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Benefits of Sunshine on Your Bare Skin

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STORY AT-A-GLANCE

- Health care officials' recommendations to avoid sun exposure unless you're slathered in sunscreen have deprived humans of their fundamental need for sunlight
- Dr. Paul Saladino, author of "The Carnivore Code," delves into the many reasons why sunlight is so essential it could even be described as a nutrient
- Nitric oxide is produced in response to UVA and this leads to vasodilation; there are also beta endorphins produced in your skin when it's exposed to UVA and UVB
- Exposure to UV light has benefits to the immune system; it affects cellular differentiation and can improve wound healing
- Outdoor workers have been found to have a decreased risk of melanoma skin cancer compared to indoor workers; consumption of linoleic acid from seed oils may increase your risk of sunburn and skin cancer
- The key to gaining the benefits of sunlight while minimizing the risk of sunburn is to gradually build up what Saladino refers to as your solar callus

Health care officials' recommendations to avoid sun exposure unless you're slathered in sunscreen have deprived humans of their fundamental need for sunlight. In the video above, Dr. Paul Saladino, author of "The Carnivore Code," a book on nose-to-tail animal-based eating, and host of the Fundamental Health Podcast, delves into the many reasons why sunlight is so essential it could even be described as a nutrient.

"It's been a critical part of our evolution throughout our existence," he states.[1] "Sunlight, real sunlight, is essential for optimal human life. You cannot be an optimal human without … adequate levels of real outdoor ultraviolet infrared visible spectrum light from the sun in the sky when you are not wearing sunscreens."[2]

If more people spent time in the sun — not getting sunburned, but getting gradual exposure and gradually building up your skin's tolerance — Saladino explains that rates of many types of cancers would likely go down and there would be fewer cardiovascular disease deaths and fewer cases of seasonal affective disorder, while improvements would be seen in many other diseases, such as rheumatoid arthritis and schizophrenia.[3] This is the power of the sun.

Cancer Rates Rise With Distance From the Equator

When you put on sunscreen to "protect" your skin from the sun, you're not only exposing your body to toxic chemicals in the sunscreen but also inhibiting the complex interactions that occur between ultraviolet (UV) light from the sun and your skin.

Nitric oxide, for instance, is produced in response to UVA and this leads to vasodilation. There are also beta endorphins produced in your skin when it's exposed to UVA and UVB,[4] and strong associations with cancer can be found depending on your location in relation to the equator.

"With increasing distances from the equator," Saladino says, "we know that there are higher rates of colon, breast, pancreas, ovary, brain and kidney cancers, and the blood cancer multiple myeloma — as you move farther from the equator."[5] Tuberculosis is another disease that's been correlated with sun exposure.[6] In 1903, Niels Ryberg Finsen was awarded a Nobel Prize[7] for his use of solar heliotherapy, or exposure to sunlight, to treat diseases such as tuberculosis.

"Once the anti-tuberculosis drugs were developed this type of therapy fell out of favor, but there were solariums there were these hospitals throughout the desert southwest. I went to medical school at the University of Arizona in Tucson and some of the places I did rotations were previously hospitals for tuberculosis patients who were put into the sun, and there was some improvement in their disease," Saladino explains.[8]

Exposure to UV light also has benefits to the immune system. "It affects cellular differentiation. It can improve wound healing … I don't think many people think about putting their wounds in the sun to help with healing, but the sun does help."[9]

Sunlight Benefits From Vitamin D and Beyond

The fact that your skin produces vitamin D in response to sun exposure is another clue that it's beneficial. Vitamin D upregulates your ability to fight infections, as well as chronic inflammation, and produces over 200 antimicrobial peptides (AMPs), one of which is cathelicidin, a naturally occurring broad-spectrum antibiotic.

The cathelicidin antimicrobial peptide, or CAMP, is made by immune cells and skin and gut cells, which act as a barrier to infection.[10] A wealth of data also show that vitamin D levels are strongly correlated with the severity of SARS-CoV-2 infection.[11] Saladino has visited the Hadza tribe in Africa, who are among the best still-living representations of the way humans have lived for tens of thousands of years.

He credits their regular sun exposure, as well as their native diet, for their lack of chronic diseases seen in modernized societies:[12]

> *"There is good observational epidemiological research that levels of vitamin D above 30*

nanograms per milliliter (ng/mL) were quite protective and if we think about this evolutionarily, groups like the Hadza and the Maasai evolve at the equator. They have a lineage there that is many hundreds, thousands of years old.

Their vitamin D averages around 46 to 48 ng/mL, which I suggest is an evolutionarily appropriate level and probably good for most humans."

To ward off infection and prevent chronic diseases, the level you're aiming for is between 60 and 80 ng/mL, with 40 ng/mL being the low cutoff point for sufficiency to prevent a wide range of diseases, including cancer. The key is to get your vitamin D from the sun, not supplements. It's important to understand that vitamin D is not the only benefit of sunlight. In fact, vitamin D is more than likely a biomarker or surrogate for sun exposure, which is also intricately involved in melatonin production.

During the day, if you get proper sun exposure, near-infrared rays from the sun penetrate deep into your body and activate cytochrome c oxidase, which in turn stimulates the production of melatonin inside your mitochondria. Your mitochondria produce ATP, the energy currency of your body. A byproduct of this ATP production is the creation of reactive oxidative species (ROS), which are responsible for oxidative stress and free radicals.

Excessive amounts of ROS will damage the mitochondria, contributing to suboptimal health, inflammation and chronic health conditions such as diabetes, obesity and thrombosis (blood clots). But melatonin essentially mops up ROS that damage your mitochondria. So by getting plenty of sun exposure during the day, your mitochondria will be bathed in melatonin, thereby reducing oxidative stress.[13,14] Saladino adds:[15]

"I would advise you to get your vitamin D from real sunlight because of the other benefits of real sunlight — endorphins, nitric oxide, perhaps other cholesterol molecules like cholesterol sulfate. We don't even, I think, understand all of the benefits of being in the sun. There are so many associations with latitude that suggest it could be deeper than vitamin D."

Sunlight May Affect Your Microbiome

To understand solar energy, it helps to be aware that 39% of the solar spectrum is what we see as visible light. The majority of the solar spectrum, 54.3%, is infrared,[16] which is not visible but rather felt as heat. Ultraviolet light accounts for only 6.8% of the solar spectrum, and vitamin D is specifically produced in response to UVB radiation, which is only a small part of the ultraviolet spectrum.

It's the exposure to this full spectrum light that yields the most benefits, of which most are likely still unknown. Melatonin, for instance, is produced inside your mitochondria in response to near-infrared radiation, which is part of the infrared spectrum. Exposure to another type — narrow bank ultraviolet B, or NB-UVB — leads to another little-known benefit — modulation of the human intestinal microbiome.[17]

Study participants were divided into groups that took vitamin D supplements during the winter prior to the study and those who did not. They were then exposed to NB-UVB three times during a one-week period.

Not only did vitamin D levels increase in both groups, but the light exposure significantly increased alpha and beta diversity in the group that didn't take vitamin D, and bacteria from several families were enriched. The researchers proposed that a skin-gut axis may exist that affects the gut microbiome, and it appears to be mediated by sunlight:[18]

"This is the first study to show that humans with low 25(OH)D serum levels display overt changes in their intestinal microbiome in response to NB-UVB skin exposure and increases in 25(OH)D levels, suggesting the existence of a novel skin-gut axis that could be used to promote intestinal homeostasis and health."

Melanoma Is Not Always a Sun-Associated Cancer

The question many have with regard to sun exposure is whether it will increase skin cancer risk. Melanoma is considered to be the deadliest form of skin cancer, but data do not support the common rhetoric that it's caused by sunlight.

In one study of outdoor workers and skin cancer risk in Europe, although they had more UV exposure both during work and leisure time and less sunscreen use compared to indoor workers, "No significant associations were found for melanoma."[19] "This finding is corroborated many times in the literature," Saladino said. "There is a lot of literature to suggest that there are perhaps multiple roads to melanoma, not all of which are related to the sun."[20]

Likewise, in a rapid review published in The Lancet it's noted that outdoor workers have been found to have a decreased risk of melanoma compared to indoor workers, "suggesting that chronic sunlight exposure can have a protective effect." It's also noted that while some melanomas do form on areas of the skin exposed to sun, others form on areas that rarely see the sun.

"So clearly getting burned when you were a kid is a bad thing. You don't want that to happen, but is melanoma truly a sun-associated cancer? I would say no. I think there is clear evidence that melanoma is not always associated with the sun," Saladino says.[21]

Melanoma Linked to Linoleic Acid

Saladino points out a study from 1987,[22] during which samples of fat tissue were taken from 100 melanoma patients and 100 people without melanoma and analyzed for fatty acids.

Not only is there an increase in linoleic acid in the tissue of all the subjects, but the percentage of polyunsaturated fatty acids (PUFAs) is significantly higher in the melanoma patients' tissue. "The suggestion is made that increased consumption of dietary polyunsaturates may have a contributory effect in the etiology of melanoma," the researchers concluded.[23]

Linoleic acid is the primary fat found in omega-6 polyunsaturated fats, including vegetable/seed oils, and accounts for about 80% of the fat composition of vegetable oils. Omega-6 fats must be balanced with omega-3 fats in order to not be harmful, but most Americans don't eat that way.

Most of the omega-6 people eat, including seed oils, has been damaged and oxidized through processing. Once oxidized, it generates oxidized linoleic acid metabolites, which are mutagenic, carcinogenic, cytotoxic and atherogenic.[24] According to Saladino:[25]

> *"Is it possible that increased linoleic acid consumption could be causing fragility to cell membranes and that could be leading to oxidative damage in the sun leading to DNA damage and then more melanocytic nevi precursor lesions or melanoma or could the same thing be happening with squamous and basal?*
>
> *I would say yes. It's not supported by literature yet because there haven't been any studies looking at this. We need many more studies with linoleic acid … I have major concerns that linoleic acid found in seed oils is one of the biggest drivers of chronic disease in humans."*

Linoleic acid is found in virtually every processed food, including restaurant foods, sauces and salad dressings, as well as "healthy" foods like chicken, pork and some olive oil, so eliminating these foods in your diet is another stepping stone to good health.

Build Up Your Solar Callus

The key to gaining the benefits of sunlight while minimizing the risk of sunburn is not to use sunscreen, which typically contains endocrine-disrupting chemicals, but rather to build up what Saladino refers to as your solar callus:[26]

> *"If you are light skin, cover up, get a small amount of sun exposure, develop your solar callus … get that UVA and UVB into the different layers of your skin. Get that UVB-producing melanin gradually dark and gradually think about being in the sun. As a piece of homework that is my prescription for you, get into the sun gradually … this is your chance to fill up your sun reserves.*
>
> *That's vitamin D and other compounds that are produced from the sun in your skin and stored in your body but do that gradually. If you're going to be out in the sun too long to safely be in the sun without burning based on your relative amount of melanin in your skin, then cover yourself."*

Be aware, however, that your diet also plays a significant role in your propensity for sunburn. High intake of linoleic acid raises your risk for sunburn while eliminating seed oils from your diet will dramatically reduce your risk of sunburn and skin cancer, as susceptibility to UV radiation damage is controlled by the level of PUFAs in your diet.

It's almost like a dial. The PUFAs control how rapidly your skin burns, and how rapidly you develop skin cancer. Saladino points out that psoralens, which are found in certain plant foods like celery and parsnips, can also be problematic, as they make your skin more sensitive to sunlight. The take-home message, however, that Saladino stresses is this:[27]

> *"Do not fear the sun, my friends. Don't get burned, but do not fear the sun — put it on your whole body, see how it feels … If you are in a place where you cannot get sun for much of the year either consider moving or I would consider a tanning bed look for perhaps a tanning bed that has some level of UVA and UVB that mimics the sun."*

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