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Thermal therapy

Effects of the Far Infrared Rays on the Human body

Without sun, life on earth would be inconceivable. Just think of photosynthesis, plants absorb a certain spectrum of light and then "produce" carbon dioxide and water, oxygen and sugar which are vital to us.



Photosynthesis balanced equation

The sun is also of vital importance to the human body. It plays an essential role in the synthesis of vitamin D and stimulates among others: respiration, blood circulation, and metabolism. The sunlight, which appears as a homogeneous light to us, is in fact, made up of different light spectra. Visible light thus, has a spectrum of waves whose length is about 390 to 770 nm, waves of 450 nm are blue, those of 500 nm are green, and 700 nm waves are red.

The sun brings not only coloured lights, but also heat to earth. Heat is transferred on earth through Infrared radiation. We all feel less heat when the sun is hiding behind the clouds. This is because the Infrared Rays cannot pass on heat to earth or our bodies.

Alternative medicine has been since long ago using sunlight, which is vital to life for treatment. Heliotherapy or "sunbathing" is the word used to describe therapeutic exposure to sunlight. Thanks to Infrared Rays, the sun produces heat and has chemical-biological action. Heliotherapy has been used

particularly to treat skin diseases and bone tuberculosis. A moderate application would enable to obtain general effects such as increased appetite, improved circulation, better cell renewal and improved immune strength. Unfortunately, due to the increasing destruction of the ozone layer by human beings and the dangers that its entails to our skin, unprotected sun bathing is not recommended.

It is interesting to note that just as the sun; human beings also produce heat thanks to the Infrared Rays. The spectre of Infrared Rays produced by our body is about 8 to 10 microns and therefore, impossible to be seen by the human eye. This radiation produced both by the sun and the human being is made up of Far Infrared Rays (FIR).

Far Infrared Rays therapy

For over 30 years in China and Japan, and since the mid-1990s in the United States, Research had been carried out on the action exercised by the 8 to 10 microns frequency of Far Infrared Rays (FIR) on the human body.

During the research, several positive results were found:

Here is how Dr. Sasaki Kyuo describes the effects of Far Infrared Rays that stimulate the detoxification process:

"One of the main reasons for the positive effects of FIR on various human being diseases is the ability of waves to release cells from harmful embedded substances. It is often these toxins and stasis that trigger various diseases. For example, toxins that cannot be immediately eliminated are trapped in the blood water molecules. The blood flow is slowed down and consequently, metabolism and supply of cells is hampered.

However, when these water molecules containing toxins come in contact with the Far- Infrared Rays of an 8 to 10 micron frequency, a resonance is created. The molecules begin to vibrate and the water molecule atoms ionic bonds are reduced. Water molecules are broken and the

imprisoned gas and other toxic substances are released and can be eliminated naturally. "

According to Dr. Kyuo, the main effect of Far Infrared Rays on the human body is the appearance of resonance phenomena between the external source of radiation and the heat we produce. This thermal radiation is from our body, vessels and nerve cells. If one follows Dr. Kyuo's thesis, it is likely that the contact with the FIR will have regulating and stimulating action on the entire body. This would also explain other effects observed during FIR therapy by researchers and those who have gone through these treatments.

Among these effects:

Improvement of microcirculation

Strong vibration and rotation effects at the molecular level

Capillary vessels dilatation and improvement of blood circulation

Stimulation of metabolism and supply cells with oxygen and nutrients

Clinical Experience:

To assess an environment, there is no better diagnostic method than microscopy dark field blood. The criteria used to analyze blood by dark field microscopy are the following:

Erythrocytes agglutination, increased blood viscosity ("thickening") in the form of an excessive protein synthesis and thrombocyte agglutination, immunocompetent white cells (granulocytes, lymphocytes) activity, blood clogging by lymphatic wastes, acid crystals, and cholesterol.

To highlight the work of the FIR on the human body, a live blood drop was analyzed with a dark field microscopy 30 minutes before and after a FIR therapy (done with the HotHouse device from HTE Taiwan). To this end, a blood drop from the right middle finger pulp was analyzed with a special microscope. Then, the Far-Infrared Rays was administered for 30 minutes on the stomach area and arms and a second analysis on a dark field background was conducted.

Dramatic improvements were noticed in blood analysis. Observers/patients who were having their first experience also felt immediate improvements.

Before the therapy, there is a strong agglutination of erythrocytes (Rouleaux formation) with the presence of a bright white outline that clearly indicates an excess acid.

The following effects are considered as the major benefits of the Far Infrared Rays:

- Improved microcirculation due to rotation and vibration effects at the molecular level.
- Better transportation of oxygen and nutrients
- Regeneration and healing
- Exchange of more intensive mass between blood and tissues
- Increased activity of leukocytes with improved immune competence and phagocytosis
- Stimulation of the lymphatic system and detoxification of tissues
- Stimulation of the hypothalamus, which controls the production of neurotransmitters, sleep, mood, pain and blood pressure.

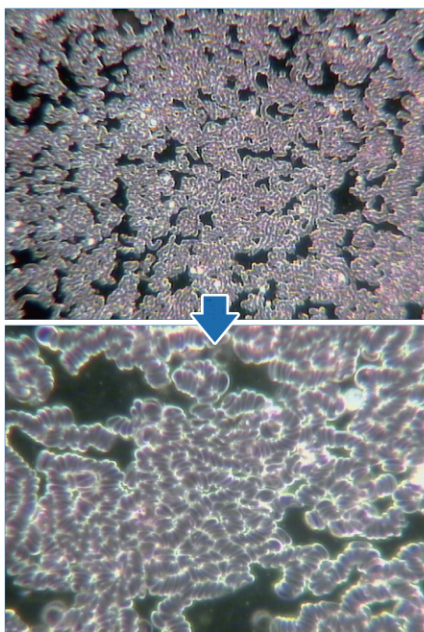


Fig. 1. + 2.: Overview and partial view of red blood cells before FIR therapy

After 30 minutes of Far Infrared Rays therapy, we can clearly see that the red blood cells are separating. This indicates an improvement of microcirculation, in particular peripheral blood

Harmful substances:

From food:

Very high rate of protein, sugar, acids ...

From metabolism:

Uric acid, lactic acid, carbon dioxide ...

From the environment:

mercury, lead, nickel, cadmium and other heavy metals, pesticides, chemicals ...

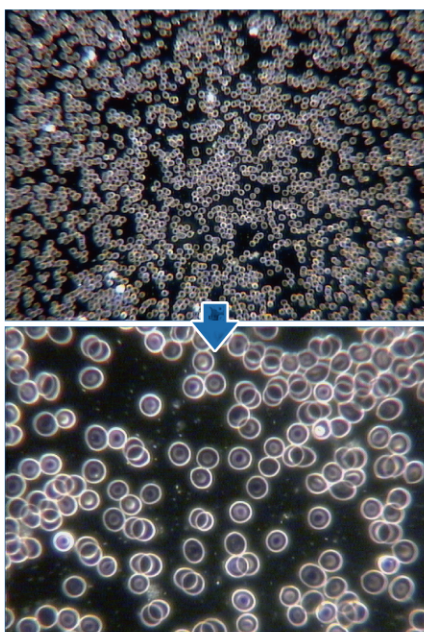


Fig. 3. + 4.: Overview and partial view of red blood cells after FIR therapy

circulation, essential condition for the supply of oxygen and nutrients to the cells as well as the removal of carbon dioxide and other toxins.

The overviews show that the changes are visible in the whole blood drop and not only on certain defined areas.

Outcomes of a better microcirculation:

Each of the 65 billion cells in our body must be constantly supplied with oxygen. This is done by red blood cells which carry oxygen from the lungs to the cells. The transfer of oxygen to red blood cells is achieved through an area equivalent to about the size of two football fields. Red blood cells carrying oxygen flow through the arteries, in smaller blood vessels up to the smallest capillary vessels.

These capillaries are so small that 400 of them placed side by side would fit in a human hair. On a healthy patient, capillaries have an inner diameter matching the outer diameter of red blood cells.

In a perfect environment, the flexibility and deformability of red blood cells allow them to move freely across thousands of kilometres from the capillary network and normally supply all the organs with oxygen.

However, if elements prevent this fluidity and there is agglutination of erythrocytes, microcirculation may be strongly disrupted.

In this case, oxygen supply and cellular energy metabolism are limited.

In the long run, this will lead to poor cells and organs functioning and constitute a base which can create degenerative diseases affecting the musculoskeletal, nervous, hormonal, vascular, and the immune systems.

On the contrary, an optimal blood circulation in the capillary network is vital so that healthy cells can feed, clean up, repair and regenerate themselves.

Given the multiple benefits that allow to remain or to become healthy again, we understand the beneficial action of a better microcirculation in the human body.

Medical research

It is amazing that basic research in medicine is also interested in the effects of Far Infrared Rays.

So scientists were able to prove the anti-inflammatory action of the FIR during tests on cell culture vessel. They discovered that the FIR slows down the formation of cell adhesion molecules and inflammatory mediators, triggered by tumour necrosis factor (TNF). They also activate an enzyme (Hemoxygenase 1) which, besides inhibiting the inflammations and protecting cells, has regulatory properties.

The researchers concluded that the FIR by their ability to slow down inflammation may

play an important role in blood flow and continuity of dialysis shunts. (1)

A year later, in March 2009, scientists from the same research group published new results showing that the Far Infrared Rays, besides the thermal effects, also have non-thermal effects. This contributes to improving blood circulation and slowing down inflammations. Among the non-thermal effects, there is the stimulation of epithelial renewal in the blood vessels that are fighting against the formation of scars and plaques in the vessels.

In addition, factors contributing to excessive cell division are slowed down and antioxidant processes are stimulated. (2).

Allergic rhinitis is one of the 6 most common chronic diseases in the world, with patients often suffering a great deal. This fact was underlined by scientists of the "Biomedical Engineering" Department of the Chung-Yuan University of Taiwan who analyzed the effects of a FIR therapy to treat allergic patients.

After a 40 minute daily treatment applied for 7 days, they noticed a significant decline in the typically allergic symptoms. During the FIR therapy, they noted a significant improvement in the burning sensation in the eyes and nose, blocked nasal breathing, sneezing crisis and nasal fluid. (3).

As reported by the Japanese scientist A. Masuda, the FIR therapy also had positive effects on patients suffering from Chronic Fatigue Syndrome (CFS). Following the FIR treatment administered in 6 months, two of his patients were cured and were able to work again. 11 other patients showed at least a significant improvement in fatigue, pain, low grade fever, loss of appetite and symptoms similar to depression.

In general, thermal and non-thermal effects of the Far Infrared Rays are offering promising therapy for cures of difficult diseases. (4).

Other research was conducted by the Center for Psychosomatic Medicine of the University of Kagoshima Clinic on 28 patients suffering from mild depression characterized by lack of appetite, fatigue and other physical and psychological symptoms. 20 FIR Therapy treatments over 4 weeks resulted in significant improvements in their physical symptoms, appetite and degree of relaxation on the body. Their psychological state has also improved significantly, although the results were somewhat less convincing than the physical. (5).

Recommendations from doctors who have used FIR

Here is what Dr Paavo Airola, one of the most famous American scientists, nutritionist told us about detoxification and FIR therapy:

"Through extensive warming of tissues, FIR therapy stimulates in a positive way the whole

metabolism and cleanses the body from inside. However, it slows down bacteria and viruses responsible for diseases and promotes self-healing. (...)". The Far Infrared Rays dilate blood vessels, stimulating circulation. They accelerate the exchange of metabolism products between blood and cells and the elimination of stases in vessels. Thus, cells are better supplied and wastes created by the metabolism are quickly eliminated. Lymphatic flow, which contributes to clean and detoxify the body, is also boosted. Dr. Airola having noticed the rejuvenating effect of such a therapy on the body has recommended regular use of the Far Infrared Rays.

According to alternative medicine, most of the diseases in our civilization are the result of body blockages. Connective tissues full of harmful substances are often the cause of pain, allergies, "wear" medical condition, circulatory disorders and cancer. Dr. Reckeweg, founder of homotoxicology, had already drawn attention to the fact that an inflammatory reaction constitutes an "emergency solution" of the body against clogging. According to him, naturopathy offers the chance to listen to our body and to actively help us detoxify and strengthen the immune system. However, if we ignore the inflammation and do not carry out detoxification, we may encourage the surfacing of other chronic diseases which can appear in later years. If we take these basic thoughts seriously, the measures which help the body get rid of harmful substances -would be the basis for all preventive and curative therapies. It is clear that better blood circulation in tissues and excretory organs such as the kidney and liver enables a more efficient elimination of endogenous and exogenous toxins.

This observation was also made by Japanese Dr. Toshiko Yamazaki, who runs his own clinic in Japan and uses Far Infrared Rays. He insists on the fact that the human body acts as a bio-accumulator which tends to accumulate harmful substances from the

environment and metabolism which cause diseases. For Dr Yamazaki, the beneficial effect of the FIR on the human body is due to a stimulating action of the metabolism, blood circulation, and detoxification.

Dr. Yamazaki has successfully treated the following diseases with FIR: asthma, bronchitis, tinnitus, rheumatoid arthritis, hepatitis, liver cirrhosis, cystitis, duodenal ulcer, gastritis, acne and eczema.

Doctors from different countries interested in the extensive use of Far Infrared Rays in medicine indicate a very broad scope of application of FIR including: stress-related illnesses such as high blood pressure, irritable bowel syndrome, & stomach ulcers, various pains in the joints, muscles, nerves, & tumours and even internal illnesses like diabetes, anaemia, asthma, & rheumatism and neurological illnesses like facial neuralgia and trigeminal, cervical spine fractures, & cervical myelopathy.

Therefore, we observe that the medical use of the natural spectrum of Far Infrared Rays whose wavelength is 8 to 10 microns is a mild but sustained process. Through the use of FIR, the human body can feel some positive effects of sunlight. The improvement of blood circulation in tissues and organs, the lymphatic and immune system ability to clean up and better defend itself, as well as neuroregulatory changes make up the base of the therapeutic successes observed clinically.

In daily practice, we find that FIR therapy, through its positive effect on blood circulation, strengthens in a soft and long-lasting way the immune and vegetative nervous systems.



acne, anaemia, asthma
low blood pressure or arterial high blood pressure, bronchitis
chronic fatigue syndrome, cystitis
depression, diabetes
Eczema
facial neuralgia and trigeminal, cervical spine fractures
gastritis, joint pain
hay fever, hepatitis
cirrhosis of the liver
muscle pain, nerve pain
irritable bowel syndrome, rheumatoid arthritis
stress- related pathologies
tinnitus, cervical myelopathy, tumour pain
duodenal ulcer
Health issues on which FIR therapy has had a positive effect.

References:

- (1) Lin CC, Liu XM, Peyton K, et al. Far infrared therapy inhibits vascular endothelial inflammation via the induction of heme oxygenase-1. *Arterioscler Thromb Vasc Biol* (United States), avril 2008, 28(4) p. 739-45
- (2) Lin CC, Yang WC. Prognostic factors influencing the patency of hemodialysis vascular access: literature review and novel therapeutic modality by far infrared therapy. *J Chin Med Assoc*, mars 2009, 72(3) p. 109-16
- (3) Hu KH, Li WT. Clinical effects of far-infrared therapy in patients with allergic rhinitis. *Conf Proc IEEE Eng Med Biol Soc (United States)*, 2007, 2007 p. 1479-82
- (4) Masuda A, Munemoto T, Tei C. [A new treatment: thermal therapy for chronic fatigue syndrome] *Nippon Rinsho* (Japan), juin 2007, 65(6) p. 1093-8
- (5) Masuda A, Nakazato M, Kihara T, et al. Repeated thermal therapy diminishes appetite loss and subjective complaints in mildly depressed patients. *Psychosom Med (United States)*, juillet-août 2005, 67(4) p. 643-7
- (6) Nicolai L. : Über die Infrarotstrahlung des Menschen. *Pflügers Archiv*, volume 263, p. 447-452 (1956)