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THE BENEFITS OF USING A SOLAR THERAPY DEVICE

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WELCOME TO YOUR SOLAR THERAPY BED



HISTORY

Empower Your Wellness with the most effective Solar Therapy available

Throughout history it's been well documented in many ways (and in many different cultures) that human beings have used the power of light (or light Therapy) for therapeutic purposes and have worshipped the Sun as the giver of life

The ancients of India documented information that was written in the Hindu Atharva Veda text in 1400 BCE, and the Aztecs inscribed scenes in rock of people with mental disorders being healed by the sunlight streaming on them.

Records of healing with sunlight in Europe are dated as early as 1735 and a facility that was established in St Moritz in 1905 to promote the healing of wounds was well received, and the practice broadly accepted. That facility was later superseded by the first purpose-built Sun Therapy Clinic in the world and was termed the technique Heliotherapy, or Sunlight Therapy

Why Humans Require Sunlight To Be Healthy



Doctors throughout Europe and North America began promoting whole-body sun-bathing to help prevent rickets. It was also recognized that wintertime sunlight in the temperate zone was too feeble to prevent rickets. For this reason, many children were exposed to UVR from a mercury or carbon arc lamp for one hour three times a week, which proved to be an effective preventive measure and treatment.

Around the time the solar solution to rickets gained widespread traction in medical circles, another historic scourge, tuberculosis (TB), was also found to respond to solar intervention. TB patients of all ages were sent to rest in sunny locales and generally returned in good health. Dermatology professor Barbara A. Gilchrest of Boston University School of Medicine says that, whereas sun exposure was shown to improve cutaneous TB, sanatorium patients with pulmonary TB likely responded as much or more to rest and good nutrition than to UVR. Nevertheless, a meta-analysis published in the February 2008 *International Journal of Epidemiology* found that high vitamin D levels reduce the risk of active TB (i.e., TB showing clinical symptoms) by 32%.

Almost overnight, as awareness of the sun's power against rickets and TB spread, attitudes toward sun exposure underwent a radical shift. The suntan became valued in the Western world as a new status symbol that signified both health and wealth, as only the affluent could afford to vacation by the sea and play outdoor sports. Phototherapy quickly emerged as a popular medical treatment not only for TB,

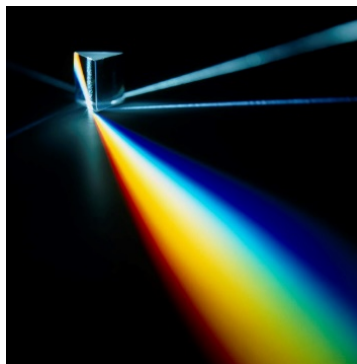
but also for rheumatic disorders, diabetes, gout, chronic ulcers, and wounds. The “healthy tan” was in, and “sickly-looking” pale skin was out.

However, those opinions were mainly short lived and while most people now-a-days are well aware of the dangers of too much sun due to advertising, many don’t realize that sunlight confers enormous health benefits as well.

Of course a little sunshine can go a long way (and too much is harmful for our skin), but dependant on the shade of your skin, scientists estimate your body can produce vitamin D in about 5 to 30 minutes in the sun. If you're wearing sunscreen, you may not produce as much vitamin D.

Finally, if you're outside for some much-needed vitamin D, don't expose bare skin longer than 5 to 30 minutes, and always keep in mind that you do need to protect your skin with a high-quality sunscreen when you go outdoors. Now, let’s discuss the different qualities of light and its effects on human beings

Let’s Talk About Light



For human beings, if our cells are to function well light is just as necessary for our cells as the nutrients from food are. Most importantly, it’s necessary to understand that the human body needs light to be healthy, and how that light can be beneficial for our health

Let’s start with White Light. If you pass white light (like sunlight) through a prism, it will separate out the different colors based on their wavelengths which is what we see coming out the other side. This is also how we get rainbows which give us the colors red, orange, yellow, green, blue, indigo, and violet

Certain wavelengths of light can:

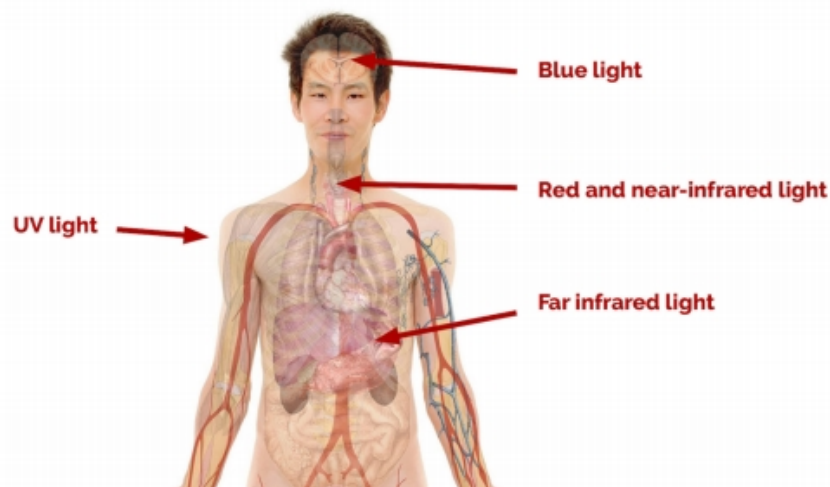
- Affect our hormones and neurotransmitters
- Help power up our cells
- Balance our mood
- Enhance physical performance
- Hasten recovery from stress
- Increase alertness
- Improve sleep
- Positively affect the expression of our genes

Many different types of light are “bioactive” in humans (which means they affect the functioning of human cells), but most of us are deeply unaware of the fact that our health is largely influenced by the dosage we receive each day of these different types of light

These are the five types of bioactive light in humans:

1. **Blue light** – sets the circadian rhythm in our brain, which in turn regulates numerous different neurotransmitters and hormones
2. **UV light** – allows us to synthesize vitamin D from the sun
3. **Far-infrared** – acts to heat up our cells (this is the part of the sun’s spectrum that you feel as heat) which stimulates changes in cell function, as well as circulation changes
4. **Red light** – acts on the mitochondria in our cells to stimulate increased cellular energy (ATP) production (among other mechanisms discussed in this book)
5. **Near-infrared (NIR)** – acts on the same pathways as red light – particularly in the mitochondria in our cells to stimulate increased cellular energy (ATP) production among other mechanisms

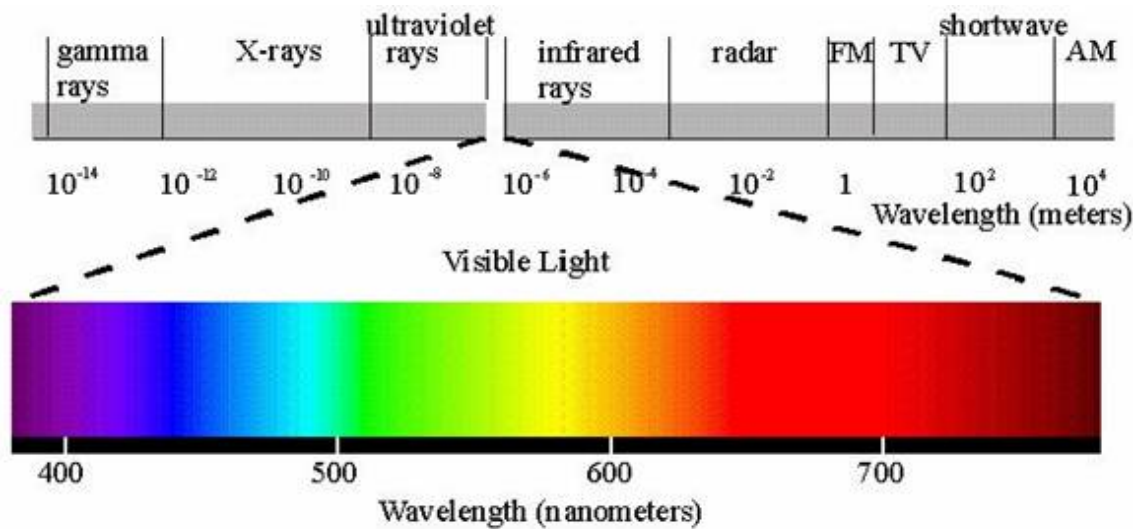
THE 5 TYPES OF BIOACTIVE LIGHT IN HUMANS



It has been well established that light is in fact an essential nutrient for human’s survival and our health depends on getting the right dose of these five types of light. Because our ancestors lived outdoors in the sun all of the time, they didn’t have to worry about how much light they were getting and what type of light it was as they were able to get exactly what the body needed at the right dose

But in the last few generations, modern humans have made the switch to living indoor lives with electricity, man-made artificial lighting systems and limited sun exposure. Therefore, we have developed light deficiencies and toxicities that are having a massive impact on our health and well-being

We are now seeing the huge deficiencies in exposure to specific wavelengths of light, like red/NIR, far infrared, and UV light so modern humans are now becoming deficient in the benefits of all of these five wavelengths of light, and there are health consequences when we don’t get enough



Research has determined that Sunlight deficiency has been linked with numerous diseases (amongst others) such as:

- Neurodegenerative diseases like Alzheimer's, dementia, Multiple Sclerosis, and Parkinson's
- Many different types of cancer
- Obesity
- Diabetes
- Metabolic syndrome
- Heart disease

Let's look at some of the surprising benefits of Sunlight



1. Sunlight improves your sleep

Your body creates a hormone called melatonin which is critical in helping you sleep. (Melatonin is the hormone that makes us drowsy and helps us sleep). Because your body starts producing melatonin when it's dark, you usually start to feel sleepy two hours after the sun sets which is one of the reasons our bodies naturally stay up later in the summer.

To improve your melatonin production, research indicates that an hour of natural light in the morning will help you sleep better at the end of the day. Sunshine regulates your circadian rhythm by telling your body when to increase and decrease your melatonin levels. By getting morning sunlight directly in your eyes a message is sent to the pineal gland in the brain, and production of melatonin is shut down until the sun goes down again. So, the more daylight exposure you can get, the better your body will produce melatonin when it's time to go to sleep.

Research has shown that low levels of melatonin production at night due to overproduction during the day has been linked to poor sleep quality, especially in older adults. So, by getting sunlight in your eyes early in the morning when you wake up (if possible) your body gets the message that it is day and in turn re-sets your Circadian rhythm for a good night's sleep.

2. Sunlight reduces stress

Melatonin also lowers stress reactivity and being outside will help your body naturally regulate melatonin. This can help reduce your stress levels as you're often doing something active when you're outside (walking, playing, etc.), and that extra exercise also helps to lower stress.

3. Sunlight and mild depression.

There has been a lot of research on the link between sunlight and mood and there is a scientific reason behind the sense that being in the sunshine improves your mood. One reliable study found that sunlight actually increases levels of a natural antidepressant in the brain. On sunny days, the brain produces more of the mood-lifting chemical serotonin (which is a chemical that improves your mood and helps you stay calm and focused), than on darker days so it's not just imagined.

4. Sunlight and Cancer prevention

It's not just plants that metabolize sunlight. Humans do too. Through a complex process, our bodies turn sunlight into life-giving **Vitamin D**. The connection between vitamin D deficiency and cancer was first made by Drs. Frank and Cedric Garland from the University of California, San Diego when after finding that the incidence of colon cancer was nearly three times higher in New York than in New Mexico, the Garland brothers hypothesized that lack of sun exposure, resulting in a vitamin D deficiency, played a role. Research now indicates that being deficient in vitamin D increases the risk of many cancers, especially breast and colon. For example, a four-year, placebo-controlled study involving 1,179 postmenopausal women concluded that Vitamin D supplementation produced a dramatic 60% drop in the risk of developing *any* form of cancer. This confirms the benefits of Vitamin D and sun exposure in reducing risk of cancer.

5. Sunlight and Alzheimer's patients

Clinical research has shown that exposure to full-spectrum light throughout the day from 9 a.m. to 6 p.m. coupled with darkness at night can help improve some aspects of Alzheimer's disease— scoring better on mental exams and improving some aspects of the disease. For example, one study published in the *Journal of the American Medical Association* found that Alzheimer's patients exposed to bright light had fewer symptoms of depression, agitation and lost less function than those exposed to dim daytime lighting. It also increased sleep efficiency and decreased night-time activity in these patients. The researchers attributed these improvements to more regular circadian rhythms.

6. Sunlight and risk for multiple sclerosis

MS has been found to be more common in populations that live farther from the equator. People who move from a low-risk area to a high-risk area before the age of 15 acquire a higher risk of developing MS, whereas those who make the same move after adolescence retain a lower risk. These observations suggest that environmental exposure, and in particular, early sunlight exposure (which is correlated with **Vitamin D** levels) in the first two decades of life, influences the risk of developing MS. Related to this finding, several European population studies observed that there is a lower risk of MS for births occurring after October and a higher risk for MS for births occurring after May. This suggests that maternal levels of vitamin D during the third trimester of pregnancy may influence the risk of MS.

7. Sunlight exposure improves bone health.

One of the best (and easiest) ways to get vitamin D is by being outside. Our bodies produce vitamin D when exposed to sunlight—about 15 minutes in the sun a day is adequate if you're fair skinned. It is a well-known fact that vitamin D stimulates the absorption of bone-strengthening calcium and phosphorus in the body. However, emerging research also indicates there is a direct correlation between bone density and vitamin D3.

Vitamin D3 is a fat-soluble vitamin formed during the process of Vitamin D manufacture when sunlight hits the skin. Importantly, it regulates calcium absorption so when you have higher levels of vitamin D3 in your blood, you are at a lower risk of suffering fractures of virtually all types. On the other hand, lower levels of vitamin D3 in the blood are associated with higher rate of all types of fractures. This is why sun exposure, or a little soaking in the sun may be just what the doctor ordered. Vitamin D produced from being exposed to the sun helps your body maintain calcium and prevents brittle, thin, or misshapen bones; especially important for bone health in older adults.

8. Sunlight and Vitamin D Production.

Unlike other essential vitamins, which must be obtained from food, vitamin D can be synthesized in the skin through a photosynthetic reaction triggered by exposure to UVB radiation. The efficiency of production depends on the number of UVB photons that penetrate the skin, a process that can be curtailed by clothing, excess body fat, sunscreen, and the skin

pigment melanin. For most fair skin people, a half-hour in the summer sun in a bathing suit can initiate the release of 50,000 IU (1.25 mg)

9. Sunlight and Psoriasis.

Exposure to sunlight is extremely beneficial for individuals with psoriasis and it promotes the healing of skin disorders such as acne, psoriasis, eczema, jaundice and other fungal skin infections. In one study, for example, a four-week outdoor sunbathing therapy was successfully used to significantly clear symptoms of psoriasis in 84% of subjects. While sun exposure has a therapeutic effect on the skin and sunlight has been successfully used to treat skin disorders, this alternative treatment method should be done under supervision and with the correct guidance

10. Sunlight exposure enhances the immune system

Sun exposure can help suppress an overactive immune system, which could explain why sunlight is used to treat autoimmune diseases like psoriasis. And since white blood cells increase with sun exposure and they play a key role in fighting diseases and defending the body against infection, moderate sun exposure is very helpful for your immune system.

Vitamin D is also critical for your immune system and with consistent exposure to sunlight, you can help strengthen it. A healthy immune system can help reduce the risk of illness, infections, some cancers, and mortality after surgery.

In Summary ...

It is not just plants that absorb and metabolize sunlight. Human beings do it too. However, the relationship between sun exposure and health in humans isn't as straightforward as we might want it to be. Genes are a factor of how humans metabolize sunlight; as is skin type. For instance, people with pale skin that burns easily in the sun are likely to get skin cancer if exposed to too much sun. The timing and duration of exposure is also a crucial factor when it comes to how our bodies metabolize sunlight.

Sunshine does have its benefits, but it's still the number one cause of skin cancer so experts recommend no more than 15 to 20 minutes of direct sunlight daily – especially before 10.00 a.m. for a healthy adult. After that, apply sunscreen with a minimum Sun Protection Factor (SPF) of 30. Remember skin colour, where you live, and how much skin you expose to the sun affect how much vitamin D you can produce.

That being said, a number of scientists suggest that the health benefits of moderate sun exposure may in fact outweigh the risks. Researchers from the University of Edinburgh in the UK, for example, specifically point out that the heart-health benefits of sun exposure (especially for the health benefits for some people) can outweigh the risk of using Sunlight Therapy

With thanks to Dr Michael Murray and David K. William for their works

