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***Phototherapy. Magnetotherapy. Water,
mud, heat treatment. Cryotherapy.
Sanatorium treatment***

Laser therapy - the use of low-energy laser radiation (LEL) with therapeutic and prophylactic purposes.

Modern lasers are classified according to the active substance

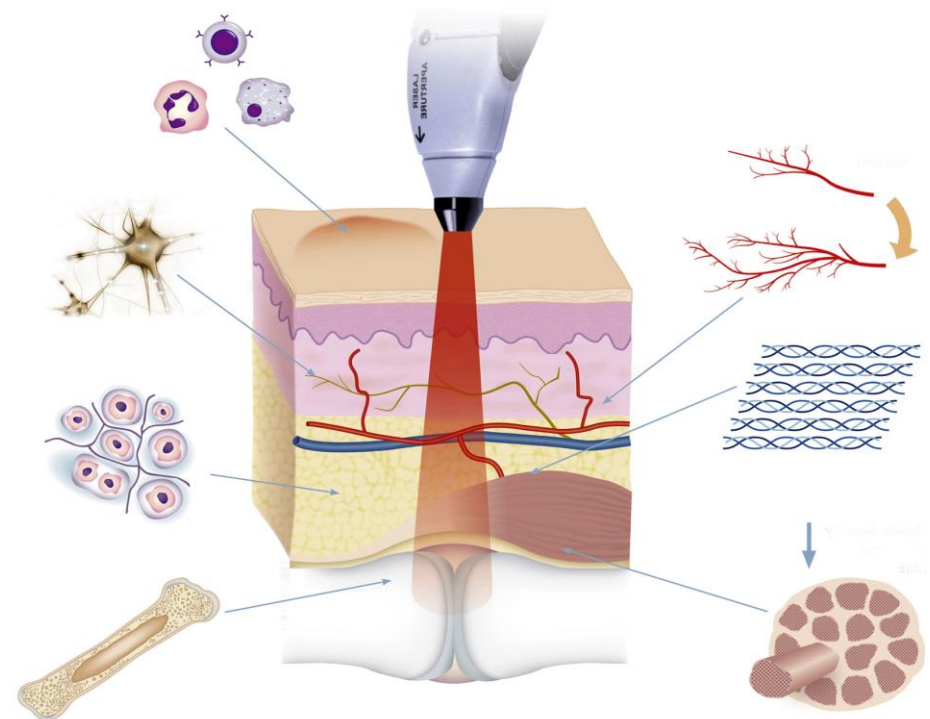
- ✓ solid-state;
- ✓ Gas;
- ✓ Liquid;
- ✓ Semiconductor.

Modern lasers are classified by wavelength

- ✓ Ultraviolet;
- ✓ Visible;
- ✓ Infrared;
- ✓ tunable ranges.

The most pronounced effects of laser therapy, arising primarily at the site of exposure, are the following:

- trofiko-regeneratoryj;
- improving microcirculation;
- anti-inflammatory;
- Immunostimulating;
- Desensitizing;
- Decongestant;
- Analgesic.



Laser therapy requires compliance with safety regulations:

- 1. The laser installation must be grounded and shielded;**
- 2. the laser should be installed in a separate room, there must be a sign on the doors warning about the operation of laser equipment;**
- 3. It is prohibited to have flammable liquids and gases in one room with a laser unit;**

- 1. In the room where the laser installation functions, the access of persons not related to working with the laser must be restricted;**
- 2. the eyes of medical personnel and patients should be protected with special glasses with absorbing or (and) reflecting glasses;**
- 3. Persons who have reached the age of 18 are allowed to work.**

Contraindications to the use of laser radiation **are:**

- acute inflammatory diseases,
- active tuberculosis,
- malignant and benign neoplasms,
- systemic blood diseases,
- infectious diseases,
- severe diseases of the cardiovascular system
- thyrotoxicosis



phototherapy

- the use of therapeutic and prophylactic purposes of electromagnetic waves of optical range that includes infrared, visible and ultraviolet (UV) radiation.

The depth of penetration is:

- 3-4 cm for the infrared rays (heat);
- 1-3 cm — visible (heat);
- 0,1-0.5 cm — UV (photochemical).



Contraindications to therapy:

- malignant and benign neoplasms;
- acute purulent inflammatory processes;
- the tendency to bleeding;
- active tuberculosis;
- pregnancy ;
- arterial hypertension III degree;
- pulmonary cardiac and cardiovascular failure III
- Biochronotherapy not recommended for use in patients receiving hormonal patients, immunomodulatory and cytotoxic drugs.



The therapeutic effect of UV erythema

- ✓ **anti-inflammatory;**
- ✓ **analgesic;**
- ✓ **regeneration;**
- ✓ **desensitizing;**
- ✓ **Bactericida.**

The total UV irradiation is used for:

- ✓ increase the body's resistance to infections;
- ✓ the prevention and treatment of rickets in children, pregnant and lactating women;
- ✓ the treatment of pustular diseases of skin and subcutaneous tissue;
- ✓ the normalization of the immune system in chronic inflammatory processes;
- ✓ compensation ultraviolet (solar) failure

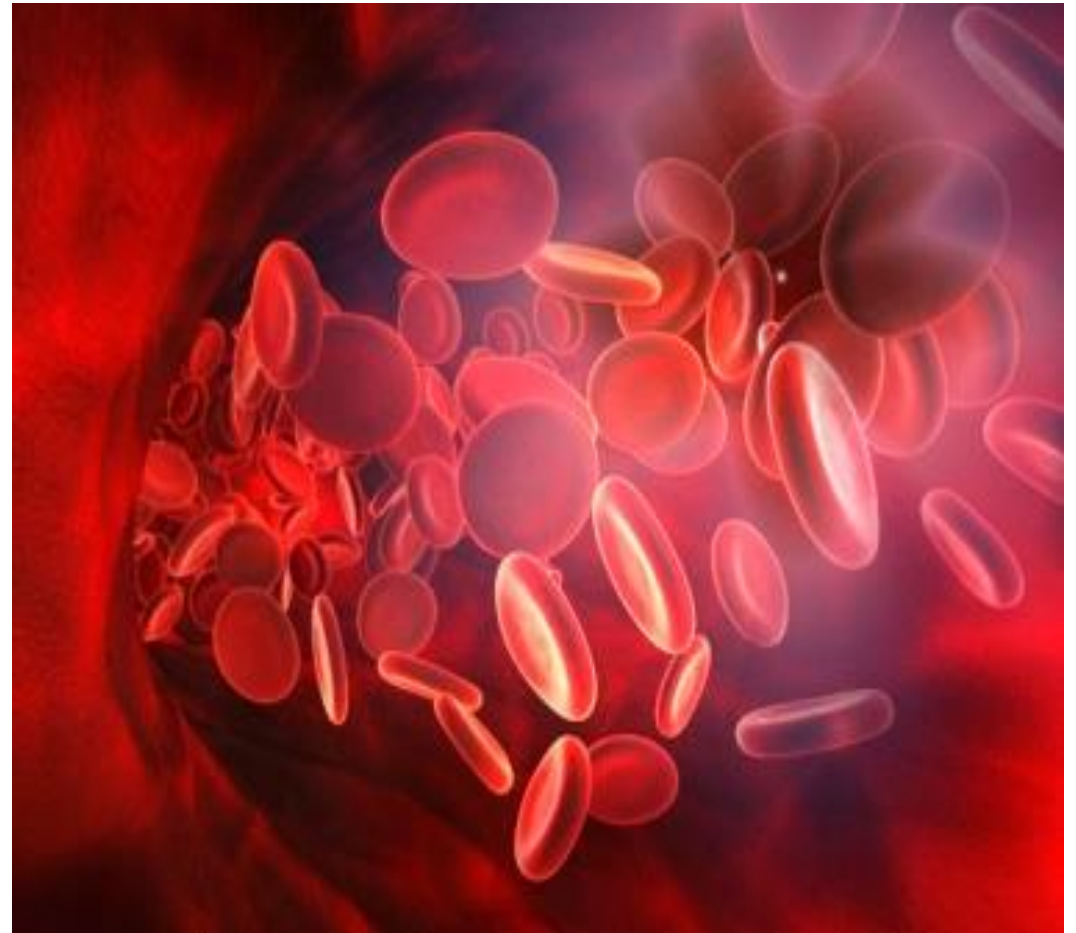
Local UV irradiation is used for:

- ❖ **in therapy** for the treatment of arthritis of various etiologies, inflammatory respiratory diseases, bronchial asthma;
- ❖ **in surgery** for treatment purulent wounds and ulcers, bedsores, burns, frostbite, infiltrates, purulent-inflammatory lesions of skin and subcutaneous tissue, mastitis, osteomyelitis, erysipelas, the early stages of obliterative lesions of the vessels of the extremities;
- ❖ **in neurology** for the treatment of acute pain syndromes, effects of traumatic brain and spinal injuries, multiple sclerosis, Parkinson's disease, phantom pain;

- ❖ **in stomatology** — for treatment of stomatitis, periodontosis, gingivitis, infiltrates after tooth extraction;
- ❖ **in gynecology** in the complex treatment of acute and sub acute inflammatory processes, with cracked nipples;
- ❖ **pediatric surgery** for the treatment of neonatal mastitis ,exudative diathesis, pneumonia, rheumatism;
- ❖ **in dermatology** in the treatment of psoriasis, eczema, pyoderma, etc.

UV-irradiation of blood is applied:

- ✓ for the treatment of purulent-inflammatory processes (peritonitis, sepsis, osteomyelitis, cellulitis of the soft tissues, acute pancreatitis);
- ✓ chronic nonspecific lung disease;
- ✓ bacterial endocarditis;
- ✓ coronary heart disease;
- ✓ arterial hypertension I and II degree;
- ✓ thrombophlebitis;



- ✓ of diabetes;
- ✓ peptic ulcer disease;
- ✓ endocrine forms of infertility in men and women;
- ✓ dysfunction of the ovaries;
- ✓ neurodermatitis;
- ✓ psoriasis;
- ✓ pustular skin diseases.

Contraindications for UV irradiation :

- malignant neoplasms;
- systemic lupus erythematosus;
- the active form of pulmonary tuberculosis;
- feverish condition;
- the tendency to bleeding;
- circulatory insufficiency II and III degree;
- arterial hypertension III degree;
- expressed atherosclerosis;
- Hyperthyroidism;
- kidney and liver failure functions;
- Cachexia;
- increased sensitivity to UV rays.



magnetotherapy

- application of constant, low-frequency variable and pulsed magnetic fields. In accordance with the parameters of the used magnetic fields emit a continuous, pulsed and low-frequency magnetotherapy.

This method exists about 3000 years. Created the ancient Hindus. Now in India, there are about 25 schools where do magneto-therapy. Method simple, does not cause adverse effects, can be used in different areas medicine.



magnetotherapy

- **permanent (does not change in time neither in magnitude nor in direction)**
- **variable (time-varying in magnitude and direction)**
- **pulse (pulsing - varies with time in magnitude but constant in direction)**

Biological effects:

- ✓ increases the activity of both cellular and humoral immunity;
- ✓ in damaged blood vessels contributes to the formation of blood clots in them and increasing their permeability;
- ✓ in intact vessels: weak magnetic fields reduce blood clotting, whereas the strong increase it for 5-7 days from the moment of impact;
- ✓ increase the vascular permeability of the microvasculature;

Indications:

- **vegetative polyneuritis, neurosis, neurocirculatory dystonia of hypertensive and mixed types;**
- **Raynaud's disease;**
- **occlusive disease and other vascular diseases of the extremities;**
- **disease, occurring with a strong allergic component (bronchial asthma, chronic obstructive bronchitis, rheumatic arthritis);**
- **Ulcers;**
- **diseases of the musculoskeletal system.**

Contraindications:

- individual sensitivity to factor;
- coronary heart disease, angina FC III;
- aortic aneurysm;
- severe hypotension;
- the presence of cardiac pacemakers;
- the tendency to bleeding;
- systemic diseases of the blood;
- increased body temperature;
- marked thyrotoxicosis;
- Pregnancy;
- acute psychosis.



Thermotherapy

application for therapeutic purposes heated medium having a high heat capacity, low thermal conductivity and high heat-retaining capacity.

Therapeutic muds (peloids)

natural fine homogeneous plastic mass is formed under the influence of geochemical, climatic, biological and other natural processes applied in the heated state for mud.

In the therapeutic mud is the effect on the body

- ✓ Temperature;
- ✓ Mechanical;
- ✓ Chemical.



Peloids have a beneficial effect on the functional state of the nervous system (or "normalize" the dynamics of the processes of inhibition and excitation in the cerebral cortex), neurohumoral processes, stimulate the immune and adaptive response, reduce the degree of sensitization of the organism, change of free radical processes in tissues.

Mud therapy is contraindicated:

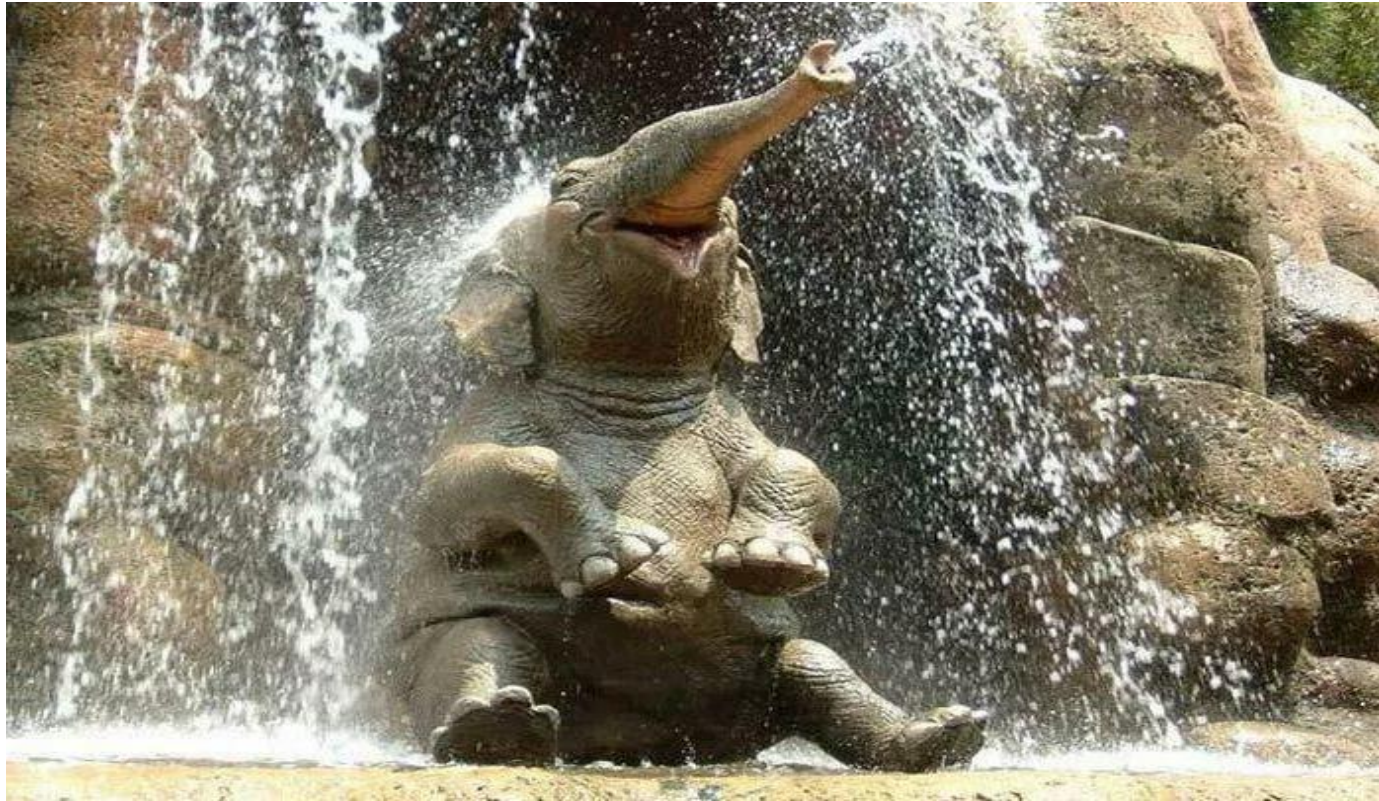
- **acute inflammatory processes;**
- **Neoplasms;**
- **ovarian cysts;**
- **diseases of the blood;**
- **Bleeding;**
- **Tuberculosis;**
- **arterial hypertension III degree;**
- **ischemic heart disease III and IV functional class;**
- **circulatory insufficiency II-III degree, combined valvular heart disease with prevalence of stenosis;**
- **aneurysms of the aorta and heart.**



- **varicose veins;**
- **severe forms of atherosclerosis and endocrine diseases;**
- **during all periods of pregnancy;**
- **in mental illness;**
- **Epilepsy;**
- **cirrhosis of the liver;**
- **Cachexia;**
- **infectious diseases in acute and contagious stages;**
- **Hypersensitive.**

Hydropathy

the use of water for purposes of treatment, prevention and rehabilitation of patients. It comprises two separate sections: hydrotherapy and balneotherapy.



General contraindications to hydrotherapy are:

- ❖ acute inflammatory process;
- ❖ severe cardiovascular disease;
- ❖ diseases of the urinary organs, accompanied by chronic renal failure;
- ❖ tumors;
- ❖ active tuberculous process;
- ❖ blood diseases in acute stage;
- ❖ infectious disease;
- ❖ progressive glaucoma;
- ❖ the second half of pregnancy



Sanatorium



(from it. Sanatorium, or from the French sanatorium, from Lat. sanatorium, sanatorius — "place of treatment«)

a medical and preventive institution in which natural factors (climate, mineral waters, therapeutic mud, sea bathing, etc.) are mainly used for the treatment and prevention of diseases in combination with physical therapy, physiotherapy and rational nutrition (diet) while observing a certain treatment and rest regime.

Cryotherapy

- is a treatment where healthcare provider applies extreme cold to freeze and destroy abnormal tissue. To create this severe cold, use a substance like liquid nitrogen or argon gas.
- This type of treatment removes damaged or diseased tissue that comes from a variety of medical conditions. Cryotherapy is usually done without open surgery. Most people recover quickly from the procedure and with little pain.



Thank you for your attention

