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**ГИГИЕНИЧЕСКАЯ ХАРАКТЕРИСТИКА
УСЛОВИЙ ТРУДА ВРАЧА-СТОМАТОЛОГА
И ЗУБНОГО ТЕХНИКА**

**HYGIENIC CHARACTERISTICS
OF A DENTIST'S WORKING CONDITIONS**

Учебно-методическое пособие



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Дана гигиеническая оценка основных неблагоприятных для здоровья факторов производственной среды в работе врача-стоматолога и зубного техника, а также рекомендации по профилактике профессиональных заболеваний. Используются технические нормативные правовые акты, применяемые для классификации условий труда, организации и проведения профилактических медицинских осмотров. Для закрепления полученных знаний представлены ситуационные задачи.

Предназначено для студентов 2-го курса стоматологических специальностей, обучающихся на английском языке.

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MOTIVATIONAL THEMES CHARACTERISTIC

Title of teaching and methodical manual: “Hygienic characteristics of a Dentist’s working conditions” — corresponds to the curriculum of laboratory studies on discipline “General hygiene” under the heading “Occupational health”.

Total time of classes: 6 hours of training.

Quality and efficient professional activities of physicians any profile largely depends not only on their qualifications and material equipment of health facilities, but also on the state of their own health.

Numerous studies have shown that the work of doctors — dentists can be accompanied by a number of adverse impact on their health professional factors, including visual and emotional stress, forced working posture, poor lighting, the risk transmission of infection, exposure to allergens and toxic substances, noise, vibration, X-ray and laser radiation and others.

Harmful occupational factor — factor environment and labor process, the impact of which on the employee under certain conditions (intensity, duration) can cause an occupational disease, temporary or permanent decrease in efficiency, increase the frequency of somatic and infectious diseases, impair the health of offspring.

Analysis of occupational hazard of dentists has shown that the occurrence of occupational diseases among physicians affected by the following etiological factors: chemical, physical, physiological and biological.

The immediate causes of occupational diseases are:

- prolonged contact with drugs and harmful substances;
- inadequate equipment and tools;
- imperfection of technological processes;
- lack of or inadequate personal protective equipment;
- increased sensitivity to chemicals.

Adverse factors in the work of dentists due to:

- characteristics of the treatment process;
- plan dental clinics;
- irrationality design of dental equipment, instruments, filling imperfections and dental materials.

Purpose of the lesson: improve knowledge of basic hygienic evaluation of harmful occupational factors, prevention of occupational diseases, improvement of working conditions in the work of dentists.

Medical and social importance of the topic classes is the need to focus on strengthening the prevention of diseases through the development of science-based recommendations on the improvement of working conditions, welfare and recreation specialists dental profile, as well as instilling in them (including

students) to the conscious attitude preservation and strengthening of their own health.

Lesson tasks:

1. Consolidate the knowledge about the influence of harmful factors on the professional dentists in process of work.
2. Learn how to carry out medical examinations.
3. Learn to analyze the causes and conditions of occupational diseases.
4. learn to give recommendations for the prevention of occupational diseases, poisoning and improve working conditions in health care dental organizations.

Requirements for the initial level of knowledge. For a complete study material is necessary to recall:

- from *medical and biological physics*: mechanical, vibrational and wave processes; the acoustics; electromagnetic radiation (sources);
- from *general chemistry*: physico-chemical properties of disperse systems, toxic chemicals;
- from *microbiology, virology, immunology*: microflora of air, soil, water, auto microflora organism;
- from *normal physiology*: energy metabolism; thermoregulation; processes of heat exchange with the environment.

Test questions from related disciplines:

1. Origin a physical characteristic and noise (frequency response, loudness).
2. Perception of sound human hearing system. Characteristics of auditory sensations.
3. Types of electromagnetic radiation. X-ray radiation and its use in medicine.
4. Physico-chemical properties of the dust (dispersibility, chemical composition, solubility, etc.).
5. Toxic substances and poisons: routes of excretion from the body, the conditions of toxic action.
6. Pathogenicity and virulence of microorganisms.
7. Heat transfer by conduction, convection, thermal radiation.

Test questions classes:

1. What adverse factors exist in the dentists?
2. What characterizes adverse occupational factors caused irrational planning dental surgeries?
3. Medical examinations, types, their organization.
4. Measures for the prevention of occupational diseases in dental practice.

TEACHING MATERIAL

We consider the some of the hazards in work of dentists associated with the characteristics of medical process.

CONTACT WITH DRUG ALLERGENS AND TOXIC SUBSTANCES

Many drugs used in dentistry, dental materials and dental generally harmless to the patient. However, these substances may pose a real danger to the health of medical staff dental offices due to prolonged occupational exposure to them in the course of treatment and prosthetics.

Chemical composition of the air in offices therapeutic, orthopedic and surgical dentistry and dental laboratory rooms performed due to these medical procedures and processes dentures. Dentists use a wide variety of medicines, disinfectants and dental materials (among which there are also toxic), which can contaminate air and the gaseous medium vapor components of organic and inorganic nature.

In the air dental offices can be identified about 100 different chemical compounds. Among them, benzene (a carcinogen), ethylene dichloride, phenol, formaldehyde (an allergen, a substance with a high gain mode of action, which requires an automatic control of the content in the air). These compounds are to highly hazardous substances (II hazard class). Methanol, xylene, ethylbenzene, tetrachlorethylene, toluene, ethyl acrylate and methyl methacrylate are moderately hazardous substances (III hazard class). The rest are related to low-hazard substances (IV class of danger). All of these substances are usually determined in indoor air at levels below the maximum allowable concentration, and (MPC), except acrylates.

You need to know that the toxic effects of chemicals on the body may also occur when concentrations much lower than the maximum permissible concentration, due to the synergistic action (summation of the toxic effect of all substances) or potentiating (mutual reinforcement toxicity). Additionally, it may occur combined action (joint exposure to chemical compounds and other production factors nature). These may include: inadequate sanitary conditions in work rooms (not meet hygienic standards in area and volume), uncomfortable climate, poor lighting, not properly arranged ventilation, excessive emotional stress, constant contact with the infection, the presence of static forces and the monotony of movement, forced labor posture, etc.

To perform the dental laboratory using modern materials produced for prosthetic dentistry and dental technology: impression material; waxes for different purposes, the basic polymer, plastic, metal and porcelain materials, metal alloys, molding, finishing, insulation and coating materials, cements, amalgam and other.

Feature of working in a dental laboratory is the fact that in each room there are certain industrial hazards, mainly related to air pollution by various chemical substances in the form of dust, fumes and gases. Among these substances are toxic mercury, cadmium, lead oxide, carbon, acids and alkalis, silica, acrylics, etc. For the manufacture of metallic prosthetic use about 20 metal, dust and fumes which during the melting and processing prostheses can get into the air. Besides metals as a material for dental prosthesis applied plastic (acrylates, polyamides, polycarbonates). They are multi-component systems, consisting of a main binder, a filler, a plasticizer, a coloring agent, catalyst, inhibitor, and other additives.

Monomer acrylic plastic — methyl methacrylate — may be present in the air of working premises in concentrations ten times higher than MAC (10 mg/m^3), providing the general toxic and narcotic effect. Naturally, dentist due to the nature of their work, have regular contact with both the monomer vapor in the air, and with the first liquid plastic. Acute poisoning from methyl methacrylate manifested irritation of the mucous membranes of the eyes and upper respiratory tract, nausea, repeated vomiting, headache, noise in the head, dizziness, thirst, weakness, drowsiness. In what could be a loss of consciousness, seizures, hypotension. Clinical manifestations of chronic poisoning — central nervous system depression due to the reticular formation of the brain stem.

The concentration of methyl methacrylate increases significantly during the working day and in the offices of medical, orthopedic and dental surgery. In order to reduce air pollution effective measure is to prepare the masses filling in a fume hood.

The thermal processing of materials for airborne emissions of the full (carbon dioxide) and incomplete combustion (carbon monoxide). These compounds degrade the sanitary conditions of the air environment of special production facilities dental laboratory and contribute to the content of carboxyhemoglobin in the blood of workers.

Allergies — acquired increased sensitivity to exogenous or endogenous substances possessing antigenic properties. There are two types of allergic reactions:

1) immediate reactions (urticaria, nettle-rash, anaphylactic shock) are due to the interaction of antigens and antibodies developed in minutes or hours after exposure to the antigen;

2) delayed-type reactions (contact dermatitis, autoimmune destruction) associated with cell-mediated immunity and develop in a few days.

Most often, dentists observed hypersensitivity to antimicrobial, antifungal and antiviral drugs (antibiotics, sulfanilamides, antiseptics), anesthetics (means for applicative and injectable anesthesia), B vitamins, metals (chromium), acrylates and plaster. These substances are called haptens. When ingested, they do not trigger the immune mechanisms and antigens are only after connection to

tissue proteins. This produces so-called conjugate (or complex) antigens that are coated body.

Sensitization — is increased sensitivity to exogenous antigens or endogenous origin. Repeated intake of data haptens (allergens) can often communicate with the antibodies formed, and (or) sensitized lymphocytes alone, without binding proteins.

The role of the hapten can do sometimes is not the whole molecule chemical, but a certain part of it, the grouping of atoms. The same groups can be a part of various chemicals. Therefore, sensitization to one chemical substance allergic reactions to other chemicals with similar groups of atoms.

The most common reaction to the basic chemicals in the dentist takes place by type of idiosyncrasy. Idiosyncrasy (from Greek — ideos — unique, unusual and synkrosis — mix) — high sensitivity to certain substances and influences: the nutrients, medicines, etc. This points to the need for professional selection of enrollee, to elect their own specialty dentistry.

Especially professional of allergy in contrast to allergic diseases dentists unprofessional origins are:

- frequent combination of immediate hypersensitivity in the form of urticaria, angioedema, with a delayed-type hypersensitivity in the form of dermatitis;
- multivalent nature of the lesion and polisindromal: most have, in addition to drug allergies, increased susceptibility to infectious allergens (staphylococcus, streptococcus, etc.) and a few less — to food allergens. Polisindromal occupational allergies among dentists are characterized by the presence in their structure of nosology combination of several forms of allergic diseases: rhinitis, dermatitis, bronchitis, eczema, hives, asthma, etc.

Clinical features of professional dentists allergy is the defeat of the open areas of the body (most often — the face, neck, upper limbs) that are in the most intimate contact with the allergen production. The character has a predominantly urticarial rash and eczematous type.

The main disease to dentists with professional allergies in most cases is compounded by diseases of the gastrointestinal tract and chronic infections (tonsillitis, adnexitis, colpitis), compounding the changes in the homeostasis of the immune system and thereby complicating the process of treatment and rehabilitation.

PREVENTION OF OCCUPATIONAL ALLERGIES

Prevention of occupational allergies in dentistry should include a two-level.

Primary prevention: professional selection of persons arriving at the university and on the job of dental specialties. It includes screening — questionnaires to identify burdened allergic history: individual and inheritance, especially on the maternal side. At risk of developing occupational allergies include:

– persons with immune deficiency, which is manifested in the form of frequent recurrent chronic infection, persons with shifts in immunological (active suppression of T-lymphocytes, enhancing the function of phagocytes and B-lymphocytes);

– individuals with chronic diseases of the digestive tract;

– those with higher rates of antisocial psychopathy and schizophrenia MMPI test, prone to hypochondria, anxiety, temper, irritability.

Primary prevention also includes:

– implementation in practice less allergenic drugs and filling materials;

– create safe working conditions at the workplace (removal of defects of the working equipment, ventilation and other violations of architectural and planning features facilities that contribute to aggressive chemical microclimate);

– organization rooms psychological relief;

– provision of modern protective clothing;

– optimization of dietary intake.

Secondary prevention involves the identification of allergist latent forms of allergies (itchy, dry skin), the timely placement of patients. In other cases — the annual medical check-up and preventive treatment of persons with professional allergies.

HIPOSENSIBILIC FOOD

The use of food hyposensitizing in the prevention of allergic disease pathogenically substantiated. It can be an integral part of the health measures at work (contact) with chemical sensitizers (allergens).

Hiposensibilic nutrition aimed at reducing or slowing the process of sensitization of the body, improve metabolism, increase the body's resistance to adverse effects of the environment in order to maintain health, increase efficiency, reduction of occupational diseases.

Design principles of food allergen based on a number of important provisions. Thus, calorie diet dentists must meet their daily energy given that age, sex, state of health. The diet is limited to the amount of carbohydrates (especially sugar), a slight increase in fat mainly of plant origin. The amount of protein should not exceed the physiological norms. Restores daily energy from protein — 12 %, fat — 37 %, carbohydrates — 51 % of the energy value of the daily diet.

The diet is recommended:

– foods, including proteins with an increased amount of sulfur-containing amino acids, but with a relatively low amount of histidine and tryptophan (cheese, beef, rabbit, chicken, carp);

– foods high in phosphatides, especially lecithin (rabbit meat, liver, heart, unrefined vegetable oil, sour cream.);

- foods rich in vitamins C, P, PP, A, E, K, U, N; during spring and winter, it is also advisable further enrichment of the diet with vitamins (except vitamin B₆ and B₁);

- foods high in calcium, magnesium and sulfur (milk and milk products, cereals, table mineral water — bicarbonate-sulphate-calcium-magnesium);

- products with an alkaline pH (milk, vegetables, fruits, berries);

- foods that are sources of pectin and organic acids (vegetables, fruits, berries).

The diet is limited to the use of the following components:

- foods with high amounts of oxalic acid, enhances the excretion of calcium (sorrel, spinach, rhubarb, purslane);

- products that have a high potential for sensitizing and irritating the mucous membrane of the gastrointestinal tract and increase the absorption of histamine and allergenic substances in the blood (acute and extractive dishes, foods containing active allergens: ovalbumin, ovomucoid and ovomucin eggs, M-parvalbumin cod; β -lactoglobulin and α -lactalbumin milk, tomato thermostable glycoprotein; glycoside compounds formed by the spontaneous interaction of non-enzymatic proteins and carbohydrate storage, especially when heat cooking products (Maillard reaction or non-enzymatic browning) chemical hap- tens — pesticides, preservatives, colorants, flavors etc.;

- products containing large amounts of histamine, serotonin, tyramine, and other biologically active substances which inhibit the protective enzyme system of the internal environment. A large amount of histamine found in fish of the family scombers — mackerel, tuna, king mackerel, and others, in the fish of the salmon family, as well as in products histamine-forming microbes — some strains of *E. coli*, *Clostridium perfringens*, etc. A significant amount of serotonin, tyramine, and other biogenic amines contained in the cheese, salt and marinated fish, liver, yeast extracts, bananas, pineapples, oranges, tomatoes, beer, wine etc.).

In view of these requirements in hyposensitizing diet recommend the following products: beef, chicken, rabbit meat, beef liver, especially the heart, the carp family fish — carp, bream, etc., milk and dairy products — yogurt, cottage cheese, sour cream, butter, sunflower oil and corn oil (preferably unrefined), bread from wheat flour or bran, brown rice, millet, potatoes, cabbage, carrots, turnips, pumpkins, cucumbers, lettuce, parsley, fennel, pears, dark blue plums, apples, cherries, grapes, apricots, lemons, Rowan garden and chokeberry, rose hips extract, fresh juices with pulp from fruits, vegetables and berries.

It is recommended to limit these foods and dishes:

- products with high sensitizing potential: egg white, fish from the family scombers, salmon, crayfish, crabs, pork, lung, kidney beans (except green peas), tomatoes, bananas, oranges, tangerines, peaches and some berries (strawberry, raspberry) and cocoa and chocolate;

- spicy and extractive dishes: strong meat or fish broths, soups, gravies or sauces based on them, spices (mustard, pepper, vinegar, celery, garlic, horseradish, tomato paste, cloves, nutmeg, mayonnaise);
- pastries: scones with cream, sponge cakes, pastries, cakes, etc.;
- salty foods and foods: herring, salted and pickled fish, cheeses, pickled, salted and pickled vegetables and pickles, smoked.

Cooking should be made from fresh foods. Soups are recommended mainly dairy or vegetable and cereals, cooked on low-meat and fish broth. Meals are prepared mostly in the form of steam and boiled and baked and stewed in (without browning). Eating fried foods is prohibited. Must take note of the thermal regime of food processing, as only this will ensure the necessary denaturation of proteins, destroyed some food allergens and reduces their antigenic properties. To reduce the antigenicity and better absorption of nutrients appropriate to use protein denaturation by shaking, whipping and freezing.

Vegetables and fruits when possible use in food fresh. It is recommended to include in the diet frozen fruit and berries. Freezing contributes not only to the preservation of biologically active substances, but also vegetable protein denaturation, reduce their sensitizing potential. Defrost foods and dishes should be made immediately before use. Cooked meals allergen food should not be consumed excessively cold (below 7 °C) or too hot (above 75 °C).

WORKING WITH NEW FILLING MATERIALS

These include composites, including photopolymers (heliocomposites, light-curing plastic) that allow not only therapeutic procedure (filling in dentistry), but also the so-called restoration of the tooth. According to the toxicological and hygienic studies, these materials have little toxicity, indicating that the safety of their clinical application. Meanwhile, the technology requires the use of composites using ultraviolet radiation from pulse photo polymerizer, including helium lamps. Studies have found negative effects of light emission from helium lamp on such indicators of efficiency of the visual analyzer at the dentist as visual acuity and time to recovery, contrast and spectral sensitivity, stability of color vision.

To reduce eye fatigue doctor working with heliocomposites may be appropriate following practical guidelines:

- while working with a lamp use safety glasses with a yellow or orange color filter;
- work more efficiently with heliocomposites carried out in the morning shift at the beginning of the week;
- in the performance of more than 16 helium lamp flashes on the physician should switch to 0.5 hours on another job that does not require voltage of view, to restore visual function.

HYGIENIC EVALUATION OF THE ACTION OF NOISE AND VIBRATION OF DENTISTS AND DENTAL TECHNICIANS

The introduction of high-speed dental practice equipment has resulted in dental offices such adverse health physician occupational factors as noise and vibration. In the scientific literature provides evidence that hearing damage can occur dentists with the noise of an intensity 85 dB, and an intensity of more than 115 dB in the organ of hearing quickly irreversible changes. High-speed turbines make noise between 75 and 100 dB, the spectrum of which contain high-frequency components around 4000 Hz. Prolonged exposure to noise on the body physician with these characteristics leads to a steady decline in hearing of 25–30 % and to occupational hearing loss within 3 years after the start of operation.

Studies have shown that noise in a workplace dental orthopedist and a dental technician fickle, broadband and exceeds the permissible levels of 15–20 dBA. Furthermore, detected noise levels exceeding 3–20 dB octave bands 125–8000 Hz workplace orthopedic physicians and 1–5 dB octave bands 2000, 4000–8000 Hz workplace dental technicians.

It has also exceeded the vibration at the tip of the turbine of some dental units by 2 dB in the octave band frequency of 2000 Hz. It was found that the vibration on the surface of a plastic prosthesis with its grinding exceeds the maximum vibration speed by 2 dB in the frequency band of 63 Hz.

To reduce the impact of noise and vibration should:

- install the compressor turbine outside the cabinet (if this is not possible then the compressor must be placed in a protective casing of the sound-absorbing material);
- continuously monitor the technical condition of the universal dental units (on time, clean and lubricate the rotating parts of mechanisms to monitor the serviceability of individual components and the installation as a whole);
- install grinders on the desktop on a rubber shock absorber, monitor the technical condition of the grinding wheel (do not strain);
- use ear plugs as an individual means to protect the organ of hearing the doctor and dental technician.

WORKING WITH ULTRASONIC EQUIPMENT

Working with ultrasonic equipment (diagnostic, physiotherapy, surgical), which generates ultrasonic vibration frequency above 20 kHz, creates conditions for harmful environment factors. These include: 1) the impact of ultrasonic vibrations on the body during contact service personnel transfer or by air; 2) static and dynamic strain muscles of the hand and upper body; 3) contamination of the hands of contact lubricants, which are used to improve the acoustic contact with the source of ultrasound.

More than 50 % of nurses and 75 % of physicians using ultrasound equipment are recorded vestibular disorders, reflecting the functional changes in the central department of the vestibular apparatus. Also observed functional changes in blood vessels of the brain (increased tone, decreased blood supply) in health care workers with work experience of 5 years or more. Neurological examination often reveals violations by type of vegetative polyneuritis in conjunction with the general angiodystonic syndrome, a progressive increase in the length of service with ultrasonic equipment.

To reduce the harmful effects of ultrasonic vibration on the human body requires proper organization of work and leisure, medical health surveillance (regular medical check-ups), good nutrition, treatment and preventive measures (hydrotherapies, massage).

WORKING WITH LASER TECHNOLOGY

Laser — an optical quantum generator device for generating focussed *electromagnetic radiation in the range of the light spectrum, including the infrared and ultraviolet rays which have distinct biological activity.*

In clinical dentistry uses a variety of laser technology: laser physiotherapy apparatus (light treatment) laser surgical devices, which in addition to the dissection of tissue allow a laser scalpel dissection, coagulation and welding, in prosthetic dentistry and orthodontics lasers are used for the manufacture of dental prostheses and orthodontic appliances with a laser welding of metals.

In case of improper use of equipment or technical malfunction of laser radiation can be harmful to health personnel. Depending on the design of lasers and their operating conditions for service personnel may affect the dangerous and harmful factors:

- laser radiation (direct, indirect reflected);
- visible and ultraviolet radiation;
- noise;
- toxic gases and dust, aerosol products sublimation fabrics;
- local loads on the muscles of the hand and forearm;
- eye strain.

Bodies exposed to laser radiation is considered to be the eyes and skin. Can be marked as the general negative changes in various systems of the body. Most of the complaints made against staff members who work with lasers, due to non-specific functional disorders of the nervous and cardiovascular systems. In the medical examination of such persons, in addition to possible changes in the skin and eyes, and asthenic vegetative and asthenic syndrome and vegetative vascular dysfunction.

Every person involved with working with lasers must pass preliminary and periodic medical examinations, coaching and training in safe working practices.

PROFESSIONAL SELECTION OF DENTISTS

As the work of in many professions can have adverse effects on health, therefore it needs a preliminary medical check health of those choosing a profession, including stomatological profile.

Dental work has high requirements for the state of view, so future dentists must checked visual acuity, color vision and color discrimination, convergence and accommodation, the presence of organic disease of the vision.

The possibility of working in the dental posture disorders in the form of kyphosis and scoliosis, varicose veins of the lower extremities and pelvic requires studying the state of the musculoskeletal system, including the development of anatomical and functional condition of the hands, and the venous system.

Of course, it is required and a general examination of the body to detect the presence of disease in the cardiovascular, respiratory, digestive, nervous and other systems of the body.

Thus, in the activities of the medical commission for professional selection of applicants to dental schools must take part therapist, allergist, ophthalmologist and surgeon.

MEDICAL EXAMINATIONS

Dentists must pass a mandatory preliminary (at entry) physical exam and annual recurring in the future (for work) and extraordinary medical check-ups.

Medical examinations of persons coming to work and working are carried out in order to:

- determine fitness for the work entrusted to them;
- prevent the spread of infectious and parasitic diseases;
- dynamic health monitoring;
- early detection of occupational and general (non-professional) diseases;
- prevention, treatment, medical rehabilitation of persons with established disease and to improve their working conditions.

Analysis of the incidence of medical workers has shown that the main unfavorable factors are exposure to chemicals, as well as the severity and intensity of the work. List occupational exposures revealed that 45 % of workers working in the dental clinic contact with acrylic and methacrylic acids, 32 % exposed to phenol and formaldehyde, 10.7 % of working with metals and alloys; 39.3% work in dusty conditions.

The severity of labor due to local muscular strain in 44 % of cases this is due to the need to maintain a dental tool and multiple repetition of the same muscle movements in the performance of local therapeutic manipulation in the limited surgical field.

Chronometer measurements and expert supervision of the execution of the work found that dental therapists performing medical manipulations

23–30 % of the time shift, are in a fixed working posture with the head and trunk bent to the patient.

At dental orthopedic working posture depends on the type of work performed, on average, 45 % of the time a doctor spends “sitting” and 45.5 % — in the pose of “standing”, that is, they are characterized by periodic or uncomfortable being in a fixed position.

Analysis of operating load dental surgeons has shown that 82–85 % of the time they work in the pose of “standing” with a slight (up to 45°) tilt forward and bend the spine in the direction of the patient, which is associated with the load on the lower limbs, spine and is also characterized by unfavorable working pose

All of this can be attributed to the working conditions of dentists in terms of *the severity of the labor process* as hazardous (Class 3, level 1). In terms of *intensity of the work process* (intellectual, sensory, emotional stress) conditions dentists also classified as hazardous (Class 3, level 1).

PRINCIPLES OF CLASSIFICATION OF WORKING CONDITIONS

Working conditions based on the hygienic criteria, divided into four classes:

Class 1 — optimal working conditions — such conditions at that maintains the health of workers and creates the preconditions for maintaining a high level working capacity. Optimum standards are set for the micro-climatic parameters and factors of the labor process. At the relatively low intensity of work restoring the functional capacity of the loaded physiological systems are fully run-time work;

Class 2 — acceptable working conditions are characterized by levels of environmental factors and the labor process, which does not exceed the hygienic standards for the workplace. Possible changes in the functional state of an organism occurring under their influence, are restored during the rest of the regulated or the beginning of the next shift and do not have an adverse effect in the immediate or long-term health status of workers and their offspring. That is, with increasing workload of the recovery expenditures exceeding the reserves of the physiological systems is transferred to after work period.

Class 3 — hazardous working conditions characterized by the presence of harmful factors beyond the hygienic standards and having adverse effects on the body of the employee and/or his offspring.

According to the degree of deviation from the parameters of the factors hygienic standards and intensity of the changes in the body of harmful working conditions of workers are divided into 4 degree of harmfulness:

Grade 1 Class 3 (3.1) — the working conditions are characterized by the deviation of the hazards of hygienic standards that cause functional changes, recovering, as a rule, in the longer (than the beginning of the next shift)

interruption of contact with harmful factors and increase the risk of injury to health. That is, higher workload causes the accumulation of fatigue and the development of fatigue (chronic fatigue, not offset by short-term stay). Exhaustion leads to surge — adverse border state between normal and abnormal, increasing overall morbidity, reduced efficiency, the development of occupational diseases;

Grade 2 Class 3 (3.2) — the levels of harmful factors that cause persistent functional changes resulting in most cases to an increase in production due to illness. This is manifested by increased levels of morbidity with temporary disability and, above all, those diseases that reflect the most vulnerable organs and systems for these hazards, the appearance of the initial symptoms or light (without loss of employability) forms of occupational diseases that arise after prolonged exposure (often after 15 or more years);

Grade 3 class 3 (3.3) — working conditions, which are characterized by such levels of harmful factors, the impact of which leads to tend to occupational disease of mild to moderate severity (with the loss of occupational disability) during the period of employment. Other than that — the growth of chronic (due to production) pathology, including increased levels of morbidity with temporary disability;

Grade 4 Class 3 (3.4) — conditions under which there may be severe occupational diseases (with a total loss of earning capacity), there has been substantial growth in the number of chronic diseases and high rates of morbidity with temporary disability.

Class 4 — the dangerous working conditions characterized by levels of production factors, the impact of which during the shift (or part thereof) may endanger the life, the high risk of acute occupational injuries, including severe forms. In this work should be done in the appropriate personal protective equipment and in strict compliance regimes, regulated for this type of work and ensure the safety of the health of workers.

INDIVIDUAL WORK OF STUDENTS

1. To study section “Teaching material” of the textbook.
2. To study the principles of classification of working conditions.
3. To solve case studies.

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ТРУДА ВРАЧА-СТОМАТОЛОГА И ЗУБНОГО ТЕХНИКА**

**HYGIENIC CHARACTERISTICS OF A DENTIST'S
WORKING CONDITIONS**

Учебно-методическое пособие

На английском языке

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