

WHAT IS BIOPTRON LIGHT ?

WHAT IS THE BIOPTRON LIGHT THERAPY SYSTEM AND HOW DOES IT WORK?

The BIOPTRON Light Therapy System is a medical light therapy device with a specific optical unit emitting light that is similar to a part of the electromagnetic spectrum produced naturally by the sun but with no UV radiation.

BIOSTIMULATION AND DISEASE PREVENTION

BIOPTRON Light has so-called biostimulative effects: When applied to the skin, it stimulates light-sensitive intracellular structures and biomolecules. This initiates cellular chain reactions and triggers so-called secondary responses, which are not only limited to the treated skin area but can involve the whole body.

BIOPTRON Light Therapy can help to :

- Relieve pain or decrease its intensity
- Promote wound healing
- Improve microcirculation
- Reinforce the human defence system
- Harmonize metabolic processes
- Stimulate regenerative and reparative processes of the entire organism

UNIQUE TECHNOLOGY OF THE BIOPTRON LIGHT



Light must be absorbed to produce a biological response. Different tissues and cells in the body have unique light absorption characteristics (optical properties), which determine which wavelengths of light will be absorbed to produce a given therapeutic effect. Each cell will absorb light at specific wavelengths. Also, the different wavelengths can affect different tissues and cells of the body. This is why the BIOPTRON Light Therapy System has combined several basic wavelengths in one unit. BIOPTRON Light uses a combination of infrared and visible light

wavelengths that is considered to be beneficial in the treatment of different types of problems and injuries.

Both visible and infrared light has been shown to affect different positive changes at a cellular level. There is no single mechanism of action of the BIOPTRON Light. Biostimulative effects of BIOPTRON Light are the result of synergy between different mechanisms of action.

BIOPTRON - USER FRIENDLY AND EFFECTIVE THERAPY

BIOPTRON technology has become widely used and accepted in medicine as a user-friendly, effective, non-pharmacological medical device. In over 20 years of clinical research and clinical applications worldwide, it has been shown to be supportive in conservative management of acute and chronic injuries as well as in post-operative wounds.

BIOPTRON advantages :

- Wide range of applications
- Application in professional and home environment
- Easy to use (no special skills needed)
- Safe and non-invasive
- Short treatment time
- Painless treatment
- No UV radiation
- No known negative side effects
- Economically viable (cost-effective)
- Relaxing and calming experience
- Swiss-made

A NEW WAVE IN HEALTH CARE

Over the past couple of decades, professionals and patients alike have welcomed a wealth of changes and improvements in health care. In the scientific world, there has been excitement over numerous innovative breakthroughs, with research highlighting the efficacy of various new treatments. Some of these harness the most modern state of the art techniques, while others draw on natural resources and mechanisms as old as time. Many of the most successful examples are a combination of both ancient and modern ideas, which is clearly more appealing to the general public.

There is great curiosity about what science can offer, although there is also skepticism about the possible side effects and problems that new drugs and treatments may bring. More than ever,

people wish to further their understanding of the knowledge and wisdom used by their ancestors and are desirous of health treatments in which they can trust. People have more questions than ever before, such as “is it safe?” and “are there any side effects?” They want to appreciate and understand all available options and have more control over their personal health and the health of their loved ones.

As medical experts and others rely more and more on a holistic approach to preventive health care and treatments, BIOPTRON Light Therapy is found to be a welcome new addition to this field.

Hippocrates’ healing philosophy has begun to re-influence the medical fields:”First, do no harm“and ”Honor the healing power of nature“.

A BREAKTHROUGH IN MEDICINE: THE BIOPTRON LIGHT THERAPY SYSTEM

The BIOPTRON Light Therapy System is a powerful light therapy technology demonstrating a remarkable degree of visionary commitment. In the early 1980s, a team of scientists discovered the significance of polarized polychromatic light. Based on this research, the BIOPTRON Light Therapy System was created. Since 1988, BIOPTRON AG has invested in further sophisticated research and new product developments necessary to achieve optimal clinical effectiveness in light therapy treatments.

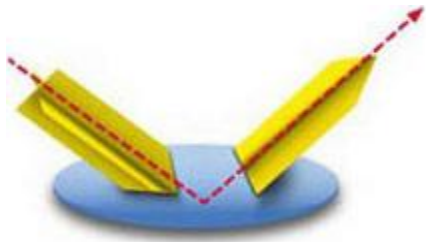
Consequently, the BIOPTRON Light Therapy System draws on more than 20 years of experience and is used by physicians and nurses in hospitals and by families and individual users at home, all benefiting from the positive effects on the human body.

The patented technology of the BIOPTRON Light Therapy System can enable clinical success with consistently remarkable results in the prevention and treatment of various medical disorders. High-quality technology and innovative design without complexity in use and with no known adverse effects. BIOPTRON Light is a supportive tool for both clinical and home environments.

THE TECHNICAL CHARACTERISTICS OF BIOPTRON LIGHT

The BIOPTRON Light Therapy System is designed and manufactured in such a way that the light emitted by this medical device can be characterized as:

1. Polarized Light

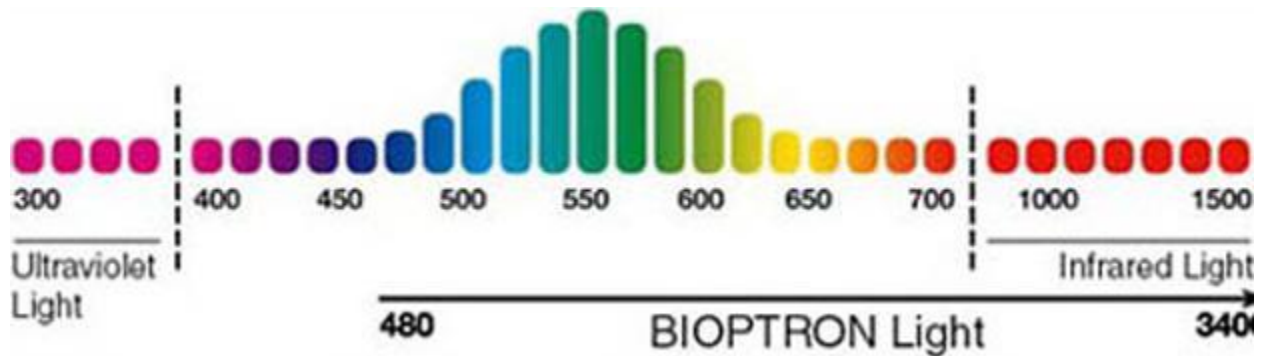


BIOPTRON Light is polarized light: its waves move (oscillate) on parallel planes. The polarization is generated using a sophisticated version of the Brewster multi-layer mirror system (named after the physicist who discovered this technology). The Brewster mirror is responsible for the polarization of the electromagnetic spectrum emitted by the BIOPTRON devices. Linear polarization by reflection, as in the BIOPTRON Therapy System, is very efficient, and the

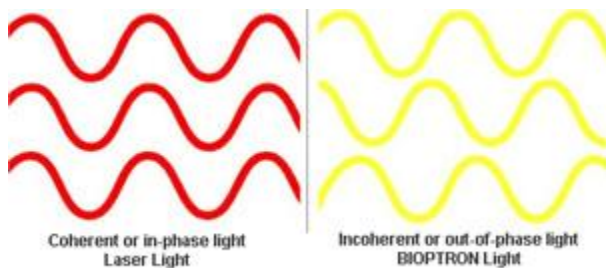
light emitted by the BIOPTRON devices reaches a polarization degree of 95%.

2. Polychromatic Light

Unlike a laser system, which is limited to a very narrow bandwidth, the BIOPTRON Light encompasses a wide bandwidth. The wavelength ranges from 480 nm to 3400 nm. This spectrum contains the visible light range and a portion of infrared radiation. The electromagnetic spectrum of BIOPTRON Light does not contain ultraviolet (UV) radiation. Since there is no UV light, there is no risk of hazardous effects of UV irradiation.



3. Incoherent Light



BIOPTRON Light is incoherent or “out-of-phase” light. Unlike laser light, BIOPTRON Light is not characterized by temporally or spatially synchronized light wave trains, which means that wave crests, and therefore the light’s intensity, will neither add nor subtract.

BIOPTRON is Incoherent (out-of-phase) light

4. Low-energy Light



BIOPTRON Light has a low energy density, reaching the area to be treated with a constant, steady intensity. This energy density has biostimulative effects. The dosage of the light applied can be precisely determined when using the BIOPTRON Light Therapy System.

POWER DENSITY OF BIOPTRON LIGHT

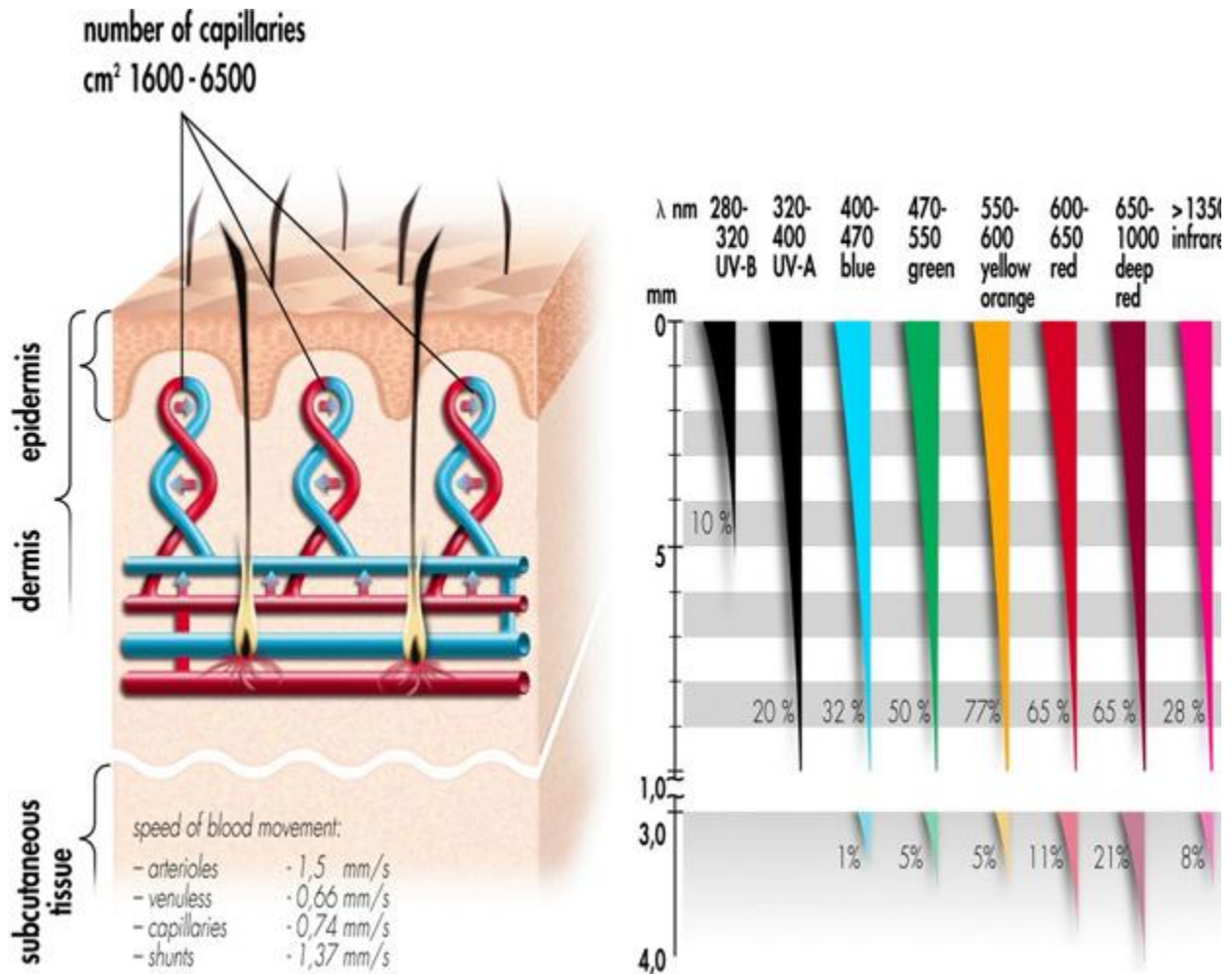
Unlike natural light, BIOPTRON Light is not subject to diurnal or seasonal variations. With BIOPTRON Light Therapy, therefore, the brightness and dosage can be precisely determined. Furthermore, the effect that light exerts is also defined by its power density. Power density is measured in mW/cm^2 . Since it is measured at the skin's surface, it varies depending both on the intensity of the light's source and on its distance from the area to be treated. The specific power density of BIOPTRON Light is approximately $40 \text{ mW}/\text{cm}^2$ at a treatment distance of 10 cm. This is equivalent to an energy density of an average of $2.4 \text{ J}/\text{cm}^2$ per minute.

PENETRATION OF BIOPTRON LIGHT THROUGH SKIN

The following figure shows a cross-section of the skin and demonstrates how the bio-positive effects of light are induced. It also shows why the biopositive influence of light is transmitted to the whole body, even if light is only received regionally. The diagram shows three layers of skin: the dermis, the epidermis and the subcutaneous tissue (tissue and fat tissue under skin). We can also see how veins, arteries and fine blood capillaries are connected to the skin surface. The number of the capillaries per square centimeter of skin is between 1,600 to 6,500. While our blood flows through all the tissue of our body at a varying rate, blood flows slowly in the capillaries situated very close to the skin surface. This is an ideal prerequisite for the photo

modulation of blood. Biopositive effects from light transmitted to blood in this way can be carried throughout the whole body, supplying vital oxygen and energy to every cell.

The display with the wavelength scale shows the average penetration depth of the different wavelength ranges of all light emitted by the sun. It clearly shows specifically that those light waves in the visible light range are the ones that most deeply penetrate the skin. The red and dark-red light waves penetrate the deepest of all waves in the visible light spectrum.



WHEN TO USE BIOPTRON LIGHT THERAPY?

BIOPTRON Light Therapy can be used both as a complementary treatment to support conventional medical methods and as monotherapy for certain indications. However, for serious medical conditions it is always advisable to consult your Physician first to establish whether other medical or surgical interventions are also required.

