LVIV NATIONAL MEDICAL UNIVERSITY N.A. DANYLO HALYTSKY

Department of Physical Training and Sports Medicine

Approved at the methodical meeting of the department of Physical training and sports medicine
Head of the department

k.b.s., associate prof. Kunynets O.B.
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GUIDELINES

in the discipline

PHYSICAL REHABILITATION AND SPORTS MEDICINE

for 3th year students

training of specialists of the second (master's) level higher education in the field of knowledge 22 "Health" specialty 221 "Dentistry" for independent work in preparation for practical classes

Topic 2 *"General basics of the use of physical rehabilitation in patients with a dental profile. Application of physical rehabilitation tools for the purpose of prevention and correction of occupational diseases among dentists.''*

LVIV-2023

Methodical guidelines are made in accordance with the requirements of the curriculum in the discipline "Physical Rehabilitation and Sports Medicine", compiled to train specialists of the second (master's) level of higher education in the field of knowledge 22 "Health" specialty 221 "Dentistry".

According to the curriculum, the study of physical rehabilitation and sports medicine at the medical faculty is carried out in the 3d year of study.

Methodical guidelines prepared by assistant of the department of physical education and sports medicine Marusiak S.V., Candidate of Medical Sciences, associate professor of the department of physical education and sports medicine Leontieva Z.R.

According to the general wording of the head of the Department of Physical Education and Sports Medicine, Candidate of Biological Sciences, Associate Professor O.B. Kunynets.

Reviewers:

Dutka R.Y., Doctor of Medical Sciences, Professor, Head of the Department of Propaedeutics of Internal Medicine, Danylo Halytskyi Lviv National Medical University

Grynovets V.S., Candidate of Medical Sciences, Associate Professor of the Department of Therapeutic Dentistry of Danylo Halytsky Lviv National Medical University

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Scientific and methodical justification of the topic.

Physical rehabilitation (PR) is an independent medical discipline that teaches scientifically based regulation of physical activity in the complex treatment of diseases, prevention of their exacerbations and complications, restoration of the proper quality of life of a sick person. Physical activity is a biologically necessary component of life, which stimulates the development of a child, expands and maintains the functional capabilities of an adult at an optimal level, inhibits involutional processes, and increases the social significance of an individual. Limitation of physical activity during the illness to a certain extent facilitates the functioning of the affected systems and organs, helps to economize their work, restores the inhibition processes in the central nervous system. However, the patient's unreasonable hypokinesia over a long period of time leads to a steady decrease in the functioning of the body's life-supporting systems, a weakening of the processes of excitation of the central nervous system, deterioration of the course of trophic processes, and the development of various hypokinetic complications.

Timely and individualized prescription of FR means can contribute to compensation of impaired functions of the maxillofacial area and prevention of dystrophic complications in the acute period of the disease. During the recovery period, the function and structure of the morpho-functional complex of the maxillofacial area are restored by gradually (adequate for the patient's body) increasing the intensity and duration of physical activity.

The possibility of a scientifically based use of the biological essence of the FR means, their availability and cheapness, in contrast to medicinal means, in the treatment of patients depends only on the awareness of doctors. Taking this into account, it is necessary to form the motivation of the future dentist to timely, adequate and systematic appointment of FR means to patients with a dental profile as part of complex treatment.

Massage is the most adequate physiological form of FR of passive influence on the human body. Mechanical action, which is the basis of various massage techniques, causes irritation of many receptors of the skin, soft tissues and periosteum. The energy produced at the same time is transformed into the specific energy of the corresponding receptors (ekteroreceptors, proprioreceptors, interoreceptors, tactile receptors, etc.). These irritations in the form of afferent impulses along nerve pathways are transmitted to various departments of the central nervous system and are synthesized into a complex reaction response that causes various functional disorders in the body. Skin coverings of the face are distinguished by the complexity of the structure and polyfunctionality. The fat layer, which softens external mechanical influences, is unevenly located, which contributes to the rapid spread of hemorrhages and swelling on the face.

The arteries that feed the soft tissues of the surface layer of the face form a continuous arterial network, and the main ones are located parallel to the course of the muscle bundles. The venous network, with the exception of the veins of the forehead, is two-layered. Superficial veins are located in the subcutaneous base above the superficial fascia and are therefore accessible to the actions of even light stroking. The lymphatic system is also two-layered and diverges in a fan-like fashion to the right and left sides from the midline of the face. Timely, individualized appointment of massage as part of the complex treatment of patients with a dental profile can contribute to the acceleration of the resolution of inflammatory after traumatic and postoperative infiltration of facial tissues, as well as the prevention of dystrophic complications in various diseases of the maxillofacial area, restoration of it and lost or weakened function.

The use of the biological essence of massage, its availability and cheapness, in contrast to medicinal products, in the treatment of patients with a dental profile depends only on the knowledge of dentists. The study of this topic will form motivation, increase professional responsibility for timeliness, adequacy and systematic appointment of massage as part of complex treatment of patients with a dental profile.

The work of a dentist is difficult and stressful. Unconscious violations of the rules of occupational hygiene occur in the daily practice of a dentist, which lead to undesirable consequences.

Proper provision of working conditions (room lighting, working posture, compliance with work and rest regime) will prevent the occurrence of occupational diseases of the dentist.

2. Learning goal

1.1. The student should know:

- general concepts of rehabilitation and its main directions;

- general principles, stages and tools of FR;

-forms, methods, periods and methodical principles of exercise therapy;

-mechanisms of the therapeutic action of FR means;

- classification of physical exercises;

- features of their use as part of complex treatment of patients with a dental profile;

-clinic - functional rationale for the appointment of FR products to patients with a dental

profile;

- assessment of the effectiveness of the procedure and course of physical rehabilitation;

- clinical and functional rationale for prescribing massage for patients with a dental profile;

- clinical and functional justification for the prevention and treatment of professional diseases of the dentist;

- the influence of professional activity on the physical condition of the dentist;

- the importance of choosing the optimal working position;

- exercises for the prevention and treatment of professional pathology of the dentist.

1.2. To be able to:

-justify and independently prescribe the means of FR as part of the complex treatment of patients with a dental profile, evaluate the effectiveness of their appointment;

- clinical and functional rationale for prescribing massage for patients with a dental profile;

- choose the optimal working position;

- rationally plan working hours and rest.

1.3. Master practical skills:

- to be able to determine the periods of various diseases;

- to be able to determine movement modes;

- to be able to assign forms of FR;

- to be able to determine the methods of conducting classes;

- be able to measure the duration and frequency of classes;

- about the mechanisms of therapeutic effect of massage;

- the technique of the main techniques and the peculiarities of its use as part of the complex treatment of patients with a dental profile;

- to be able to choose the optimal working position;

- perform physical exercises during the day for the prevention of occupational diseases;

- to be able to carry out treatment and preventive measures to prevent diseases that occur in dentists;

- rationally plan working hours and rest.

2. Advice to the student:

Therapeutic physical culture is a method of treatment that uses physical culture with a curative and preventive purpose to restore the patient's health and work capacity, prevent complications and consequences of the pathological process.

Physical therapy is a method of active functional therapy, as physical therapy tools are able to increase the functional reserves of organs and systems, increase the patient's functional adaptation, and provide prevention of functional disorders.

Physical therapy means are primarily physical exercises, as well as natural factors of nature and therapeutic massage.

Among physical exercises (PE), *general developmental* and *special exercises* are distinguished. General developing exercises have a strengthening effect, and special ones have a selective effect, taking into account the nature of the disease or injury.

According to the specificity of muscle contraction, dynamic and *static* PE are distinguished.

According to the degree of activity, there can be: *treatment by position, passive, passive-active and active.*

With the help of reproduction in thoughts, *ideomotor exercises* are performed. Imaginary performance of motor acts causes not only weak contractions of the corresponding muscles, but also improvement of blood supply, strengthening of trophic processes, lowering of excitability threshold.

There are *corrective exercises* aimed at relaxing and stretching muscles, balance, rhythm plastic and *reflex exercises*.

Breathing exercises can be grouped as follows: "local" to increase the volume of the ventilation function of individual parts of the lungs, with breathing resistance to strengthen the respiratory muscles, to increase the mobility of the chest and diaphragm, with the reproduction of sounds, drainage with dosed breath holding and with voluntary breath control.

Exercise includes exercises using gymnastic objects and equipment (gymnastic sticks, balls, dumbbells, etc.)

The principles of using FR products as part of the complex treatment of patients with a dental profile

Timeliness

Adequacy or individualization of physical exertion in accordance with the clinical manifestations of the disease, the physical fitness of the patient, his gender and age

Gradual increase in the intensity and duration of physical exertion

Systematic performance of physical exercises

Clarity of the lesson - showing physical exercises confirms the explanation

Periods of using the funds of the FR

In surgery

Preoperative - during planned operations

Early postoperative - up to 4 days after surgery

Late postoperative — from the 5th to the 10th day after the operation

Remote postoperative - after discharge from the hospital until recovery, and if impossible - compensation of functional disorders of the maxillofacial area

In traumatology

The first immobilization

The second immobilization (from the 3rd week - after weakening the intermaxillary fixation or changing the double-jaw splint to a removable splint)

The third - after removal of immobilization (post-immobilization)

In therapy

The first (introductory, acute)—pronounced morphological and functional disorders of the maxillofacial area.

The second (main, functional, subsidence, recovery) — less pronounced morphological and pronounced, as before, functional disorders.

The third (final, training, recovery, completion, recovery) - residual manifestations of morphological and functional disorders of the maxillofacial area.

Means of Physical Rehabilitation. Motion modes

In the hospital

Bedside (severe and extended) - the patient needs constant medical supervision and

assistance in self-care.

Semi-bed or ward - the patient needs constant medical supervision, but he can take care of himself.

Free - the patient does not need constant medical supervision and can take care of himself.

In outpatient (sanatorium-resort) conditions

Gentle - the patient's condition requires strict regulation of the intensity and duration of physical exertion.

Gentle - training - the patient's condition requires strict regulation of the duration of non-regulated physical exertion (elements of sports games, etc.).

Training - the condition of the patient allows sports games to be included in classes without strict regulation of the intensity and duration of classes; the intensity of the load is determined by the technique and endurance of the patient and his partners in the game, the duration - by the rules of the chosen game.

Means of hardening

the air

• be naked in the air at a temperature of 18 °C;

• start with 3 min. gradually increasing to 20 min. daily by the sun

• be naked in direct sunlight or in the shade of trees from 8-9 to 11 o'clock;

• starting with 5-6 minutes, gradually increasing to 20 minutes; after every 6 days a break for 1 day, and after 25-30 days - a longer break;

• prevent overheating of the head by covering it with a hat, umbrella, etc.;

• douse the body with water at a temperature of 35-37 °C after sunbathing in the shade;

• do not sunbathe on an empty stomach earlier than after 1.5 hours. after Ida;

• do not eat immediately after sunbathing;

• remember that burns occur more often on wet skin

By water

Start wiping with a towel soaked in water and wrung out at a temperature of 35 °C, lowering every 2-3 days by 1 °C to 16-18 °C for 5 minutes; the order of wiping - upper, lower

limbs, chest, stomach, back

Swimming in open water

• start with 3 min. at air temperature not lower than 26 °C and water temperature - not lower than 22 °C; not earlier than in 1.5-2 hours. after eating;

• move in the water while swimming

Mechanisms of the therapeutic action of FR means

Tonic (stimulating):

• stimulation of blood and lymph circulation of working muscles and the whole organism as a whole;

• stimulation of the motor-evacuator and acid-forming functions of the digestive tract;

• stimulation of hematopoiesis; fibrinolytic activity of blood;

• stimulation of the adrenal cortex; increase in insulin level;

• strengthening of metabolism;

• stimulation of the child's psychomotor development

Trophic:

• strengthening of regeneration and repair processes;

• acceleration of resorption of inflammatory exudate;

• strengthening of oxidation-reduction processes without necessarily changing the blood supply;

• prevention of atrophic and degenerative processes;

• restructuring of the primary bone callus;

• increased deposition of calcium in bones;

• stimulation of growth in the case of underdevelopment or its delay in the case of excessive development of the jaws

Compensatory (temporary or permanent replacement of a lost function):

• inclusion of extracardiac factors of blood circulation (muscle pump, suction action of the thoracic and abdominal cavities, body position)

• compensation for disturbances in the function of chewing, swallowing, and speech due to unaffected tissues

Restorative (normalization and improvement of impaired functions):

• restoration of the impaired function of facial expressions, masticatory muscles, tongue muscles, soft palate, range of motion in the temporomandibular joint;

• normalization of strength, tone of masticatory, facial and skeletal muscles;

• restoration of physical capacity;

• normalization of the mobility of nervous processes;

• normalization of the trophism of the muscular-ligamentous apparatus;

• normalization of blood circulation in Filatov stem;

• normalization of jaw position;

• restoration of nasal breathing, chewing, speech

Forms of appointment of funds of the FR

Self-study on an individual task in front of the mirror

Therapeutic gymnastics for mimic and masticatory muscles

Measured walking:

• Slow - 80-99 steps/min

• Moderate - 100-110 steps/min

• Fast — 111-120 steps/min

• Running - >120 steps/min

Dosed ascent (terrencur) - dosed walking with gradual ascent and descent on special routes: 1st route - angle of ascent 0-5° - 500 m; 2nd route - ascent angle 5—10°—1000 m; 3rd route - angle of ascent 10-15° — 2000 m; 4th route — ascent angle 15-20° - 3000-5000 m

Dosed swimming (with a certain intensity and duration)

Gymnastics in water

Mechanotherapy for masticatory muscles using "oscillating spoons" A.A. Limberg, pulping apparatus with shovels or spoons, the apparatus of M.M. Matesis, apparatus of I.M. Oksman, the "Expander" device, a lip expander

Games:

• low mobility - in place (sitting, lying down, rarely - standing);

• medium mobility — without running;

• high mobility - using running;

• sports

Massage of the maxillofacial area.

Methods of conducting physical exercise classes

Individual - the methodologist, the instructor deals with a separate patient in the ward

Small group - methodologist, instructor works with 3-5 patients in the ward

Group - a methodologist, the instructor works with a group of patients in the hall

Groups are formed by:

• a nosological sign;

• functional homogeneity;

• sometimes by gender and age (especially in childhood)

Consultative - patients practice independently after the consultative recommendations of the methodologist, doctor.

Dosage of physical exertion of general effect

Intensity

According to the heart rate (HR): training heart rate = training heart rate + Kx (chronotronic reserve), where: trep heart rate. - training heart rate; Heart rate out. - heart rate at rest;

K - the percentage of the chronotropic reserve, which is activated during classes;

Chronotron reserve - (HR threshold or max. minus HR output), where:

Threshold heart rate = heart rate at which testing with dosed exercise is stopped: due to subjective reasons, blood pressure increase to and above 230/130 mm Hg, ECG signs of myocardial ischemia;

heart rate max. — 200 minus age (for sick and untrained) 220 minus age (for healthy people).

Duration, frequency of classes

When in bed: 10-15 minutes 3-5 times a day, every day

With ward mode: 15-20 minutes 2-3 times a day, every day

In free mode: 30-40 minutes 1-2 times a day, every day

With gentle, gentle training and training modes: 30-40 minutes. at least 3 times a week

Dosing of physical exercises of local effect in patients with a stomatological profile

When in bed: repeat each exercise 4-5 times in a row, at least 5 times a day, every day.

In the chamber mode: repeat each exercise 5-6 times in a row daily.

In free mode: repeat each exercise 10-15 times in a row daily.

With gentle, gentle training and training modes: repeat each exercise 10-15 times in a row every day.

Peculiarities of performing special exercises

Perform in front of a mirror in a sitting position

Carrying out thermal procedures and massage before performing exercises (reduces muscle tension)

Performing physical exercises for the muscles of the neck and shoulder girdle before performing special exercises (creates a favorable physiological background for performing special exercises)

Alternating muscle relaxation and stretching (preliminary muscle relaxation gives maximum stretching and reduces muscle fatigue)

Methods and criteria for evaluating the effectiveness of complex treatment

Gnathodynamometry — determines the amount of chewing pressure on different teeth of the dentition and the dentition as a whole (in kg). Positive dynamics is characterized by an increase in chewing pressure.

Mastication - determines the biomechanics of the chewing apparatus:

the first phase - the isoelectric line (before the introduction of food into the oral cavity);

the second phase - the rise of the curve (caused by the opening of the mouth);

the third phase - a decrease in the curve (caused by closing the mouth and the beginning of

chewing);

the fourth phase — wave-like movements of the curve of full amplitude and frequency, which depend on the completeness of the chewing apparatus and the consistency of the food;

positive dynamics is characterized by an increase in the amplitude and frequency of the wave-like movements of the curve, as well as a steeper downward bend of the curve

Electromyography - determines the duration and amplitude of the bioelectric activity of the masticatory and facial muscles:

for masticatory muscles, the duration of the biopotential is normally 9-10 ms and the amplitude does not exceed 3000 μV

for mimic muscles, the duration of the biopotential is normally 5-7 ms and the amplitude does not exceed 3000 μV;

positive dynamics is characterized by an increase in the duration and amplitude of biopotentials of restored muscles

Christiansen's test - determines the effectiveness of the chewing apparatus:

• offer to take 5 g of nuts in the mouth and make 50 chewing movements;

• dry the chewed mass at a temperature of 100 °C for 1 hour, sift the mass through a sieve with holes of different sizes;

• weigh the size of the sieved nut particles and those remaining in the strainer, and determine their ratio by weight;

• positive dynamics are characterized by an increase in the mass of sifted nuts

Rubinov's test - determines the effectiveness of the chewing apparatus:

• offer to chew 0.8 g of hazelnuts and determine the time of onset of the swallowing reflex;

• positive dynamics are characterized by a reduction in the time of swallowing

Massage

Massage must be performed on bare skin, often using lubricants (special creams, petroleum jelly, etc.). Massage should be performed with a dry hand, deep rubbing and kneading is not allowed.

The area of skin to be massaged and the hands of the massage therapist must be clean (washed before each procedure)

Massage movements should be done according to the flow of lymphatic and venous vessels

During the massage, the patient should: breathe freely;

- relax the muscles of the face and neck;

- remove clothing and jewelry that restrict massage movements

Facial massage is performed:

on both sides of the middle line (in the direction of the lymphatics to the lower corner of the lower jaw in the direction of the vessels of the nose, eyes and upper half of the cheeks; under the angle of the lower jaw (in the direction of the vessels of the lips and the lower part of the cheeks after the fold); down to the sternum along the front surface of the neck (in the direction of the vessels of the chin).

The massage must be performed with two hands in the position of the patient sitting on a chair, leaning on the massage therapist's chest. The massage therapist should stand behind the patient. For a uniform, equal force of action on symmetrical areas of the face, the massage should be performed with both hands simultaneously in the direction of the skin lines (see the appendix) or at a very sharp angle to them. After the massage, it is necessary to perform passive and active movements of the head (contracting muscles release lymph and venous blood, thus prolonging the effect of the massage).

The duration of the massage procedure should be 5-15 minutes and depends on: the nature and stage of the disease (injury); general condition and age of the patient.

The frequency of massage is daily or 2-3 times a day and depends on:

the functional state of the body, the nature and stage of the disease (injury);

the age of the patient (in the elderly no more than 2 times a week) and the purpose of the massage

The massage course should be 5-20 procedures and depends on:

the nature and severity of the disease (injury);

goals of massage;

sometimes massage is performed in courses with small breaks.

After the massage procedure, you need to rest for 10-15 minutes.

Contraindications to massage

Fungal and pustular skin diseases.

Purulent processes (abscess, phlegmon, lymphadenitis), osteomyelitis, tumors, inflammatory swelling of the maxillofacial area.

Infected wounds, widespread hemorrhages of soft tissues of the maxillofacial area.

The presence of foreign bodies near the large vessels of the face.

Exacerbation of the pathological process.

Poor well-being during procedure.

Therapeutic effect of massage

Stimulates mechanoreceptors of the skin, the specific energy of which is transmitted to the central nervous system and normalizes the mobility of nervous processes

Stimulates blood and lymph circulation, which contributes to:

inflow of nutrients and medicines to the maxillofacial area; resorption of swellings, hematomas, effusions.

Normalizes the tone and elasticity of facial and masticatory muscles.

Normalizes blood circulation in the transplanted stem of Filatov and the limb to which it is transplanted or from which it migrated

Stages of the therapeutic massage procedure in dentistry

Preparatory

• to clean the skin from exfoliated epithelium, secretions of sweat and sebaceous glands;

• to improve the mobility of venous blood, lymph and interstitial fluid in the massage area;

• the technique of stroking with broad strokes from the center of the face to the periphery along the course of the veins and lymphatic vessels is used

Detailed

• for individual parts of the face (upper, lower lip, pre-oral, suborbital zone, etc.);

• use all massage techniques

Final

• to increase blood flow to the face;

• use vibration techniques (clap: tapping)

The technique of performing the main techniques of manual massage

Stroking

Perform with the palm surface of one or more fingers with one or both brushes

The hand, lightly touching, should gently, gently and rhythmically slide over the skin, without moving it, at a rate of 24-26 movements per 1 minute.

Apply from the middle of the face in both directions to the submaxillary and chin lymph nodes (do not apply in the opposite direction!) following the massage lines.

Sliding should be performed in a straight direction, circularly and spirally.

The pressure and speed of hand movements are initially limited, then gradually increase and are limited again near the lymph nodes.

This technique should begin and end the massage procedure, and also alternate it with all other techniques.

Locally increases blood and lymph circulation, reduces the excitability of the nervous system, the severity of pain sensations, promotes the process of resorption.

Friction

Swipe with the pads of the fingers (one - I, II, III; or two or three - II-III or II-II and thumb).

Move and stretch soft tissues in different directions along the massage lines.

Conduct in the exit areas of the branches of the trigeminal and facial nerves and along the course of these nerves.

Movements should be made not only along the flow of lymphatic and blood vessels, but also against it.

The force of pressure depends on the angle of inclination of the fingers to the surface of the skin (in a perpendicular position - the greatest).

The tempo is 70-80 movements in 1 minute.

Use to increase tissue mobility, resorption of scars, adhesions, increase local blood circulation, increase muscle tone and contractility, reduce the severity of pain in neuralgia and neuritis of the trigeminal and facial nerves, increase blood circulation and accelerate the

resorption process.

Kneading

Run with the tips of the index and thumb, grab each fold, preventing it from being pulled away.

Perform in the direction of muscle fibers smoothly, rhythmically, without sharp twitching, without causing pain in the patient.

The captured skin fold can be easily squeezed and pressed against the facial bones (squeezing a pit from a ripe plum) or carefully plucked like a guitar string at a rate of 100-120 times in 1 minute.

Do not significantly stretch the skin and damaged elastic fibers you can increases the tone and contractility of the circular muscle of the mouth and muscles buccal areas, activates regenerative and reparative processes in the maxillofacial area.

Vibration

Carry out oscillating movements with the pads of the end phalanges of one or more fingers with different speeds and amplitudes. The pressure on the skin is superficial at first, and then increase it. Continuous vibration can be carried out in one place. Intermittent vibration should be carried out by gently tapping or tapping with one or several fingers at a rate of 100-120 times in 1 minute along the massage lines of the face. Pat the cheek surfaces and the forehead with the palm surface of the brushes (the thumb should be pressed). Helps increase muscle tone, stimulates trophic tissue of the maxillofacial area.

Gum self-massage

It is advisable to remove tartar before the massage.

Clean the gums covered with plaque and mucus with cotton wool soaked in hydrogen peroxide.

Rinse your mouth with warm water, lubricate your fingers with glycerin or petroleum jelly.

Stroke the gums with the index finger in the direction from the neck to the top of the roots of the teeth.

Rub with circular movements horizontally along the alveolar processes.

Intermittently press on the gums with one or two fingers. The duration of the massage procedure for both gums is 20 minutes. (5 min each on the vestibular and lingual side) 2-3 times

a day.

The massage procedure should not be accompanied by pain.

Finger massage is contraindicated for abscess, hemorrhagic diathesis, neoplasms, hemophilia, as well as for violations of the integrity of the mucous membrane of the gums.

Filatov stem massage

Immediately after the operation, application in the form of a bubble with ice for 15-20 minutes every hour for 5-6 days.

From the 7th to the 8th day, compression of the transferred leg with a clamp or a rubber tourniquet, starting with 2 minutes 2-3 times a day, increasing the compression time to 2 hours 2-4 weeks before the operation of its transfer.

Starting from the 3rd-4th week after removing the stitches, superficial stroking in the direction from the leg to the middle of the stem, then vice versa, without reaching the root of the stem.

In the subsequent alternation of superficial and deep stroking and rubbing of the stem.

Pinch the leg of the stem that needs to be cut off with the fingers of one hand, and with the fingers of the other squeeze the stem in the direction of the leg of the remaining stem.

Ice massage (cryo massage)

Rub in a circular or zigzag pattern with a cellophane bag filled with ice.

Massage not only the affected areas of the face, but also around them, massage pain points (trigger zones).

The duration of the massage is from 2-3 to 5 minutes, but not more, in order to avoid permanent narrowing of blood vessels (cyanosis).

Frequency of massage - from 2-3 to 5 times a day.

Conduct for local stimulation of blood and lymph circulation in case of injuries, inflammatory processes after surgical interventions.

3. In order to avoid fatigue at work, the dentist must follow the following rules:

1) during the first hour, you should engage in simple and short-term work

after 2 hours, it is advisable to take a break for 10–15 minutes;

2) have a 2−3-minute rest between receiving patients;

3) in the middle of the working day, you should take a break for 30–60 minutes.

4) Working conditions and working capacity of the dentist. A doctor's workplace is of great importance for labor productivity.

Rational distribution of furniture, regular ventilation of the room during the working day, ensure acceptable working conditions. The air temperature in the room should be 18–20°C, relative humidity 30–45%. The walls and ceiling are painted in light colors.

Professional diseases of the dentist, causes of their occurrence, methods of elimination, prevention

A dentist manipulates tools for most of his working time. It is generally accepted that irrationally thin tool handles cause overstrain and muscle spasm. For the prevention and treatment of arthrosis and curvature of the fingers, the following exercises are recommended:

1) the tips of the fingers of both hands are folded and the hands are moved towards each other with effort many times;

2) the thumb slides with effort from the base of the finger to its tip (perform for all fingers);

3) fold the fingers into a fist, thumb inside. Clenching a fist, slowly remove the thumb.

Dupuytren's contracture develops in people who constantly work with hard tools, it is quite often observed in dentists as well, because a large number of tools (tweezers, tips) constantly press on the same place of the palm. On the middle, ring finger or on the little finger there are rope-like nodular thickening of the palm leading to contracture of the main and middle joints. At the same time, the fingers bend, sometimes so much that the nails grow into the palm.

Hot air showers, hot hand baths, paraffin, ozokerite, passive stretching at night are used for treatment. The cuff is a 2 cm wide steel band that is sewn into a tight belt and placed on the palm or the back of the hand. Thanks to the steel tape, excess pressure falling on individual areas of the fascia is evenly distributed over a larger area of the palm. To relieve the burden on the right hand, you can train the left hand to perform all the work associated with great stress.

Tendovaginitis is a disease of the joint bag in the places of attachment of tendons, which develops as a result of long-term, often repeated tension of individual muscle groups in an unnatural, forced position. At the appearance of its first signs, you should take a break from work. The combination of tendovaginitis with Raynaud's disease leads to professional disability. Fingers become cold, bloodless, pale. In severe cases, gangrene develops. Especially often, tendovaginitis and circulatory disorders occur in dentists who work without a nurse. Work

without a nurse is not only slow and unprofitable, but also dangerous for the doctor's health.

Treatment of tendovaginitis. Thermal procedures, lidase or ronidase electrophoresis, massage, ensuring rest of the affected hand. In severe cases, surgical intervention is indicated. If the main etiological factor - systematic overstrain of the finger - is not eliminated, the process progresses and is not amenable to conservative treatment even in young people.

The effect of vibration on the body of a dentist. The sources of vibration include manual mechanized machines of rotary action: a drill and, directly, a dental handpiece. Long-term exposure to vibration combined with a complex of adverse factors (static muscle strain, noise, emotional overstrain) can cause permanent pathological disorders in the body, the development of vibration disease.

Therapeutic and preventive measures:

1) reduction of vibration intensity due to structural improvements.

2) control over the serviceability of the equipment: in the process of operation and wear there is a pronounced increase in vibration.

3) compliance with the regime of work and rest.

4) medical and preventive and general health measures:

a) thermal procedures for hands in the form of hydroprocedures (baths)

b) massage and self-massage of hands and shoulder girdle

c) industrial gymnastics

d) UFO

e) vitamin prophylaxis and other strengthening procedures (room for psychological relief, oxygen cocktail, etc.).

Diseases associated with long-term static load. A dentist's work combines static work and mental activity. Almost every second dentist over the age of 45 is convinced by his own example that disorders of the musculoskeletal system are the main pathology directly related to the chosen specialty. If during the first 15 years of work joint diseases are noted by 10–15% of dentists, then with a professional experience of 26–35 years such diseases already occur in 25–45%. Insufficient access to the operating field, poor visibility forces doctors to take an uncomfortable, unnatural position, which is forcibly maintained for a long time. Static disorders affect ligaments and muscles. With long-term one-sided loading, first the muscles get tired, then they stretch and,

as a result, the joints weaken and the bones move. There are so-called loading diseases of the skeletal muscles.

The consequences of improperly organized work and rest regime of dentists, suboptimal organization of the workplace, long hours of work in an uncomfortable position can be the following diseases: osteochondrosis of the cervical, thoracic and lumbar spine, neuritis and myalgia of the upper limb, arthrosis of the shoulder, elbow and small joints of the hand.

Occupational stress, metabolic and neurohumoral reactions. Increased responsibility, lack of information and time to make the right decision causes a high degree of neuro-emotional stress. This leads to tachycardia, an increase in blood pressure, changes in the ECG, an increase in pulmonary ventilation and oxygen consumption, and an increase in body temperature.

In conditions of psycho-emotional tension in stressful situations the following functional disorders may occur in situations:

- muscle symptoms (tension and pain);

- gastrointestinal symptoms (dyspepsia, vomiting, heartburn, constipation);

- cardiovascular symptoms (rapid heartbeat, arrhythmia, chest pain);

-respiratory symptoms (shortness of breath and hyperventilation);

- symptoms from the central nervous system (neurotic reactions, insomnia, weakness, fainting, headaches).

Among the cardiovascular symptoms, coronary insufficiency and arterial hypertension are most often noted.

Elimination and prevention of violations

In order to avoid the listed phenomena, you need to abandon an overly tense body position and replace it with a more comfortable one. The main reasons that force the doctor to adopt the wrong body position are haste and insufficient attention to the correct individual adjustment of the dental chair for each specific patient.

To correctly install the chair, you need to consider the following:

1) height and weight indicators of the patient;

2) height and weight indicators of the doctor;

3) the doctor's visual acuity;

4) illumination.

The doctor's position is considered correct, in which the head, neck, chest and abdomen are on the same vertical, and the main burden falls on the bone skeleton, while the muscles and ligaments are loaded to a minimum. In this position, the functions of respiratory organs, blood circulation, and digestion are in favorable conditions.

Professional diseases of the feet of dentists

It has been proven that a dentist should work sitting almost the entire working time. Standing work, which is not accompanied by various muscle movements, disrupts venous outflow, causes blood stagnation in the veins of the lower extremities. Veins expand, their valves do not function enough, blood circulation slows down and, as a result, circulatory disorders occur in the vessels not only of the limbs, but also of the organs of the abdominal cavity. Professional foot injuries appear: curved, flat or splayed feet due to long-term maintenance of the body's vertical position. Insufficiency of supporting tissues, muscles, ligaments, bones and joints develops.

Incorrectly shaped shoes (narrow-toed) cause foot diseases. Shoes, stockings and socks should not disturb blood circulation in the lower leg and foot area. They should be chosen in such a way that the toes can move freely. When standing for a long time and turning the feet, in addition to flat feet, the so-called valgus foot with a protruding inner ankle develops.

For the treatment and prevention of legs and feet, the following set of exercises is offered: bending and extending the toes, grabbing and lifting a handkerchief from the floor with the toes, walking on heels, on river sand, on stones, running on pebbles in water, exercises with a stick on wheels, etc. Massage and self-massage of the feet are successfully used. It is advisable to make a warm bath for your feet beforehand. After that, massage movements are performed to relax the ankle joint, arch of the foot, massage of the toes, relaxing massage of the lower leg. It is useful to walk barefoot on a hard wet sandy beach, stand or run on a beach covered with small pebbles.

Professional diseases of the spine in dentists

The need to keep a certain position of the body for a long time with the body bent affects the spine. Vertebrae shift and diverge, the spine acquires an atypical configuration. Sprained ligaments are accompanied by compression of the intervertebral discs, vessels and nerves on the side of the formed lordosis. There are pains in the neck, shoulders, back, sacrum, which pass into the limbs.

Occipital and neck pain, brachial plexus neuralgia, intercostal neuralgia, Scaleus syndrome,

immobility of the neck, shooting and back pain, sciatica. Root, motor, sensitive and vegetative disorders develop. Massage, warm baths and therapeutic gymnastic exercises are used for treatment.

The main ways to fight fatigue:

1) rational organization of the workplace and furniture;

2) therapeutic gymnastics;

3) a rational mode of work and rest;

4) industrial gymnastics;

5) physiological unloading rooms.

For more than 80% of the working time, the dentist is forced to work in a sitting position. After a stressful working day, it is necessary to use means that reduce stress. It is recommended to take a bath with a water temperature of 35–36 °C for 10–15 minutes. You can add valerian, horsetail to the water. After the bath, it is important to keep the feet warm (use a blanket, a heating pad). The bed should not be too soft, the blanket should be light.

Methods of combating fatigue

After work, in the evening, it is useful to take a warm shower, which helps relieve fatigue and tension. To relax the muscles and nervous system, it is recommended to do a light self-massage to improve capillary blood circulation, which contributes to the emergence of a subjective feeling of freshness. Massage has a positive effect on the tone of the skin, muscles, vascular and nervous systems, reflexively affects the internal organs. All types of hardening, motor activity, sports are useful. Together with muscle training, the vascular system is also trained, breathing becomes economical, which leads to an increase in the efficiency of cardiac activity.

Allergic diseases of the skin of the hands dentists

In dental practice, doctors, nurses, and dental technicians have to constantly come into contact with various allergens: medicinal and chemical substances, which include novocaine, antibiotics, polymers, synthetic materials, etc. The most common allergic skin diseases are contact dermatitis and eczema. They also include toxicoderma, urticaria, and dermatoconiosis. Epidermitis (dry skin) resulting from regular contact with water and degreasing substances is considered an allergic tendency.

Eye diseases in dentists

Diurnal and seasonal fluctuations of natural light require the use of artificial light instead of natural light or in addition to it. Taking into account the fact that the work of a dentist in a polyclinic requires a lot of visual strain, the lighting of the offices should be increased. Many doctors associate the appearance of headaches, irritability from monotonous noise, "flickering" and "transfusion" of moving objects with fluorescent lighting and note that it gives a bluish color to the mucous membranes and skin. After 10 years of practice, 80% of dentists note eye diseases. Therapists are at great risk of developing conjunctivitis. When preparing teeth and removing dental deposits, it is recommended to wear protective glasses.

Hygienic requirements for industrial lighting

With insufficient lighting and visual strain, the state of visual functions is at a low functional level, visual fatigue develops in the process of performing work, general work capacity and work productivity decrease, and the risk of injury increases. Poor lighting contributes to the development of myopia.

Prevention: a rational arrangement of lamps, banning the use of only local lighting. It is difficult to imagine the work of a modern dentist without the use of photopolymerizing filling materials. The composition of the photocomposite includes photosensitizers, their polymerization occurs under the influence of light radiation in a narrow part of the visible spectrum within 480 nm (blue light). To carry out this process, special devices are used - photopolymerizers, which differ in power, lighting, additional service functions, and design, but the principles of operation and the main components of the design are approximately the same.

It is worth paying special attention to the effect of blue light on the doctor's vision. English scientists in an experiment on animals found that a total direct 15-minute exposure to the light of the polymerizer on the eyes leads to the appearance of signs of irreversible changes in the retina. Quite often, there are cases when doctors, after working with a photopolymerizer for a long time, especially without protective equipment, complain about the flickering of "flies" in front of their eyes. In this regard, it is necessary to work only if there are protective caps on the photopolymerizer and it is necessary to use protective glasses.

Therefore, compliance with the relevant sanitary standards, work and rest regime, physical exercises of therapeutic gymnastics and massage will contribute to the prevention of professional diseases of the dentist.

1. **Control questions:**

1. Structure of PhD. Tasks and content of medical supervision of persons engaged in physical culture and sports. Tasks, organization and content of medical physical education.

2. To determine whether there are contraindications to the appointment of therapeutic physical education.

3. Determine the treatment period in which the patient is.

4. Formulate general and special tasks that must be solved by the means of the FR in this situation.

5. Specify the means of the FR that can be used to solve the tasks in this situation.

6. Specify the forms of physical culture. Detail the specifics of the massage procedure.

7. Determine the forms of allocation of funds of the FR.

8. What are the physical exercises?

9. Methods of conducting classes with physical exercises. The duration of the massage procedure.

10. How many procedures does a massage course consist of?

11. Contraindications to the appointment of massage.

12. How does massage affect the nervous system?

13. How does massage affect blood and lymph circulation?

14. How does massage work on muscle-ligamentous aparates?

15. How does massage work with jaw fractures?

16. Stages of the therapeutic massage procedure and which techniques are mainly used for them.

17. Therapeutic effect of ironing.

18. Therapeutic effect of rubbing.

19. Therapeutic effect of kneading.

20. Healing effect of receiving vibration.

21. How is gum self-massage performed?

22. Are cold applications appropriate in the first days after plastic surgery with the Filatov stem?

23. When do they start pinching the transferred leg of the Filatov stem?

24. Clinical and functional justification for the prevention and treatment of professional diseases of the dentist.

25. The impact of professional activity on the physical condition of a dentist.

26. Working conditions and working capacity of a dentist.

27. The importance of choosing the optimal working position.

28. professional diseases that occur in a dentist.

29. Diseases of dentists are associated with long-term static load.

30. Methods of combating fatigue

31. Exercises for the prevention and treatment of professional pathology of the dentist.

32. Hygienic requirements for industrial lighting.

33. Elimination and prevention of violations.

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