



Medical opinion:

Infra radiation (infrared – IR) is a part of solar spectrum and constitutes about 44 % of it. IR is commonly used in physiotherapy, plastic surgery, orthopedics, rehabilitation and sports medicine. Positive effect of IR has been scientifically proved in multiply researches conveyed by NASA (National Aeronautics and Space Administration). At the moment, medicine is aimed not only at curing diseases, but also to prevent whole body from them.

The IR effect strengthens and activates regenerative mechanisms in the human body.

How does IR influence human body? It triggers thermal activities in organic tissue by increasing body temperature and level of perspiration. It also has pro-health and bio stimulating effect.

Application:

IR is widely used especially in medicine. It is commonly applied in curing myalgias, joints illnesses, results of injuries or dislocations and disorders in circulatory system.

An infrared radiation is successfully used also in treating many other discomforts, e.g. discopathy pains, fractures, pains as results of too intensive physical exercises, menstruation pains. IR is also used as a relief in cramps, muscle tones and posttraumatic shock effects. It is employed in curing diseases as: some skin and muscles ailment, sciatica, high blood pressure, stress, tiredness, rheumatism, headaches, arthritis, sleeplessness, colds. The energy of the infrared, positively affects cardiovascular system, respiratory system, water-mineral balance, secretory capacity of kidneys and many other glands. It acts soothingly and analgesically by lowering the muscle tension. It reduces the neural excitability and the receptor sensitivity. IR significantly precipitates metabolism.

IR advantages:

IR positively influences skin look:

The infrared hinders decomposition of collagenous and stretch fibers, simultaneously stimulating them and improving look so that skin retains elasticity, vitality and a youthful



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appearance. Long infrared waves are also eliminating the coarseness, leaving the skin smooth and soft.

It helps in dispensing of impurities and dead cells. Human body easier absorbs oxygen, improves blood perfusion and color of skin. Radiant heat opens pores which were not functioning for a long time due to cosmetics usage.

IR is a unique activator of cell metabolism that prevents skin from aging. It stimulates mechanisms of cells renewal and oxygenates skin cells. By this mean, nutrients brought to microstructure of human skin shallows small wrinkles and irregularities. Effects can be easily noticed: skin has fewer wrinkles, its textures is smoother and moisturized.

Infrared therapy aids in curing acne, psoriasis, dandruff, burns and all post-traumatic changes of the skin or minor injuries. New and old cicatrices, even keloids, can gradually be softened. Burns and other wounds, as cuts, are healing with much reduced cicatrization. The infrared therapy is commonly used in Hospitals at burns units.

How IR can do for your body shape?

Human body contains undesirable excess of fat and toxic compounds and water that are blamed for being a cause of cellulite. Those substances can be much easier removed owing to deep heating effect of IR.

IR treatment can be much more effective then conventional ways of fighting with cellulites as it penetrates human skin with twice as much depth, plus it works with ten times more intensified heating then conventional means.

It works positively not only on skin, but also aids in losing weight. The heat goes deep from 4 to 6 cm into human body and warms it up it from inside. Further, by blood circulation and circulation of lymph it reaches deeper located body regions and internal organs.

IR facilitates dispensing of water, fat (20%), cholesterol, heavy metals, acids and toxic compounds from human body. Organism's defense abilities are mobilized and immunological system is strengthened.

Skin is more elastic and smooth due to the fact that IR binds free radicals allowing more effective skin cleaning, fatty tissue removal and the cellulite reduction.



Therapy with the infrared – exercising without effort

IR Rays brings into to human body considerable dose of the energy. Blood vessels are widened, the blood pressure is boosted, metabolic processes in tissues are being fastened, and muscles, sinews and nerves are much more nourished.

IR therapy enables dispensing of the lactic acid accumulated in muscles during intensive physical training.

Muscles become more elastic, pain and stiffening disappear. It is well know that post exercise muscle soreness is the biggest nightmare of those who exercise. IR radiation can be applied to speed up body regeneration and treating injuries but also in process of preparing body for greater physical effort. IR is a good solution for keeping cardiovascular system fit when active person is forced to avoid any effort ex. bad weather or injuries. Moreover, applying IR is a good warm up before stretching or beginning the intense physical activity.

IR owing to its heating abilities can be a good way to prepare human body for exercising in low temperature ex for skiing, jogging etc. A scientific investigation shows that stretching after 40-minute-session with IR may significantly improves elasticity of muscles. Even 20 minutes session may cause temporary increase of tissue elasticity for 10 %.

It has been proved that IR therapy accelerates blood circulation, increases amount of haemoglobin, erythrocytes (that oxygenates our body) as well as leukocytes that strengthens body immunity, protecting from colds allowing to doing sport every day not matter what the weather is.

As during IR therapy metabolism is improved, each cells of our body is provided with oxygen and other essential nutrients for its correct functionality. Different kinds of injuries and bruises are healed much faster. It effectively removes joints, contractions and muscles pains. It reduces time spent on rehabilitation after intensive competitions. In this respect, therapy with the infrared can become an indelible part of every fitness club. There are football teams that are using IR before match in order to warm up muscle and after match, to speed up the recuperation of the body.

The effect of the passive training of coronary vessels:

A lot of people choose jogging not only to shape muscles ex calves but also as a way to stimulate the cardiovascular system and coronary vessels. The heat from IR may be used for the same purpose and be similarly effective. During each of the session, there has been



decrease in blood pressure, resistance of ejection volume of the heart and total peripheral resistance in case of all patients. Each person during IR session could experience increase in heart rate, capacity of ejection volume, the productivity of the heart and the ejection fractions.

Scientists consider these three last effects as evidence that hyperthermia triggered by IR stimulates heart in balanced way and at the same time shows positive outcome and changes in circular system like ex lowering blood pressure.

Researches conducted by NASA showed that stimulation by IR is the best way to keep American astronauts' coronary vessels in the good condition during long space travels.

The IR heat stimulates the blood flow:

IR positively affects circulation system and metabolism. Substances evoking pain and inflammations can be removed much earlier from the organism. Warming up one particular part of human body causes reflex angiectasia in deeper body areas even if the body temperature is not changing significantly. It means that if one limb is warmed up, it can be noticed that angiectasia takes place in second one. For example, warming the forearm will result in expansion of veins in both lower limbs. Warming up front torso will cause angiectasia in both hands.

Warmed up muscles will increase the blood flow to the level similar to one that can be experienced during exercising. Increased temperature causes growth of blood flow and widening capillaries, arterioles and veins, probably as a result of direct IR action on smooth muscles. Bradykinin is released by sweat glands operation, and as a result, it increases blood flow and vasodilatation.

Hyperthermia of the whole body, along with a resultant rise in temperature of the body, farther is triggering the angiectasia by the level drops in sympathicotonia in arteriovenous system which on the other hand is activated by the hypothalamus.

The angiectasia is also triggered by reactions which are changing the vasomotor balance. The improvement in the circulation of blood results in better supply of oxygen, which in turn is beneficial exercise for the heart and blood vessels.



Contraindications:

- cancers, precancerous changes
- skin diseases especially with purulent course, and with ulcerations,
- epilepsy and psychotic states,
- feverish acute conditions,
- tendency to bleedings,
- chronic disease i.e. tuberculosis, nephropathies, liver diseases and anaemia, sharp and chronic
- contagious diseases
- complicated pregnancy with toxemia or anaemia,
- endocrine disorders so as hyperthyroidisms, swellings and the insufficiency of the cortex of adrenal glands,
- cardiovascular illnesses, including coronary artery disease, states after heart attack, states after blood-red haemata, generalized atherosclerosis and thromboangiitis obliterans circulation problems.
- glaucoma.

Therapy with applied under pressure is well known in the natural medicine for more than 5 thousand years and is still applied in Chinese medicine. Increasing blood supply to the skin and its subcutaneous layers is a basic result of under pressure therapy. Metabolic processes are accelerated and self-regulatory processes of the organism are activated. Increase blood supply is a result of suction effect on the level of the skin. It absorbs body fluids from inside the body and moves them on the outer layers of the skin. Accelerated metabolism is the result of increased blood flow. Blood is a mode of transport for nutrients and oxygen. The more nutrients and oxygen tissues receive, the more active they are. The increased activity of intracellular processes enables shipping off of harmful products of metabolism and surplus particles of fat.

Genetic predispositions:

There are more and more women affected by cellulites especially in societies of high living standards, caused first and foremost, by hypoxia and blood flow disorders. This is a result of lack of exercising on fresh air, and not sufficient muscles activity as well as improper diet and disorders of nervous system (especially stress and depression).

Cellulites is forming in places under the skin where adipose tissue is the thickest, like thighs high, buttocks, hips, abdomen and lower arms. Fighting cellulite is not easy but it is important to start preventing it in the early stages of development.



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Applying under pressure therapy simultaneously with exercising ex. on a bike accelerates blood flow and keeps it at safe level (muscle pump). As fat can be burnt only by active muscle work, it guarantees that released fatty acids will be removed from body. Free fatty acids delivered to muscles cells by arterial blood are burnt by muscles. Those layers of skins that are better supplied with blood are able to release fat cells much faster. Up taking fat essential in burning process in muscles occurs no matter which parts of the muscle are active at the moment. It depends on which parts of human skin and subcutaneous tissue are better supplied with blood at the time of exercising.

It is commonly known that fat is important energy carrier that is needed for skeletal muscles to work properly. Free fatty acids derived from adipose tissue are delivered to the muscle by blood. Hence, while exercising they are extensively released from fat tissue and owing to improved blood circulation there are moved to muscles and burnt.

Effects of action:

Improved blood circulation and lymph circulation, increased metabolism, faster fat burning, elimination of cellulite, weight loss, positive well-being and increased vitality, improved body shape.

CONTRAINDICATIONS:

cancer, heart disease, circulatory diseases (extremely low and extremely high blood pressure), diabetes, epilepsy, pregnancy, menstruation, inflammation and infections, inflammation of the veins and varicose veins falling down and ulcers, severe rheumatic diseases, cardiac insufficiency, edema.

During exercising, fat located in abdomen, thighs and buttocks (parts of body made of thick layer of fat tissue and ones with low blood flow) are not recognized by the muscles as an energy source, so it is difficult to get rid of it. For this reason, the traditional sport exercises do not contribute to a marked reduction in body fat from these areas. Under pressure intensifies blood supply of skin and subcutaneous fat tissue. Due to large area on which under pressure acts, it is important to support blood flow towards heart direction using ex stepper or bike. Blood is a means of transportation for nutrients, oxygen, metabolic products and toxins.