibration diseases (paresthesia, loss of hand's temperature sensibility and perceptibility).

The visual analyzer exertion can lead to the accommodation spasm, so-called false myopia, and sore eye.

AIDS, prion disease, hepatitis B and C can be transmitted through saliva, gum tissue and open wound.

Measures for improvement of the medical personnel labour conditions

Personal protective equipment of body, eyes and respiratory organs are widely used.To be protected from the ionizing and non-ionizing electromagnetic radiation, methods based on physical laws of radiation decay, which are stated in the legislative and organization direction are used. They include the protection by means of the radiation sources capacity limitation, distance, time, and shielding.

In order to keep health of medical personnel with harmful labour conditions, the legislation establishes the half day:

-4-hour-day -for medical workers directly connected with the bare radionuclides;

-5-hour-day - for personnel connected with sealed sources of the ionizing radiation (gamma-, X-ray), also for morbid anatomists, prosectors, forensic medical experts, anatomists;

-5.5-hour-day - for doctors of the tuberculosis, psycho-neurological centers, physiotherapeutists, dentists;

-6-hour-day - at the infectious, tuberculosis, psychiatric, narcological, balneal, radon, laboratory departments.

Topic №11

Hygienic assessment of radiation protection of personnel and radiation safety.

1. Learning objective

1.1. Extend, methodize and strengthen knowledge on radiation hazard for personnel and patients of patient care institutions during usage of radioactive nuclides and other sources of ionizing radiations in diagnostic and treatment purposes, on principles and ways of radiation protection.

1.2. Master methods and ways of radiation control of labour conditions of personnel and protection of patients in X-ray and radiological departments of hospitals.

2. Basics

1.1. You should know:

1.1.1. Ways of use of radioactive nuclides and other sources of ionizing radiations in hospitals with diagnostic and treatment purpose.

1.1.2. Peculiarities of biological effects of ionizing radiation.

1.1.3. Essence of radiation hazard during working with radionuclides and other sources of ionizing radiation.

3. Self-training questions

3.1. Ionizing radiation as occupational hazard for personnel of hospitals.

3.2. Ionizing radiation as risk factor for patients of hospitals during radiology and nuclear diagnostic and treatment procedures.

3.3. Structure of radiological department of hospital. Peculiarities of radiological hazard and radiation protection in each organization department (bare, sealed sources, long-focus therapy).

3.4. Characteristics of radiological hazard in X-ray diagnostic room and conditions it depends on.

3.5. Ways of decreasing of radiation exposure of personnel and patients of patient care

institutions. Sanitary and technical equipment of X-ray and radiological departments

3.6. Methods of collection and sterilization of radioactive waste during work with bare sources of ionizing radiation.

GENERAL INFORMATION FOR PREPARATION TO THE PRACTICAL CLASS

Radiation protection of personnel and radiation safety of patients during X-ray procedures

Amongst sources of ionizing radiations, used in medical departments, the most common are X-ray diagnostic apparatuses. X-ray radiation, generated by those apparatuses, is characterized by significant penetrating power and, as a result, may pose hazard for personnel of X-ray subdivisions, patients, undergoing radiological procedures, persons that are in adjacent premises and on adjacent territory. That is why their allocation, planning and exploitation must satisfy the requirements of radiation safety.

Protection of radiologist is provided by:

- lead-impregnated glass that covers fluorescent screen;
- multiple-stripe apron of lead impregnated rubber, that is hung onto screening device;
- small protective screen;
- use of individual safety means (gauntlet, apron from lead impregnated rubber (in textile cover for protection from diffusion of lead)) in special cases.

Protection of laboratory assistant of X-ray room is provided by allocation of his work place in separate adjacent premise that is called control room (panel room). This work place is provided with window of lead-impregnated glass to treatment room and with means of direct communication with doctor.

In addition to treatment room and panel room, planning of X-ray room or X-ray department must have:

- consulting room - 10B m2;
- photographic laboratory - 6B $m2^2$;
- booth for preparation of barium solutions - 4B $m2^2$;
- cloakroom - 2.5 $m2^2$;
- toilet;
- waiting room (in polyclinic).

Radiation safety of patients is based on decrease of radiation exposure during X-ray examination of population especially pregnant, children and adolescent that can be achieved by complex of organizational, medical and technical measures. Organizational measures provide regulation of X-ray examination of population, restriction of annual dose of irradiation for different categories of patients, raising the level of personnel's skill and responsibility for performance of procedures.

They are given in order, sanitary regulations, methodical instructions by Ministry of Public

Health of Ukraine. All patients that are subject to X-ray examination according to their destination are divided into four categories.

Category A_d - patients with diagnosed or suspected oncological diseases, patients, examinations of which is conducted with purpose of differential diagnosis of congenital cardiovascular pathology, patients that get radiotherapy, patients that are examined on living indications in urgent practice. Recommended limit of annual irradiation for persons of this category is 100B mSv.

Category B_d - patients, examination of which is conducted on clinical indications at non-oncological diseases with purpose of specification of diagnose and (or) selection of treatment tactics. Recommended limit of annual irradiation for persons of that category is 20B mSv.

Category C_d - persons from risk groups including workers of enterprises with harmful conditions of work and those that pass through occupational selection for work at such enterprises, patients that are taken off the books after curative treatment of oncological diseases. Recommended limit of annual irradiation for persons of that category is 2B mSv.

Category D_d - persons that pass through all kinds of prophylactic examinations except those referred to category C_d. Recommended limit level of annual irradiation for persons of that category is 1B mSv.

Different ways of improving of X-ray image: production and use of fast X-ray films, right selection of operating mode of X-ray apparatus (conducting of examinations at minimum values of anode current and voltage on X-ray tube), use of electro-optical image amplifier that permit to get more sharp and brilliant image at dose-sparing regimen of work of apparatus, use of wide-screen Roentgenofluorography during prophylactic examinations are referred to technical measures that provide decrease of radiation exposure.

Radiological departments of hospitals are usually located in one-storey buildings with asymmetric-block planning that provides isolated location of every organization department:

- department of teletherapy;

- department for treatment by sealed sources;

- department for treatment by bare sources;

- department (laboratory) of radioactive nuclide diagnostic.

Alpha radiation is simply helium nuclei, that is, each particle consists of two protons and two neutrons. Because the nuclei have no electrons, they have a +2 charge.

Beta radiation consists of electrons. They have negative charges. Because they are energetic and have no rest mass, they can be more of a potential health threat than alpha radiation.

Gamma radiation is closely related to X-rays. Like light, gamma radiation consists of photons. Gamma rays are extremely energetic and potentially dangerous.

Four of the most important quantities to be defined are:

a) **activity**
b) **exposure(X)**
c) **absorbed dose(D)**
d) **dose equivalent(H)**

ACTIVITY

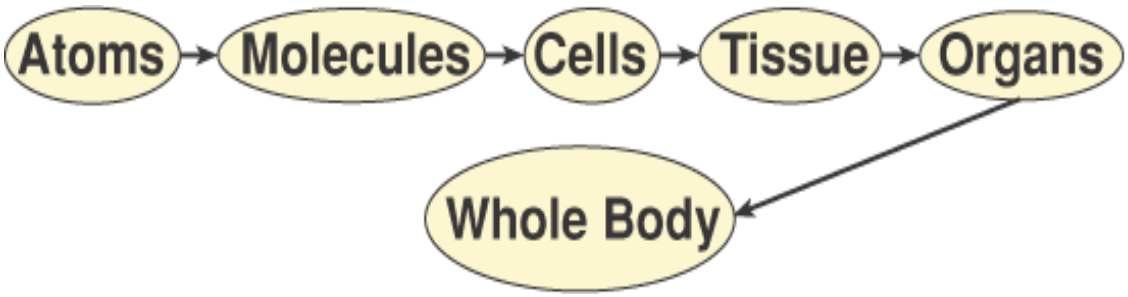
The nuclei of atoms may be unstable as a result of too much mass, too much energy, or both. Such atoms are said to be radioactive. We can define radioactivity as a process of nuclear transformation, resulting in a new nucleus and the emission of particles and/or electromagnetic energy from the nucleus. The emitted radiation consists of particles and/or electromagnetic rays carrying a certain amount of energy.

The unit of measure for energy is the joule (noted J).

Another unit of measure, the eV - electronvolt, is more practical.

	Exposure(X)	Absorbed dose(D)	Equivalent dose(H)
Radiation type	x-rays and gamma rays	all ionizing radiations	all ionizing radiations
Media in which measured	air	any medium	biological system
Effect measured	ionization	deposited energy	biological effect
Unit	Roentgen®	rad	rem
Sl unit	Coloumb\kg	Gray	Joule\kg

The biological effect of ionizing radiation



Deterministic effects have a clear relationship between the exposure and the effect. In addition, the magnitude of the effect is directly proportional to the size of the dose. These effects will often be evident within hours or days.

Stochastic effects are those that occur by chance and consist primarily of cancer and genetic effects. Stochastic effects often show up years after exposure. As the dose to an individual increases, the probability that cancer or a genetic effect will occur also increases.

MAXIMUM PERMISSIBLE DOSES AND DOSE LIMITS

Organ or tissue	Maximum permissible dose for adults exposed in the course of their work	Dose limits for members of the public
Whole body (in case of uniform irradiation)	5 rem in a year	0.5 rem in a year
Skin, bone and thyroid	30 rem in a year	3 rem in a year[3]
Other single organs	15 rem in a year	1.5 rem in a year
Hands and forearms; feet and ankles	75 rem in a year	7.5 rem in a year

Topic №12

Healthy life-style and personal hygiene.

1.Learning objective

1.1. Get acquainted with knowledge about healthy life-style, methods and means to control abuse of drugs, toxic substances, alcohol, tobacco, methods of their application into the practice of public health.

1.2. Master basics of personal hygiene, methods and means of the organism tempering, their application in doctor's practice among organized collectives, separate groups of people and families.

2.Basics

2.1. You should know:

1.1.1. Basics of healthy life-style as mean to preserve and strengthen health of individual and whole population.
1.1.2. Hazardous and harmful consequences of drugs, alcohol, tobacco abuse.
1.1.3. Physiological functions of skin, influence of vital activity products and polluted factors of residential and occupational environment on skin functions and whole organism.

3.Self-training questions

3.1. Healthy lifestyle, its definition, contents.

3.2. Physical training as one of the most important elements of healthy life-style and hypokinesia prevention. .

3.3. Tempering as a way of preservation and strengthening health. Role of water, microclimate parameters, insolation, their course, continuity and complexity.

3.4. Hygienic requirements to equipment and exploitation regime of solaria and photaria.

3.5. Harmful and hazardous habits - drugs, toxic substances, alcohol and tobacco abuse as a threat to healthy life-style, their prevention.

3.6. Personal hygiene as a branch of hygienic science, its contents and significance for the health preservation and strengthening.

3.7. Hygiene of body, hair, oral cavity, teeth, means of their maintenance, their hygienic characteristics.

3.8. Physiological functions of skin - protective, metabolic, excretory, thermoregulator, vitamin D forming, bactericidal and others.

3.9. Influence of skin metabolic products, domestic and occupational environment pollution factors on its physiological functions.

3.10. Means to maintain the body cleanness - showers, bath-houses, saunas, pools, requirements to their equipment and exploitation.

GENERAL INFORMATION FOR PREPARATION TO THE PRACTICAL CLASS

According to the official definition of the WHO (Statute, 1946) ''*Health* is a state of complete physical, mental and social welfare, not only absence of diseases or physical handicaps''.

From hygienic point of view ''*Health* is the state of total biological, physical, psycho-physiological, social welfare when functions of all organs and systems of the human organism are balanced with environment, any diseases, pathological states and physical handicaps are absent''. It is a state of the organism when it realizes fully its biological and social functions - domestic, labour, social (interaction with other people and whole society).

According to the definition of specialists in other medical sciences "*Health* is the interval, within quantitative fluctuations of which, psychological and physiological processes are able to maintain the living system at the level of functional optimum, with self-regulation mechanisms functioning without physiological stress and failure".

From the point of view of new subject, studied at school nowadays, "*Health* is the process (methods and means) of preservation, development of biological, physiological functions, optimal working capacity and social activity of the person if this person's life is maximally active".

Healthy lifestyle and usage of methods and means of personal hygiene are the basis to maintain and strengthen the health of individual and population in the whole.

Healthy lifestyle of the person is a big complex of methods and means of life, biologically and socially directed and expedient, which correspond to the human requirements and abilities. The

person has to follow them to provide formation, preservation and strengthening of the health, reproductive ability and active longevity.

Healthy life-style of the population is a lifestyle, which provides integration of complete biological and social adaptation of each individual with maximum possible self-expression of people, nation, class, social group in specific conditions of life, and causes and provides further social development.

Methods and means of healthy lifestyle maintenance include subjective and objective conditions and factors, which depend on health of individual and society as a whole.

Subjective methods and means include:

1. adherence to personal hygiene rules - correct conditions of labour and rest, sleep and activity, eating patterns;
2. regular maintenance of clean body;
3. regular physical training, usage of methods and means for the organism tempering;
4. absence of harmful habits - drugs, toxical substances, alcohol, smoke abuse;
5. standard of personal culture

Objective methods and means include:

1. endowment of a person resulted from level of education, profession, presence and type of work, level of salary; presence of family and number of family members, living conditions;
2. cold and hot water-supply in the residential premises; for some professions - in industry, public eating establishments - bath-houses, saunas, pools;
3. psychological and hygienic microclimate during interaction with society, work collective, family etc.;
4. full-value, sufficient, balanced, varied nutrition;
5. correspondence to hygienic requirements of domestic and occupational clothes, footwear, personal protective equipment in industry;
6. correspondence to hygienic standards of work hardness, intensity, complexity, factors of occupational environment.

Physical training is of great importance for preserving and strengthening health of each person and for hypokynesia prevention. Physical training influences cortex of brain and subcortical centers, forms balanced nervous and psychological state, stimulates development of the organism muscles, cardio-vascular system.

Physical training includes the following:

-morning exercises for restoration of physical activity and working capacity after sleep;
-physical pauses during workday for increasing the working capacity;
-physical training in person's free time.

Tempering means increasing of the organism resistance to influence of fluctuations of water and air temperature, air humidity, atmospheric pressure, solar radiation and other physical factors of environment.

Main principles of tempering:

-course - gradual increasing of intensity and duration of influence of tempering factor;
-systematic character - procedures have to be done regularly according to the present scheme;
-complex character - purposeful connection of all organs and systems of the organism and influence of some environment factors during tempering;
-individual regime and its correspondence to biological rhythmus of the organism.

Significance of tempering is in the following:

-increases adaptation abilities of the organism to the unfavourable factor's influence;
-decreases sensitivity to respiratory and other infectious diseases;
-increases working capacity;
-forms positive physiological reactions.

Water as a tempering factor

Water procedures result in construction and dilatation of blood vessels that increase the organism resistance to fluctuations of environment temperature and lead to reflex influence on activity of organism organs and systems. Bathing, shower, dousing with water, rub-down, bathes for lower extremities and other water procedures are used for this purpose. There are such types of bathes according to the temperature as:

- cold - less than 20^0C;
- fresh- 20-33^0C;
- indifferent - 34-36^0C;
- warm - 36-39^0C;
- hot - more than 40^0C.

If water is used for tempering, it is better to start with rub-down and only after 2-3 weeks begin dousing with water.

Harmful habits

Drug abuse (or narcomania, from Greek *narka* - stupor, numbness; *mania*- madness) is persistent and morbid propensity of the person to drugs (opium, morphine, cocaine etc.) usage of them to feel excited, intoxication, which lead to disorders of mentality, deep personality changes and functions of internals. Drugs may cause pleasant psychological state even after single use, and psychological and physical dependence after multiple use.

Toxicomania (from Greek *toxicon* - poison, *mania* - madness) is a disease resulted from abuse of any substance which causes short-time subjective attractive psychological state. Essence of toxicomania is a poisoning and need for further poisoning. Substances with different chemical structure and pharmacological activity are used create general psychological and physical effect - euphoria, personality changes, behavioral disorders and social degradation. This term encloses all forms of pharmaceutical and non-pharmaceutical substances abuse.

Alcohol abuse (Alcoholism) is a disease connected with systematic abuse of alcohol drinks which lead to psychological or physical disorders. As a result of alcohol abuse the alcohol intoxication is developed which is accompanied with emotional, motor, speech excitement, disappearance of self-control and critical assessment of situation. Frequent, excess alcohol abuse to receive euphoria effect may result in pathological passion accompanied by psychological and

neurological disorders.

Tobacco abuse (Smoking) is a inhalation of substances with fume which causes both pleasant psychological state and the organism intoxication. Dry tobacco distillation takes place during smoking and some new substances are formed. Tobacco smoke consists of nearly 1B 200 different substances, half of them have poison effect. There are such substances as nicotine and its derivatives, ammonia, carbon monoxide, prussic, acetic and formic acids, phenols, formaldehydes, hydrogen sulfide, carcinogenic matters, soot. The most poisoning substance of tobacco smoke is nicotine, its content depends on type and dryness of the tobacco. One drop of nicotine kills the dog, the leech, which has sucked the blood of inveterate smoker, dies. The lethal dose of nicotine for person who has never smoked before is 60-100 mg.

Program of healthy lifestyle consists of:

-taking into account and usage of individual biorhythmus;
-increasing psychological and emotional resistance (ability to to keep himself in check);
-optimal motor activity for the organism;
-rational food quality and eating patterns;
-complex regular tempering;
-hygienic behavior at home, during work;
-regular physiological functions;
-prevention, giving up harmful habits (drugs, alcohol and smoke abuse);
-usage of biologically active substances and geroprotectors;
-medical correction of different diseases (especially chronic diseases).

Topic №13

Psycho-hygienic basics of the daily activity optimization

1.Learning objective

1.1. Master theoretical knowledge about mental health and its basic criteria, leading peculiarities of human personality.

2. Basics

2.1. You should know:

2.1.1. Main objectives of psychohygiene and main criteria of mental health assessment.
2.1.2. Hereditary factors and environment factors influence on children's and adoescent's mental health.

3.Self-training questions

3.1. Psychohygiene as a science, it's main objective, methods and means.

3.2. Concept of person health and main criteria of its assessment. Boundary neuropsychic and mental disorders and abnormalities as a hygienic problem.
3.3. Main human personality peculiarities (temperament and character attributes, motivation direction, and nervous and psychological state peculiarities).

GENERAL INFORMATION FOR PREPARATION TO THE PRACTICAL CLASS

Psychohygiene is the branch of the up-to-date hygiene and studies the personality nervous and psychological health state, its dynamic due to natural, industrial and social factors influence on the organism and on the basis of it works out scientific measures of active influence on the human organism and its environment to create the most acceptable conditions for preserving and strengthening of psychological and somatic health.

There are following *main tasks of psychohygiene*:

-nervous and psychological population health analysis;
-work out age standards of psycho-physiological functions development and their personal peculiarities;
-studying of environment factors influence on the human organism and their standardization taking into account mobility of neuropsychological and psycho-physiological organism indices.

Mental human health is characterized by the absence of marked nervous and psychological disorders, strength reserve, which allows to overcome accidental stresses or difficulties, and steady balance between organism and environment. Thus main features of mental health are not only the psychological disorders absence, but nervous and psychological development according to age, and acceptable organism and central nervous system functioning.

Due to this *the most important psychical health assessment criteria* are following:

-absence or presence of marked mental diseases and boundary nervous and psychological disturbances;

-harmonicity of psychical development and its age correspondence,

-level of development of leading, social and professional significant, psychological and physiological functions (nervous processes attributes, attention, memory, temperament and character, intellectual efficiency etc.) which cause effective fulfillment of various kinds of training, occupational or living tasks in daily life.

The *temperament attributes* occupy the leading place in the human personality peculiarities. They belong to initial forms of different psychological qualities unification and they are aggregate of needs which are aimed to stabilization function fulfillment. Personality characteristic temperament attributes differ from others because both of their connection with morphological, biochemical and physiological organism peculiarities, and they enter the higher integrative systems tissue.

Temperament is relative permanent state of personality emotional experience, individual reactions stereotype characteristic resulted from environmental and social factors influence, way of emotional reactivity and human activity dynamic. The main indices of different temperament feature expression are strength of compel or impulsivity, speed characteristics of motor activity and stability of motion manifestations.

Mental state of the organism is the general picture of high nervous system activity during the

limited time period. It's understanding is based on self-concept processes. Adequate, permanent and harmonious self-concept assists activity efficiency. Thus studying of psychological and physiological self-concept correlations on the basis of the factorial grouping of their leading characteristics allows to perform complex analysis of mental personal state.
Furthermore, self-concept is the basis of the need to be successful and to achieve certain, complicated and specific purpose. Thus self-concept not only reflects personal attitude to oneself as to the person but determines acceptable requirements level. It is also connected with self-regulation behavior and is one of the main psychological development characteristic.

Leading psychohygienic principles of lifestyle optimization **are following:**

-carrying out hygienic regulation of professional (training) activity;
-determination of factors, which cause adaptation mechanism disorder and taking into account crisis periods during person's life. They include changing of structural personal organization, psychological and physiological, and behavioral disorders, changes of psycho-social orientation;
-rational organization of extracurricular or extra working personal activity which supposes studying of peculiarities of individual temperament, character, motivation direction, nervous and psychic states, taking into account their age changes patterns, using of active methods of psychological and physiological influence on the processes of criteria personal indices formation;
-substantiation and differential implementation of measures of psycho-hygienic correction and rehabilitation.

Topic №14

Water and water supply hygiene in tropical climate conditions

1.Learning objective

1.1.Learn the peculiarities of tropical regions water supply.

1.2. Master the medical control methods of hot and tropical regions water supply and prevention of waterborne diseases.

2. Basics

1.1. You should know:

1.1.1. The hygienic and epidemiological water significance in tropic conditions
1.1.2. Methods and measures of sanitary inspection of tropic regions population water supply.

3.Self-training questions

3.1. Physiological functions of water (structural, exchanging, transporting, excretory, heat exchanging etc.) and their peculiarities in tropic conditions.

3.2. Epidemic and endemic waterborne diseases of arid and humid tropic regions.

3.3. Human body dehydration in tropical climate, its signs and symptoms.

3.4. Scientific substantiations of norms of physiological, residential, industrial water requirements and their peculiarities in tropical regions.

3.5. Hygienic requirements to water quality and their peculiarities in tropical conditions.

3.6. Organoleptic and chemical characteristics of water, their hygienic significance and peculiarities in tropical regions water.

3.7. Organoleptic, chemical, bacteriological, toxicological water pollution indices, their peculiarities in tropical conditions.

3.8. International water quality standards and peculiarities of their usage in tropical conditions.

3.9. Hygienic characteristic of water recourses and water supply sources in arid and humid tropical areas.

3.10 Hygienic characteristic of methods and means of purification, disinfection, special water conditioning methods in tropical conditions.

3.11 Methods and organization of drinking water quality sanitary control in cases of centralized and decentarlized water supply in developed countries of tropical regions and in developing counties.

GENERAL INFORMATION FOR PREPARATION TO THE PRACTICAL CLASS

Physiological water functions which were discussed at lessons of "Water hygiene and water supply" cycle include: its structural, plastic function (65% of body weight is water), exchange function - all exchange process in the organism are held in the water solution, transport and excretory function - nutrients supply to organs, tissues, cells and excretion of wastes. Water and mineral substances ions provide osmotic processes, tissue turgor. Water takes active part in the heat balance of organism as water is the main heat carrier in the body because of its weight and takes part in heat exchange. The last function is the most important in hot, tropical climate, because water evaporation from the skin and lungs surface is the only mechanism of heat balance support in such conditions. But too much evaporation with sweat and through lungs can lead to dehydration of organism, the main sigh of which is the thirst.

Water is necessary for sanitary and domestic needs (laundry, cleaning of premises, sewerage system maintenance), for industrial needs, recreational needs (irrigation of trees, streets, fountains etc., for comfortable rest area creation).Endemic and epidemic waterborne diseases of arid and humid tropical areas are also characterized by their own peculiarities.

High infectious diseases rate is common for poor developed tropical counties. In hot African's, Asia, Latin American counties there is more that 1 billion of infectious enteritis 5 million of which has fatal outcome. In 1956 in India 99 300 people suffered from viral hepatitis A, in 1986 1 200 people were ill with el-Tor cholera. In rural areas 3/4 population suffers from waterborne infectious diseases (fecal-water-oral). In developing countries 43.7% death rate are caused by waterborne infectious diseases, in developed countries this amount is 10.8 %.

Among waterborne infectious diseases the leading for the tropical region are typhoid, A and B paratyphoid fever, cholera, bacterial and amebic dysentery. There are 14-30% of amebic dysentery carriers among children.

Body water lost and symptoms

%	Few symptoms or signs of any thirst present
2 %	beginning to feel thirsty loss of endurance capacity and appetite.
3%	dry mouth performance impaired
4%	increased effort for exercise, impatience, apathy, vague discomfort, loss of appetite
5%	difficulty concentrating, increased pulse and breathing, slowing of pace
6-7%	further impairment of temperature regulation, higher pulse and breathing, flushed skin, sleepiness, tingling, stumbling, headache
8-9%	dizziness, labored breathing, mental confusion, further weakness
10%	muscle spasms, loss of balance, swelling of tongue
20%	heat exhaustion, delirium, stroke, difficulty swallowing; death can occur

Salmonellas, shigella, rotaviruses, pathogenic bacillus strains, campilobacter, enterokolitics, newborn diarrhea viruses, poliomyelitis, epidemic infectious conjunctivitis and trachoma are also wide spread. In general there are 100 viruses types in tropics which preserve their virulent ability till 200 days in warm water and can reproduce there.

There are wide spread zoonosis infections such as leptospirosis, brucellosis, tularemia, Q-fever which are the result of animal water pollution, rodents and drinking of such water, washing and bathing in it. There are frequent fungal skin diseases such as epidermophytosis, scabies etc.

Helminth invasion is spread among the population: lambliasis, ascariasis, trichocephaliasis, ankylostomidiasis, fascioliasis, drancunculosis, diphyllobothriasis, opisthorchiasis, angiostrongylidosis, clonorchiasis, caused by guinea worm disease. Helminthosis is spread among rural population and first of all among children.

Hygienic requirements to water quality and their peculiarities in tropic conditions

These requirements include the following:

-good organoleptic properties: to be transparent, colourness, without suspended materials inclusions which left on the surface, odours, after-taste, to have pleasant fresh taste (which depends on water temperature, dissolved salts and gases) ;
- to have optimal salt composition;
- not to have poisonous substances in toxic concentrations;
- not to have infectious agents and other organisms

Hygienic characteristic of water resources and sources of water supply in tropical regions

There is no water problem in humid tropics: area is covered by forests, jungle, frequent heavy rains, tropical storms constantly replenish surface and underground waters.

There is significant water deficiency in arid areas especially in deserts, seasonal water changes into drought or rain absence create hard living conditions for living organisms or make life impossible. There is a tradition of rain water collection in rain periods and its preserving in a drought period. It is traditional to collect rain water from the building roofs. Such water is weakly mineralized (to 30-50 mg/l) and contains dust pollution, trees leaves, bird excrements. Water is preserved in barrels or dug into the ground concrete or clay tanks which are supplied with ventilating canals to prevent water decay. Water is taken from such tanks using pumps with hose or tube with a tap set 15-20 cm above the bottom. There is tube for sedimentation which is placed on the bottom level and aimed to let the water out. A mill - pounds are also used but water can be preserved there only for a short time because water filtrates into the soil, evaporates, looses its qualities, and thus is not used for drinking but only for domestic purposes.

Open water reservoirs (rivers, streams, lakes) are easily and heavily polluted and become source of infections, invasions, zoonosis, fungi, because of intensive water evaporation, water is highly mineralized.

Exported water, artificial water wells and reservoirs are used in some situations.

Ground, subterranean and artesian water in arid regions are usually located deep under the ground, are highly mineralized, clear and are not dangerous epidemically. But there is not enough of such water in arid areas.

Water purification and disinfection methods in tropical conditions

Ground water -subterranean and artesian – doesn't need purification and disinfection. In some cases softening, desalination and defluorination are necessary.

Depending on size and pollution degree, surface water is able to self-purify because of suspected materials inclusion sedimentation, solar radiation, aeration (organic substances oxidation), dilution, biochemical oxidation, saprophytic microorganisms, bakteriophages action, nitri- and nitrofication.

But reproduction of pathogenic organisms, viruses, infectious agents is possible in hot regions. In case of significant pollution water can decay and become unusable for domestic and drinking purposes.

In case of centralized water supply water from open reservoirs should be purified at water pumping stations: by means of ware precipitation and filtration through slow english type filtrates (with biological film) and stabilization at small stations; at big ones, water should be purified by means of coagulation, desilting and filtration trough quick american filters.

Water disinfection methods in tropical regions are identical to traditional. The most widely used method is chlorination (according to chlorine requirement, over chlorination, double chlorination with pre-ammonization and with using of gas-like chlorine, chlorine lime, calcium hypochloride), ozone-treatment, ultraviolet irradiation. In case of decentralized water supply, water purification from open sources can be achieved only by desilting of water.

The most simple and reliable disinfection method is boiling, but it only allows disinfection of small water volumes and it can be impossible in deserts because of fuel absence.

The most used chemical method for disinfections is “Halazone” tablets with chloramines, “Chlordechlor” with more chlorine concentration (water is disinfected by over chlorination) and hyposulfite sodium which is released from soluble plastic capsule after chlorine exposure, then water is dechlorinated. If water is very suspicious, 2-3 tablets are used.

METHODICAL RECOMMENDATIONS ON “Hygiene and Ecology” for preparation to practical classes of foreign students II year of study

Укладачі:

Погоріляк Рената Юріївна

Шип Денис Ярославович

Гончарук-Хомин Мирослав Юрійович

Мовне видання, коректура та редагування - авторські