The Healing Power of Light:
A Special Interview with Alexander Wunsch

By Dr. Joseph Mercola

DM: Dr. Joseph Mercola
AW: Alexander Wunsch

DM: By now you’re probably aware of the importance of vitamin D. Ideally, it’s best to get it from the sun, not only for the benefit of vitamin D but for a whole variety of other reasons. Hi, this is Dr. Mercola, helping you take control of your health. Today we are joined by Alexander Wunsch, who is coming to us from Germany. He’s a physician there in holistic medicine and photobiology. He’s also the CEO of Medical Light Consulting in Heidelberg, Germany. He believes, like I do, that the sun is a great healer. We’re really excited to have him here today to enlighten us on this important topic. Welcome and thank you for joining us, Dr. Wunsch.

AW: Hi, Dr. Mercola.

DM: Why don’t you provide us with a background of how you first became interested in this topic? Because it’s usually helpful to have a framework or perspective of how you came to your conclusions, so our listeners and viewers can have a better idea of how to incorporate this information.

AW: During my study of medicine, I realized that I’m not really interested in pharmacology and biochemistry as a standalone treatment modality. I always thought that there must be more about it. Biophysics I was interested in it. My idea starting those days was that it’s the unity of biophysics and biochemistry that makes us live, that moves us, and that gives us the chance to stay healthy.

I started with some kind of weird thing, the cranial electrotherapy stimulation (CES). I had some patents on the unit I invented those days, which just gives you some frequencies and impulses via the earlobes and helps you to tune your brain in a way to optimize the brain functions and to influence the nervous system and the hormone system as well.

DM: Is this microcurrent CES?

AW: It’s kind of microcurrent. It’s a microcurrent frequency.

DM: So, milliamps or microamps.

AW: My unit had a name. It was called Brainman and was in the early ‘90s. From those days, I got interested in other frequency ranges, not only the brainwave frequencies but the frequencies we can capture with our ears and the frequencies we can detect with our eyes. I got interested in the method, which is called chromotherapy and which is not typically a medical discipline – or it was not in those days. Chromotherapy, or you could say color therapy, it’s a kind of esoteric stuff in the awareness of many people. But you can also approach this chromotherapy in a kind of scientific way. We know today that, for example, single cells in a petri dish, they react kind of specific to certain wavelengths.

I got interested into the frequencies of our brain, and I started to examine what happens in other frequency ranges, for example, the audible range. I started to construct sound tables where you can feel the music throughout your body. In the end, finally, I got interested in chromotherapy, which is the treatment of the body with colored light. It’s not typically a medical discipline. It has a kind of esoteric stigma in many brains.
But finally, I found out that, for example, in a petri dish, when you study the behavior of single cells, they kind of specifically react upon the influence of colored light. In more complex organisms like we are or our ancestors, the monkeys, for example, we can easily understand if we imagine if they are sitting in the desert, they have another color surrounding compared to sitting in the woods, under the trees. So, for example, green initiates a kind of reaction chain in our system, which tends more to balance our autonomous reactions. The blue light of the sky induces other specific reactions. I found out that I could use this quite successfully to alter our biological functions.

Personally for me, starting from the visible part, represented by the different colors of the rainbow, I got interested as the next project to say in the near-infrared, which is the frequency range coming after the red when you leave the rainbow, the end of the rainbow so to say. The near-infrared is a very important radiation. We have the same percentage of near-infrared in sunlight as we have in the visible light. More than 40 percent visible, more than 40 percent near-infrared. In nature, it’s a very important spectral portion of the whole spectrum we are given by the sun.

Finally, it was kind of a logical process that I got interested in the effects of ultraviolet light. I knew from my medical studies that we have to be careful with ultraviolet light. I started to collect old textbooks on light therapy, light biology, or photobiology. What I learned from these books was quite amazing. Most of them were written in the times before the era of antibiotics. The doctors, the physicians, had to be very diligent using sunlight and also using ultraviolet light sources for artificial application of ultraviolet radiation. Finally, I came to the conclusion that we are perfectly adapted to the radiation of our sun. Looking at the advantages and achievements of heliotherapy, of these…

DM: And heliotherapy would be sun therapy. “Helio” is the word.

AW: Heliotherapy would be using sunlight directly without altering it, without removing parts of the spectrum. Yes.

DM: An early example of heliotherapy would be, at least from my memory, the use of sunlight to treat tuberculosis prior to the discovery of antibiotics, and they did that quite successfully. It was really one of the most effective treatments for tuberculosis.

AW: Yes indeed. There were some specialists in Switzerland – Dr. Auguste Rollier was one of them and another physician, it was a surgeon, Dr. Oskar Bernhard – they were using sunlight very, very successfully. They used it in combination with surgery or just as a standalone therapy. They were in fact able to heal the patients suffering from tuberculosis, but other disease of darkness like rickets, for example, has been treated successfully as well.

DM: Yeah. That’s well established. We’ve known that for over a century, that sun exposure and improving your vitamin D is useful for rickets. But the recognition that it has a powerful stimulus to the immune system is a more recent appreciation. I’m wondering, you know, one of the challenges in the United States, is there’s this really strong media collaboration to demonize people who don’t believe in vaccines. They’re really focusing their attention to the measles vaccine.

Just using that as an example, I’m wondering, from your experience using sunlight and vitamin D if you have any impressions that regular exposure to sunshine might actually improve your immune system to the point where you’ll be far more resistant to measles, or if you did acquire a measles infection, you wouldn’t have any complications. You would just acquire natural innate immunity, and actually it would be a healthy process.

AW: I think that Darwin was right. His principle, survival of the fittest means that we – you, I, and all the other guys who are around at the moment – are the fittest in fact. This means we are adapted to sunlight as a very complex stimulus. This adaptation process means if you take away the stimulus, which was responsible for a good number of specific body reactions, then we have a problem. We need the stimulus at a certain dosage to keep our system running.
When you look at the pictures of the sick children, and after one year, they were healed (it’s just proved by their picture because this is what we have to judge what happened these days), you can see that in a healthy body, there for sure is a healthy immune system as well.

**DM:** Terrific. What are some of the other benefits of heliotherapy, at least contemporary benefits that you can enlighten us on?

**AW:** Sunlight exposure, it’s definitely much, much more than tanning. Tanning is just what you see, what is visible on your skin. But for example…

**DM:** But it’s a pretty reasonable marker for some of the other benefits you’re about to describe I would assume.

**AW:** Yeah, of course.

**DM:** Because you don’t have to do a blood test.

**AW:** We have to discriminate between the tanning (which comes from natural light sources like what comes from the sun, as the only natural light source) and the tan (which comes from artificial light sources). There in fact are significant differences if you expose your skin to natural sunlight in a diligent way. The tan has, for example, a very specific color, because it’s not only the gray tone of your skin, which comes from the melamin bodies, it’s also the reflection of the light from your bloodstream.

This is one very important part: if your skin is exposed to sunlight, you will experience some invisible changes in your circulatory system. The capillaries, for example, they will be modified under the influence of sunlight. The skin is closely linked to the autonomic nervous system (ANS). It’s a kind of an external organ of the vegetative system in your body.

For example, when you live under summer conditions, we need much more water in our system in order to produce enough sweat, in order to cool down our body. This means that sunlight not only influences the skin, but it influences all the inner organs as well. It’s a kind of concert, which is started by the stimulus of sunlight.

**DM:** Perfect. But what are some of the other major benefits? I mean, we talked about obviously vitamin D and all the benefits, but that’s just probably one of the primary ones. Are there other major improvements in human physiology other than the improvement in the immune system function?

**AW:** Well, for me, vitamin D is a kind of seasonal stress hormone. We have circadian stress hormones, hormones in our system, for example, the adrenocorticotropic hormone (ACTH) adrenaline-cortisol blend of certain hormones, which enable us to get up in the morning, to regulate the blood sugar concentration, to be active, and so on. These are the circadian stress hormones.

When you think about the different tasks between summer and winter, that’s like reprogramming your heating system in the house, because in summer, the main topic is cooling down the system. You have an intake of 1.5 kilowatts on the square meter, which means if you stay naked out in the sun, your body has to digest a lot of energy, which in the end, is transformed into thermal energy. Cooling is the main task during the summertime and heating is the main task during winter time. This is linked to, for example, the circulatory system. It’s linked to our digestive system and so on.

Talking about vitamin D in a way is a kind of self-given restriction regarding the different processes, which are going on. This is a typical approach we can find in photobiology in the 20th century, which means you are looking for the kind of action spectrum. In the end, you find out only ultraviolet B radiation is able to photosynthesize vitamin D in your skin. As a consequence, when you think vitamin D is the only benefit you can get from sunlight, you automatically will focus on the ultraviolet B radiation.
But when I studied the textbook from Dr. Auguste Rollier, for example, he emphasized quite often in his textbook that he found that the composition of the different parts of the spectrum are of crucial importance in order to achieve all the benefits you can get from the sun and you can get from staying outdoors. For example, when you look at the cellular effects of ultraviolet B and ultraviolet A, it really depends on the dose if the radiation is beneficial to your system, or if the radiation unfolds odd reactions or effects as well.

What we can say is that ultraviolet radiation photosynthesizes vitamin D on one hand, but on the other hand, it’s able to damage, seriously damage cells. Ultraviolet B can alter the DNA structure. Ultraviolet A can produce and photosynthesize the reactive oxygen species in the tissue. In order to cope with these side effects, so to say, our skin needs other parts in the spectrum. For example, the near-infrared and the red light, which we find in sunlight in a pretty large amount, these longer wavelengths, they provide metabolic power to the cells. Ultraviolet light primarily is a kind of stress, which acts upon our body, and our body makes the best out of it. If we cannot get rid of the ultraviolet light, our body thinks in a way I’m convinced, “We have to make the best out of it. Let’s produce vitamin D,” for example. Vitamin D is a kind of biochemical-signaling molecule, which enables a lot of reactions in our body in order to get by and to cope with the typical tasks that go along with summer, with daylight, or with sunlight. When we have on one hand a kind of stress reaction, we can easily imagine that our cells as well need energy in order to answer this stress stimulus.

In sunlight, we have not only the ultraviolet, but we have the kind of balance on the longer wavelength part of spectrum. I’m convinced that the full blend of specific wavelengths we have under the sun enables our body to react in the best way. This is what we need and this is what we have to train.

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I think that sunlight in a way is like… When we think about sports, in order to keep our muscles in good function, we have to move to be able to move as well or even better tomorrow. We have to expose our skin in a diligent way in order to cope with the sun not only today but tomorrow as well. For me, sunlight is a kind of training for the skin as long as we take into account that there are some very specific rules, which should be followed in order to benefit from this solar exposure.

**DM:** Okay, great. Now, in medical school, we’re taught a concept which is called MED or the minimal effective dose with respect to drugs.

**AW:** Yeah.

**DM:** I’m wondering if you could comment on what you would consider the minimal effective dose for sunlight exposure. Myself, I live in Florida. It rarely goes below freezing. Most of the year, I’m able to walk outside for an hour and a half or so. Now, it’s not always sunny, but I try to get as much skin exposure as I can for about an hour and a half. I’m wondering what your impression of the minimal dose would be. Now, I suspect that clearly it’s related to the season, the latitude, the temperature, and a whole variety of other variables. But can you provide some parameters that can guide us to optimize the benefits from sun exposure?

**AW:** Well, you see, in my understanding, it’s very difficult to issue general rules regarding individual sunlight exposure. Because depending on our skin type, on the region we are living, on the region our ancestors were living, there are different needs for different people. I think in former times, religion and cultural aspects (which were given by a religion in many cases) meant that for a certain group of people, there were specific rules to benefit from the sun. These rules were transmitted, for example, via religious practices. But in a global world, it’s very difficult to say you need, for example, 20 minutes a day.

What I can say in terms of advice is that most of us if we are living in Florida or living in Africa, it doesn’t matter. Most of us we cover our body with clothes, and this might be a problem, because we find
vitamin D deficiency in Africa as well nowadays, because people dress like other people dress in other regions of the world, which means we cover the largest area of our skin with clothes and thereby shielding our body from sunlight exposure. If you go out into the sun, my suggestion or my recommendation would be to expose those parts of your body which normally are covered by clothes, and cover those parts of the body which normally are exposed. It means it’s advisable to wear, for example, a hat with a large rim in order to protect your head and your face, the facial skin from overexposure.

**DM:** Yes, because it’s a relatively small amount of surface area on your face, and it’s actually thinner skin, so it’s more predispose to photoaging damage from sun exposure. That’s a wise approach. It’s something that I do also. I’m always really, almost all the time out in the sun, with a hat on. I think it’s a wise approach.

Now, the other component, of course, is that even people living in climates or locations where sun exposure is a possibility, unlike most of Northern Europe and North America in winter, even if they live in those areas, they’re indoors most of the time because they have jobs. They don’t work outside. That’s another limitation, which complicates the ability to achieve that exposure. When they’re inside, they’re going to get exposure to sunlight through the window. Maybe we can talk about that and the artificial lighting that they’re getting, not only at daytime but at night because that’s a particular area of interest of yours and you’ve studied it quite a bit.

**AW:** Yeah. First aspect, you mentioned the windows. I measured the transmission of a good number of different window types and found out that you can turn the best sunlight into a kind of bad artificial light when you have some windows in between you and the sun. The windows in a modern house have to filter out those parts of the spectrum which would lead to heating up, for example, in summer. In order to be energy efficient, modern window types filter near-infrared light. Because the physicists, they claim that this is not necessary, and they in fact have no idea and no clue how important the near-infrared light for our biological functions in fact is.

We face a kind of common problem in the artificial light area and in the use of window glass in the other area. Both are factors which eliminate important parts of the spectrum. For that reason, we have to be careful with windows and artificial light. Let’s say, you sit in your office and your eyes signal, “There is enough light around me.” Your hunger, your intrinsic hunger for light may be satisfied by the light you perceive through your eyes. But there is an expression, it’s called biological darkness. This is what most of us might experience when we are indoors, sitting behind windows under artificial light sources.

**DM:** Yes indeed. One of the ways you can avoid that, of course, is when the weather cooperates, you can open up your windows to get fresh sunlight exposure or to go outside and walk around with minimal clothing on.

**AW:** Yeah.

**DM:** Well, let’s talk about the lights, because there are three basic varieties of indoor lighting that people have:

1) One is being phased out, which is the incandescent bulb. It’s been around for over a century and has for the most part poor-quality wavelengths.

2) Higher up on the scale would be compact fluorescents, which have a whole variety of different ones. There are full-spectrum bulbs that are available, but the downside of them is that they typically have mercury, about 10 micrograms. If you break the bulb, you got toxic exposure potential.

3) The newer ones are the LEDs. The last time I looked, I don’t think they had really full-spectrum LEDs, but they were working their way towards it.

Maybe you can comment on the difference between those and your impressions and insights on them.
AW: First of all, my measurements taught me that the only full-spectrum light source, artificial light source, is the incandescent lamp because you have all…

DM: Really?

AW: Yeah, really. You have all the different wavelengths contained in the spectrum. There is a cut in the emission by the glass tube in the short wavelength part. But in the visible part and in the near-infrared part, the incandescent lamp is pretty active. The incandescent lamp is the only artificial light source with a natural spectrum, with a natural spectral distribution.

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I have a kind of distinction regarding artificial light: 1) artificial light with natural spectrum represented by incandescent lamps and halogen lamps, and 2) the other group is the artificial light with the synthetic spectrum, which produces a kind of light surrogate. It’s a low-quality replacement of what our body expects from light. In nature, there is a natural alliance between luminance on one hand and warmth or heat on the other hand. All natural light sources represent this alliance of heat and luminosity. This is what our body expects and this is what our body needs in order to adapt, for example, just by a correct behavior.

If the light of fire would have the kind of very similar spectrum to an incandescent lamp… And we see the colors in candlelight with a color-rendering index of around 99 up to 100. We see the colors with the CRI of 99 to 100 in sunlight as well. All the spectra, which are produced in the same way in the way that you have light and heat in combination, lies between the color temperature of a candle with 2,000 kelvin and the color temperature of sunlight with 6,500 or 6,000 kelvin. In between we have the incandescent lamp with 2,700 kelvin, which gives you as well 100 percent or CRI 99 to 100 color rendition. This already demonstrates that our eye seems to be closely adapted to the natural way to produce light.

This is thermal light. The other light sources we were mentioning already, the LED…

DM: Before we go there, I’m just kind of confused because typically when you think of candlelight or light by a fire, it seems to be more in the red-orange spectrum and very little blue, but you’re saying that it has all the colors in there. I’m wondering how that perception is… My perception of that at least is distorted.

AW: You will be able to judge that it’s a reddish light when you have a comparison. Let’s say, you sit in your car. In the mirror, in the back, you see there’s another car coming up. You are unable to tell that this car has a yellowish halogen light until another car with a Xenon lamp appears on the scene. When you can compare it, when you have both light sources for comparison in front of your eye, you will be able to discriminate that otherwise.

Our eyes are very intelligent sensors, which make a kind of white balance automatically. When you measure or even when you look at colors under a candlelight and this is the only light source around, you will have a full-color rendering. You have the full-color rendering with incandescent lamp, halogen lamp, and you have it with sunlight as well.

I measured it personally. I do not believe what I’m told. I always try to get a kind of direct proof. I measured it, and it’s true. Our eye is able to adapt to the color temperature of the light as long as the light follows the natural laws, which are represented by the natural light sources – sunlight and fire. It’s the black-body radiation curve to go into detail, which can be managed in high quality by our eye. Our eyes are adapted, are fully made to perceive light qualities, which follow this black-body radiation curve.

DM: How do you address the… At least with the incandescent and I think with LEDs, too, there are two types of colors of bulb: 1) the cool white that is more of the blue-white and then 2) the other is the soft white or warm, I think they call it that is more yellowish and orange. How do you differentiate between those? Do both of them still fall under the same…
**AW:** You are talking about the color temperature.

**DM:** Yes.

**AW:** The color temperature... We have two types of color temperatures: 1) the real temperature in kelvin, which means talking about about 5,700 or 6,000 kelvin regarding the sunlight. We can say the sun in fact is really that hot. When we are talking about 3,000 kelvin color temperature for halogen incandescent lamp, you can be 100 percent sure that the filament, the tungsten filament is 3,000-kelvin hot. And the fire, the flame has a heat of around 2,000 kelvin. So, we are talking about a physical temperature, which gives us the value of the color temperature.

In order to assign a color temperature to a cold light source, we have to use a kind of trick. The color temperature (which is written on the box of an LED lamp or compact fluorescent lamp), is a so-called correlated color temperature, which is calculated by some rules given by physicists. The LED is not really 3,000-kelvin hot, but it gives your eye the closest idea of light source, thermal light source with the same temperature, which means we need it. In history, we needed this color temperature and the color rendering index with the invention and the use of fluorescent lamps because they were different, their spectral distribution logics.

We had to find out ways. The mathematicians, the physicists, and the lighting technologists, they had to find out ways to compare thermal light sources with cold light sources. In the end, they created kind of calculation strategies, which, for example, for film material, cinematography, and so, were sufficient to describe the different qualities of light. The history of lighting technology in a way is how they can cheat our senses that we believe it’s the same even if it’s different. This is what you get when you look at the color light and color temperature, for example.

**DM:** Okay. Thank you for that explanation. You’ve been studying artificial lighting and its impact on human health for quite some time, and I’m wondering if you could summarize some of your most important understandings or findings.

**AW:** Yeah. In a way we talked already a lot about these aspects. For example, these artificial light sources with cold light spectrum, with the synthetic spectrum, I’m convinced that in the long-term pathway, we are damaging, for example, our eyes. I’m quite convinced that age-related macular degeneration, for example, has a lot to do with the excessive use of non-thermal light sources.

**DM:** Interesting.

**AW:** Because when you look at the retinal structures...

**DM:** And just an important insertion: for those who aren’t familiar with it, age-related macular degeneration or ARMD is the most common cause of blindness in the US at least and probably in Europe I would imagine.

**AW:** Yeah.

**DM:** Many people may not be aware of that. It’s an important issue that we need to be concerned with.

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**AW:** What history tells us is if you get a lens replacement after cataract and the lens does not filter out the blue parts at least partly, you have an increased risk to develop ARMD or age-related macular degeneration, because the light which reaches the retina is able to interact with the retinal structures. The blue light, the violet light, the short wavelengths, they are able to produce or induce the production of...

**DM:** Antioxidants?

**AW:** Free radicals, reactive oxygen species in the retina. We have on one hand the kind of cellular stress from the short wavelength part of the spectrum. We need for optimal regeneration and repair on the
cellular level the longer wavelengths, which are able to balance the stress in a certain way. Again it’s a similar problem.

DM: That’s pretty fascinating. Is it technically or optically possible to design or construct a lens, an artificial lens, that would allow the penetration of this light, so that they could provide an implant that’s going to not contribute to blindness?

AW: Yeah. What you can do with the lens is you can add some filter properties, so you can reduce the stress by using yellowish-tinted replacement lenses, which already exist. But on the other hand, the replacement lens should be transparent for the near-infrared light, the longer wavelengths, and the red end of the rainbow spectrum, because these wavelengths, they increase the repair activities in the tissue.

DM: So, it’s technically possible to construct a lens with those specifications you just mentioned?

AW: Yeah.

DM: Okay. This is an important point because I believe that lens implants are one of the most common surgeries in the United States. Gosh, it’s well over… It’s the majority. Maybe it’s 75, 80, to 90 percent of the people who get these implants as they progressively age. If someone was a candidate for that, do you have any recommendations how to find this type of lens with these specifications, so they don’t increase their risk for age-related macular degeneration?

AW: I think you have to talk to your ophthalmologist and ask him to implant a yellowish lens.

DM: Okay.

AW: Just for clarification: the lens is a filter. A filter cannot add missing parts in the spectrum. It’s also a good idea to have some thermal light sources in the surrounding, because this is the only way we can get the near-infrared and the long wavelength red part of the spectrum. This is for repair.

DM: Does the ophthalmologist have to also request specifications for transparency to their red and infrared spectrum? Or is that just automatic in most lenses?

AW: I think this is automatic in these lenses.

DM: Okay. And the most cost-effective way to increase your exposure to these wavelengths is going out into the sun. Yeah, it’s free. You can’t get more cost-effective than that. That’s one of the best.

AW: Yeah. You’re right.

DM: Unfortunately, not most of us don’t have the flexibility to modify our lifestyle, so that we can do that on a regular basis. But if you are one of the fortunate people who do work and strive towards achieving this, it would be to your great health advantage to get out regularly. I would suggest at least an hour a day, maybe longer if you can, and close to solar noon unless it’s really miserably hot. But you know, you’re not going to get as much benefit from the solar exposure or the thermal light exposure if you’re going on at dusk or dawn. It would optimize it and make it even more efficient. Would you agree with that?

AW: Yes.

DM: Okay. Great. So, is there any other advice or words of wisdom from your years and years of study in this important area that you could offer to our viewers?

AW: I think our body can stand a lot of negative influences as long as we keep kind of balanced. We all know that if we have stress, we have to relax in consequence. This is already given by the circadian rhythms normally.

For example, in our house, talking about artificial light, the problem is again, we have not enough daylight during daytime and we have too much artificial light during nighttime. In the same way, nature gives us two different lighting sceneries: the sunlight scene during the day and the fire surrounding with
low levels of light, with a very yellowish tint of fire, for example. This was for hundreds of thousands of years the lighting logic in our surrounding. And we are…

DM: Adapted to it.

AW: Adapted optimally to these conditions. We should try to reduce the levels of light during nighttime and stay out in the sunlight if possible in a reasonable manner, of course, because for some of us, it can be five minutes. For the first time you’re in the fresh year, in spring, maybe five minutes is enough for some of us, depending on the individual skin type, of course.

What is very, very important regarding sunlight itself is the adaption or the adaptation process to natural sunlight. Our body intrinsically is able to adapt in a way that we can. If we train this in a gradual manner starting, for example, with five minutes, the next day we can expose ourselves for 10 minutes. You just double the exposure time looking at your individual reaction in the afternoon or at night, because there is a delay in our skin reactions. Most of us do not know that they already have an overdose when they feel that the skin starts itching or becomes reddish. There is a delay time of two to four hours.

This is a problem we have to know about these things. Our children have to know about these things. Stay out of the sun before you get problems, before you feel uncomfortable. Use a timer when you are out in the sun. This is very important. Don’t use your smartphone, because the smartphone will shut down when it’s overheating. If you are sleeping and waiting for the beep signal to end your solar exposition, this, for example, is one of the greatest problems: falling asleep in the sun when you’re taking a sunbath. You need a very reliable timer that is heat-resistant.

DM: Yeah. That’s a great strategy, too. What I’ve always caution people, especially early on in the season, which is coming up (this interview will probably air in spring), is that they do it especially carefully and slowly at the beginning of the season. Later in the season when they’ve developed a tolerance and a tan, they’re a little less likely to have damage.

But just to monitor your skin really carefully. If you notice the lightest exposure of pink, which is admittedly hard to do and a deeper pigment in people like African Americans or Middle-Easterns (but they’re protected anyway because they don’t run into the same type of problems), just stop the exposure and go inside. Because literally, for some fair-complected individuals like many Irish people, five minutes may be more than enough in the early spring or maybe two or three minutes, and after that, they’re going to have damage; they’re not going to have benefit. You got to be careful because it’s a dual-edged sword. That’s for certain.

I have a question for you. It’s out of curiosity. Obviously, there are very few communities where it’s sunny almost every day. Most of us live in environments where it’s cloudy on a periodic basis, and in some places, it’s cloudy most of the time. Can you comment on the benefit of sun exposure in a cloudy environment? I mean, is it radically reduced? Is it something to consider doing anyway? What’s your thought? Is it something better than nothing?

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AW: I think it’s radically reduced. But staying outside, being under the influence of other climate factors is always a good idea, because the heat and cold on your skin brings your skin into a kind of reaction flow. The skin is an organ which needs these tides in a way that it becomes thinner during the winter, and it becomes thicker during the summer as long as you expose your skin in a diligent way to natural sunlight. These skin tides are important to cleanse the tissue. The connective tissues of your skin are important to keep it in a [inaudible 51:10] situation. It’s always good to stay outside and to expose yourself to the climate conditions you are surrounded by.

DM: That’s fascinating. I was never aware of that. There was a weaning back and forth between the thickness of the skin that that was related to the seasons. I actually observed that, but I didn’t realize that was going on. The last six months or so, I’ve been walking every day on the beach, most every day,
weather permitting for like an hour and a half. That’s an abrasive surface. I walk barefoot, and it’s an abrasive surface. I had no problem in the summer, but when winter came along, I started getting raw on the areas that were contacting the snow. I couldn’t walk barefoot because it was so painful.

**AW:** Yeah.

**DM:** But I didn’t realize that it was due to most likely what you mentioned, this thinning of the skin that occurs during the winter.

**AW:** Yeah. I think we all have to learn much more about our light reactions and our seasonal tides in our body. The way of living in industrialized nations keeps us apart from some insights regarding our body functions. But hopefully, in the near future when you have a smartphone with the a kind of health app that gives you the chance to enter and take notes about your body reactions, which will enable you to get a better overview after a year or two.

You can, maybe using these kind of logging technologies, will be in a situation to also realize that there are rhythmic flow activities going on in your body, which is the first step in my understanding to become aware of the body rhythms. If you know them, you can use your system, your body card in a much better way.

**DM:** Yes indeed. That’s a sage advice that we can apply. Because the more I study medicine (and I’m sure your observations would confirm this also), the simpler it becomes. The strategy really is to replicate the practices of our ancient ancestors as closely as possible. That’s by our lifestyle, our exposure to sun, our contact with the earth, or the food that we’re eating and the water that we’re drinking. The further we veer off from that and expose ourselves to these newer strategies and toxic chemicals, the more likely we’re going to increase the risk of disease because we’re not adapted to those exposures. It’s really a pretty simple strategy. The challenge, of course, is to understand what those are. That’s why we’re really grateful for researchers like yourself who really devote large amounts of time to find out these little details that help us understand it even better and so we can more closely replicate those patterns.

**AW:** Yeah.

**DM:** It’s a good thing. Are there any resources that you have compiled, or websites or books that you could recommend for our viewers?

**AW:** You see, the problem maybe is that time’s always short, and my language normally is German. If I have the time to make an entry, for example, on PhotonBlog.de, most of the time it’s in German, but I try to translate things. And when I have English sources, English-based sources. I will make the entry as well. It’s a bilingual website. PhotonBlog.de. “Photon” for the light quantum. PhotonBlog.de is the address. Here, you can find some entries in English as well.

I have a website created recently under Spectro-Chrome system, which is this chromotherapy system. It’s SpectroChrome.de. They can also switch to the English language version and get some information about the chromotherapy and how you can use colored light in your home in order to improve your personal health.

**DM:** There’s another question I forgot, which as we were talking initially popped into my mind. That’s if your familiar with the work of Dr. Fritz-Albert Popp. I’m not sure if he’s still alive, but he’s a really major pioneer. He’s German, of course.

**AW:** Yeah.

**DM:** He popularized the concept of biophotons, which I think is widely disregarded in our country. I don’t know that any scientist would agree with that. But I think he’s provided us some really compelling scientific evidence that these exist. Do you have a moment to comment on that?
Yeah. The fact is you can measure those biophotons. When you think about chemistry, just simple chemistry, every chemical reaction goes along with an exchange of photonic energy. You have to charge up one atom, and the other atom has to take the charge over if this atom wants to go into a chemical reaction with another atom.

When we imagine that in a single cell in our body, we have I think 10 up to 14 or 10 up to 15 cells our body is composed of. In each of these single cells, in every second, we have around 100,000 chemical reactions going on in order to maintain the processes of life, the biological functions. There are some methods to measure if there is light coming from a living cell. In fact it is light coming from it. These biophotons, which are produced by biological reactions, biochemical reactions, I think you cannot say they are not existing because you can measure them.

But most of the scientists, they will not be willing to believe that these biophotons have anything to do with the regulation of the chemical processes. This is kind of strange because, as a scientist, you should not go into “believe” or “not believing” things. We are coming back in a way to the start of our interview that I, at a certain point, got to the conclusion, came to the conclusion that if you only look at biochemistry, you only look at 50 percent of the truth. The process of life is only understandable when you take biophysical and biochemical processes into account at a portion of 50 percent each. The biophysical part is fairly covered by this biophoton theory. When you go deeper into these topics…

I was lucky to meet Dr. Fritz Popp several times when he was still in good shape. I think to my actual knowledge, he is still alive, but he is not well. [He’s] very sick. Anyway, he did a very important work.

He was not the first to discover these biophotons as you might know. The first traces of awareness that biophotons are existing or that there are luminous emission processes from living tissue date back into the 1920s to a researcher in Russia. I’m pretty convinced that we will understand better and better in the near future how important light on the cellular level in fact is to keep us alive and to keep us healthy. As soon as we are able to influence these processes in a better way than we can do it today…

So…

DM: In the past, I had suggested that these biophotons might be one of the reasons why eating food in its raw state is possible, one that makes sense. It might be one of the reasons to explain this additional benefits, because the biophotons could actually be an additional source of nutrients that we aren’t getting from cooked food or food that’s wilted or picked long after its ripeness. I’m wondering if you that seems to make sense, or if it violates your understanding of biophotons.

AW: I would agree that biophotons are surrogate marker for the liveliness of food. If you have dead food – and if you have processed food, it’s biologically dead – you will not be able to measure biophotons from it. I’m not sure about the different mechanisms in which the photons from the food really interact with us.

DM: But it may be a marker for other things that do.

AW: If you have just a dead matter, and this you can tell, for example, with food. Big food companies, as far as I know, use the biophotonic measurement in order to monitor the quality of their product.

DM: So, these large food companies are using this equipment to determine that?

AW: Yup.

DM: That’s not widely known. I wasn’t aware of that.

AW: The problem is that if you make this official that you are using the biophotons to monitor the quality of your products, for example, you will have a problem, because in the scientific world, it’s not fancy to
admit that you are working with light in a way that you look at the more subtle aspects of light. In Germany, it was always a good recipe to end a conversation with a scientist to talk about the more subtle effects of light, because then they always thought you are a religious or esoteric person. This is on one hand.

On the other hand, we have this year, the International Year of Light issued by the United Nations Educational, Scientific, and Cultural Organization (UNESCO). The purpose of this International Year of Light seems to be to bring the effects of light more into the consciousness of the public. We all should be aware of the fact that when the sun would stop shining, nothing would live in two or three days anymore on this planet. When we are eating, we are eating transformed light. We can prove this scientifically, as you know.

I think even if we are not able to overestimate the influence light has on our biological system as a whole, it starts on the single cells and it ends in our consciousness, in our mental functions. Light is a symbol in our culture, which will always be our companion.

DM: Terrific. I really appreciate all the wisdom and insights you shared from all of the important work that you’re doing to give us great information. I encourage people to look at the websites you mentioned for more information. Thanks again.

AW: Thank you.

DM: I appreciate everything.

AW: Thank you very much.