#634 Light as Medicine: Red Light Therapy for Energy, Stem Cells and Beauty With Ari Whitten

Dr. Wendy Myers

Welcome to the Myers Detox Podcast. I'm Dr. Wendy Myers, and on this show, we talk about everything related to heavy metal and chemical toxicity. We talk about more advanced topics in health than you'll hear on other podcasts. We talk about bioenergetics, emotional trauma, and just biohacking in general. Today, we're gonna be talking to my friend Ari Whitten about light as medicine using photobiomodulation or red light therapy for its many benefits. Ari Whitten wrote the number one bestselling book for the last seven years on Amazon called Red Light Therapy Volume II, which was revised, updated, and published. You can get it in a proper bookstore and on Amazon.

We're gonna be talking about that today and all the distinctions with red light, like how it works exactly, what the wavelengths need to be, and all the benefits that you can get that are based on research. Ari has done exhaustive research. His book is a veritable medical textbook on the topic. Does it really work for fat loss? Does it really work for anti-aging? These face masks really work. We talk about how you can choose a red light product that actually works. There's a lot of garbage out there. So we'll talk about all these different things on the show today, so tune in.

Our guest today, Ari Whitten, MS, is the founder of the Energy Blueprint and the bestselling author of The Ultimate Guide to Red Light Therapy and Eat For Energy. He holds a bachelor's in exercise science and a master's in science, human nutrition,

and functional medicine. From an early age, he developed a deep fascination with human biology that sparked a lifelong quest to understand performance and longevity. Rather than specializing in one narrow field, he's taken a systems biology approach, studying how diverse areas interconnect and influence human health. For three decades, he's immersed himself in foundational fields like nutrition science, exercise physiology, and evolutionary biology, as well as cutting-edge areas including neuroscience, RO science, circadian science, microbiome research, mitochondria, health, photobiomodulation, and hormesis.

Over nearly 20 years of consulting and teaching, he's become a passionate advocate for evidence-based natural health. He hosts the Energy Blueprint Podcast, bringing together leading experts and researchers on energy optimization and longevity. His books, online programs, coaching, and nutritional supplement line have helped hundreds of thousands of people worldwide optimize their health, energy, and longevity. You can learn more about Ari's work at theenergyblueprint.com. Ari, thank you so much for coming on the show.

Ari Whitten

My pleasure. Thanks for having me, Wendy.

Dr. Wendy Myers

You published a book seven years ago about Red Light Therapy, and I thought it was so brilliant. It's one of the only books on Amazon about red light therapy. You rewrote it and turned it into a published book with Dale. Why don't you tell us about that, and what prompted you to write that and republish it?

Ari Whitten

The main thing was that the first version was massively outdated. It came out in 2018, and obviously, all the science cited in the book was pre-2018. The other aspect is all my device recommendations. So, I published that book because I had been reading about and studying red light therapy, and the whole science of how light impacts biology was fascinating to me for probably close to a decade prior to that, maybe starting around 2009, 2010, somewhere in there. For years, I was studying the science

of photobiomodulation, what was more commonly called low-level light therapy, or low-level laser therapy, or red light therapy. I just found myself fascinated with it and the fact that photons of light are interacting with human biology.

I was looking around and seeing nobody on this. Nobody's reading, writing about it, nobody's talking about it. And so I thought, Hmm, it seems like there are no books on Amazon. There are only textbooks written for researchers. For example, this right here, The Handbook of Photo Medicine. This is like a proper medical textbook, written by Dr. Michael Hamlin, who we will come back to in a moment here.

Dr. Wendy Myers

And you read us the chapter on the red light face masks.

Ari Whitten

Well, there isn't one in there. There's some info in my book on it. So, I'm looking around, and there isn't really any information on this that's quality information for the general public. I thought, well, I've been reading about this for years. Maybe I'll write a book on it. And it was honestly something I threw together pretty quickly because at that time, this whole topic was very fringe. It wasn't mainstream. Nobody really knew about it. Nobody was talking about it. And my timing turned out to be really good because right after that, probably starting around 2018, this whole space of red light therapy exploded and started, and now it's become really mainstream.

Everybody's heard about it, everybody's talking about it, or at least seen it talked about in various places. I lucked out with the timing, I guess, and my book, despite the fact that it was something I kind of threw together pretty quickly, became the most popular book in the world on the subject. So years go by, and it's still the most popular book in the world on the subject. Seven years later, the Rodale Branch of Penguin Random House, one of the biggest publishers in the world, reaches out to me and says, Hey, how'd you like to do an updated version of the book? And I'm like, well, it turns out I've already been working on this for a couple of years because the book is so outdated, it needs a refresher.

It needs updated science. It needs new device recommendations. Of course, I'd love to do it with you guys rather than self-publish it. So in the process of doing that, I did a lot of consultations with top experts, actual scientists, and researchers in the field of photobiomodulation. That's the technical umbrella term for light therapy, how light impacts biology or modulates biology. I was doing research with Dr. Michael Hamlin, who's the author of the textbooks on the subject, like the one I just showed you, as well as several other people. The main reason why I was doing these consultations is to clear up controversial issues, to be able to cite these different experts in the book, from my recorded interviews with them, and to make sure also that I'm not wrong about certain things.

I'm testing my own ideas and making sure that I am not misrepresenting or simplifying things or getting things just wrong, which is easy to do in this field because it's very complicated and it's still an emerging science where there are differences of opinion among experts. Things are controversial. In the process of doing consultations with Dr. Michael Hamlin, he actually said, Hey, why don't I just come on as your co-author? And that became this really fortuitous thing where now, I got this self-published book that I kind of threw together, and now all of a sudden, seven years later,I have the most popular book in the world on the subject and the most prolific scientist in the world on the subject of photobiomodulation, author of textbooks, Harvard Professor, published over a thousand studies on the subject as my co-author and I'm publishing the book with Penguin Random House. So, yeah, that's the story of how version two came to be.

Dr. Wendy Myers

Okay, great. I love it. When I first saw it come out, I thought, that's so brilliant. Ari's so brilliant for doing a book on this 'cause that there weren't any. There was just one that I had known of that was just a random book, really small. But, let's talk about what exactly is red light therapy photobiomodulation, and why should people be adding this to their health regime

Ari Whitten

Whenever you take a complicated topic, I find it's always useful to break things down into first principles. Just take the simplest elements of it and build them out

systematically. So red light is what it sounds like. It is part of the light spectrum, the visible light spectrum that is specifically the color red. Now, let's ground this in the bigger picture. The bigger picture is the electromagnetic spectrum. So I would encourage listeners to do a Google image search real quick for the electromagnetic spectrum. Just bring up the spectrum. It will help clarify what I'm talking about here. This spectrum runs from radio. Well, on one end you have things like gamma rays and x-rays. And these are very, very tiny wavelengths. On the other end, you have things like microwaves and radio waves.

Now, somewhere, maybe, let's say approximately in the middle of this spectrum, we have the visible light spectrum. This is the part of the electromagnetic spectrum that the human visual system has evolved to detect, the part of the electromagnetic spectrum that we can actually see. And this is how we see the world. That visible light spectrum is the colors of the rainbow. So we learned in kindergarten, red, orange, yellow, green, blue, indigo, violet, right? If you take sunlight, you put it through a glass prism, it will create a rainbow, or it passes through water and we create a rainbow in the sky.

These are the colors of the rainbow, and that is the visual light spectrum. Now, the portion of that light spectrum that is red wavelengths, which is about 600 to 700 nanometers, is the wavelength range. That red type of visible light is red light therapy. That is the type of light that creates all the effects that we're gonna talk about. Now, adjacent to that, the story's slightly more complex. It's not so neat and tidy because just outside of the visible light spectrum is something called near infrared. And near infrared is not visible to the human visual system, but it's just the next step outside of it. So red light is the end of the part of the electromagnetic spectrum that we can see.

Just outside of that, on one end is ultraviolet light, which we can partly see and partly can't see on the other end as it goes from red to near infrared light. Now this near infrared light is essentially the same as red light in terms of the physiological effects. There are some nuances of how it's different, how it behaves differently in our tissue, in certain ways. But for the most part, you can think of it as essentially doing the same thing as red light therapy. That's why we lump them together, red and near

infrared light therapy. The only difference is visually we can see red light and we can't see near infrared light. So that's the first layer of this answer.

What is red and near infrared light? It's part of the electromagnetic spectrum and it's unique in terms of the physiological effects that it has on the human body, which is probably where we should go next.

Ads 12:14

And now a word from one of our sponsors. A big hidden stressor on our health today is something we're probably all staring at right now, blue light. From our phones, our laptops, our TV, our eyes and our circadian rhythm are constantly getting attacked. That's why I started using Bon Charge's blue light blocking products. Let me tell you, they have been a total game-changer. So I'm wearing the Maverick blue light blocking glasses right now, and they even come with their own prescription. So these are prescriptions, and that's what's prevented me from using blue light blocking glasses in the past because I wear prescription glasses for reading, and so I need a pair of blue light blocking glasses that are prescription.

Bon Charge's science-backed blue light blocking products allow you to mimic ancestral light sources from night to day. It is super important to use these products when the sun goes down, because when you are looking at blue light, you're basically communicating to your body that you're staring at the sun and you release cortisol and you suppress melatonin production so you don't sleep as well or it takes you longer to go to sleep, and that's just a disaster for your health long term. Trust me, you will feel the difference when you start using these blue light black and glasses from Bon Charge. And right now, my listeners will get 15% off when you order from boncharge.com and use my exclusive promo code, Wendy at checkout. The discount applies sitewide on all of their amazing products. So that's boncharge.com. You also get free shipping and a 12-month warranty as well. So go now and get this exclusive offer. That's boncharge.com with promo code Wendy to get 15% off.

Dr. Wendy Myers

Tell us what the benefits are

Ari Whitten

I think it's useful to start with some of the other types of light that we understand so that we have a reference point for understanding how that affects human biology because it's kind of a novel idea for most of us to consider that photons of light could be bioactive, could be interacting with ourselves. We're used to thinking of light interacting with plants. We know that it creates photosynthesis. There's this reaction of light entering plants being captured by chlorophyll and creating this process, which we all learn about in school called photosynthesis. But what we don't learn about is how light photons interact with human cells as a reference point.

One thing that we are used to thinking about is vitamin D. Most people are familiar with the idea that photons of light from the sun, particularly ultraviolet light, interact with compounds in our skin and lead to the synthesis of vitamin D. That's one layer of the story that can create this reference point of, okay, photons of light are interacting with my body. Yeah, that's established science. Another layer to this story is circadian rhythm and this has now become popular in recent years or mainstream. That wavelength of light, particularly the blue light part of the spectrum, enters our eyes and feeds back into a part of the brain called the charismatic nucleus.

This is where our circadian clock resides. And that circadian clock, when it gets that input from the outside world about when it's daytime and when it's nighttime based on the presence or absence of blue light entering the eyes, regulates our 24 hour biological clock. It regulates all kinds of different hormonal processes. It regulates neurotransmitters in our brain. This is literally why we enter a different state of consciousness each night for eight hours or so, and why we sleep. It regulates our whole sleep and wake cycles. It turns out, as a relatively recent scientific discovery, we have clock genes or mechanisms that are responsive to circadian inputs basically throughout our entire body, in every tissue and every organ system in our body.

So this blue light entering the eyes is directly or indirectly affecting everything in our tissues. Now the other layer to this story is red and near infrared light and red and near infrared light do something different, unique and special compared to all the other parts of the light spectrum. What they do differently is, first of all, they penetrate

into our body. So all the other parts of the electromagnetic spectrum basically stop at the skin's surface. Nothing really penetrates deeply. I should clarify that that's not true of the entire electromagnetic spectrum because like things like x-rays and stuff obviously can penetrate deeper, but the visible light spectrum and the things nearby that visible light spectrum, so all the other colors of light, or as you go into infrared light, far infrared, mid-infrared, none of it really penetrates deeply in the body.

But there is this unique window, and this is called the optical window or the therapeutic window. It's typically from about 600 to 1000 nanometers or 600 to 900 nanometers, which is red and near infrared light specifically that those wavelengths of light penetrate deeply into our body, and there's a reason for this. We could talk about the reasons, but basically light gets absorbed by different compounds. Most light either gets absorbed by melanin in the skin or gets absorbed by water, which all of our cells are filled with water. So those other wavelengths hit the skin and they're getting absorbed by something right at the skin surface or just beneath the skin surface.

But red and infrared light don't get absorbed very well by either melanin or water or another compound hemoglobin. That's the other big chromophore that absorbs light. And because it doesn't absorb well in those compounds, it passes through them. And by passing through them, it essentially means that our skin is relatively transparent to these specific wavelengths of light. These wavelengths pass through the skin and they penetrate deeply into our body. There's a whole controversial story of how deeply they penetrate, which we could talk about. But the point is that they penetrate deeply in our body, unlike other wavelengths. That would be trivial if it turned out that these wavelengths were benign.

If they just were inert, they weren't doing anything, but it turns out that they are doing something. They are interacting with our cells. They're getting absorbed by different compounds inside of our cells. And when they are absorbed by those compounds in our cells, they trigger certain reactions and they trigger certain effects. And it turns out we now have over, I don't know what the latest count is, seven or 8,000 studies showing various kinds of benefits from red and near infrared light therapy. The key thing is red and near infrared light penetrates our cells. They trigger reactions and those reactions turn out to be extraordinarily beneficial to our health.

Ads 19:51

Let me ask you something a little bit personal. How do you get yourself out of a bad mood? It can be hard, really, really hard, and it only gets harder the longer that you're in that space. That's why I'm a big fan of today's podcast sponsor Organifi. They made an amazing product called Happy Drops, and they're little gummies that are super tasty and they can help make your bad moods better and your good moods great. I'm sure I'm not telling you anything new when I say the world is really stressed out right now. You can see it everywhere. Stress and mood related visits to the doctor's office are skyrocketing along with various prescriptions to match. And so if you are anything like me, you're looking for a safe, natural approach to rebalancing your happiness and your stress chemicals without worrying about the side effects.

Well, Organifi has given us exactly that. They're called Happy Drops, and they're my favorite new supplement. These yummy little lemon gummies are made with ginger, with gouda cola, and passion flour, all of which are shown to have positive effects on mood and emotional wellbeing. Plus, they have a real powerhouse ingredient, which is saffron. So why is that so cool? The compounds in saffron are shown to help your brain modulate its levels of serotonin. Serotonin's one of your happy chemicals and saffron helps your brain enjoy it longer. Saffron also relaxes you. There's many cultures around the world that drink saffron tea before they go to bed 'cause it helps relax them and helps 'em go to sleep. Saffron also contains antioxidant properties, which can help you protect your brain from oxidative stress. That's great for detox. Best of all, there aren't any nasty side effects. There aren't any bad ingredients and it's safe to use every single day.

Saffron's traditionally very challenging to find in the supplement world. It's difficult to plant and to farm. It's even harder to harvest, and it's one of the most expensive ingredients on the planet. But now thanks to the super food geniuses at Organifi, we can all enjoy a real dose of real mood lifting organic saffron for less than a dollar a day. I'm excited for you to try them. I think that everyone should. I love their happy drops. Just go to organifi.com/myersdetox and get your happy drops today. When you use my discount code Myers Detox at checkout, you're gonna save an extra 20% off. Again, that's organifi.com/myersdetox.

I want you to go out and try Happy Drops today. Like I said, I love them. I've been taking them on a regular basis to help me to go to sleep at night, to help me kind of relax and get in the mood. You've got nothing to lose but your frown.

Dr. Wendy Myers

What are some of the benefits? We have pain reduction, we have improvements in skin quality, what, can you explain some of those and elaborate?

Ari Whitten

Of those thousands of studies that I referred to, they're on all kinds of things. They could be on everything from combating hair loss to facial skin, anti-aging, to enhancing athletic performance, increasing the adaptations to exercise, improving body composition, stimulating muscle growth or stimulating fat loss, healing skin wounds, healing deeper tissue injuries, whether it's tendons or ligaments or joint problems like arthritis, neuropathy to all kinds of obscure things. One of the main things that there's a lot of research on is treating oral mucositis, which is a common side effect from chemotherapy drugs in people with cancer undergoing chemotherapy. So they get this oral mucositis, which is basically inflammation of the inner lining of the mouth, and it's very painful, making drinking and eating very difficult.

There's dozens or hundreds of studies talking about the application of red light inside the mouth to help heal those tissues. So if I was gonna paint with broad brush strokes and say why it is effective or helpful for so many different kinds of problems in so many different tissues, there's research on everything from the brain to the heart, to the muscles to the bones, to the tendons, to hair follicles, to the oral mucosa, to the thyroid gland. You name it. If you wanna look up some kind of organ system and red light therapy, you'll probably find some research on it.

And overall, what this is really doing is stimulating repair and regeneration mechanisms or growth mechanisms inside of the cells to help heal and regenerate damaged cells or improve the function of cells that are otherwise poorly functional. It's creating this broad set of mechanisms that in general tends to promote healing,

repair, and regeneration of the tissues. And that's true regardless of what cells you apply it to.

Dr. Wendy Myers

Okay, fantastic. There's a lot of buzz about anti-aging and the benefits for the skin. Can you talk a little about that?

Ari Whitten

Well, in general, when you apply red light or near infrared light to different tissues, you can think of it as stimulating. One of the main mechanisms of how it works is through stimulating growth factors. Now, there's one master growth factor, which is called TGF beta, which is a chromo force. So it actually absorbs the red light or near infrared light photons directly. Once it absorbs that light. TGF beta basically triggers a cascade of responses that are involved in repair and regeneration of those tissues. It also triggers tissue specific growth factors. So we have in different tissues of our body growth factors that are unique to those organs. So in the brain we have nerve growth factor NGF, or we have brain derived neurotrophic factor BDNF in the muscles we have IGF one in the skin.

We have fibroblasts, which are involved in producing compounds that essentially produce skin cells and producing collagen and elastin. There are other mechanisms and enzymes involved in this process, you could think of it like a battle of how much collagen synthesis is taking place to how much collagen breakdown is taking place. That's like a battle that's being waged every day. Now, certain compounds can pull on those levers one way or another. You could provide building box blocks for collagen, like collagen peptides. You could inhibit enzymes that are involved in collagen breakdown. There are various kinds of nutrients that inhibit matrix metallo proteases, which are enzymes that are involved in collagen breakdown, like green tea for example or cacao.

There are various other phytochemicals that are involved in inhibiting some of those compounds. And again, you can have this tug of war, how much breakdown's taking place, how much synthesis is taking place? Well, what red and near infrared light do is they directly stimulate fibroblasts to produce collagen and elastin. In contrast to,

let's say, other wavelengths like UV light famously or infamously known to stimulate collagen destruction, right? So we spend too much time in the sun. Then people get collagen breakdown and you get aging and wrinkles and so on. Well, red and near infrared light directly oppose that and they create more collagen and elastin synthesis.

There's a very large body of research at this point showing not only do they stimulate collagen synthesis, but this translates in the span of six or eight or 12 week studies into notable reductions in wrinkled depth and improvement of skin elasticity.

Dr. Wendy Myers

How often do you have to use a red light to get those benefits?

Ari Whitten

That is a controversial topic and it depends on what you're specifically using it for. And even within that, the studies are diverse in terms of the methodology used, in terms of the devices used, in terms of how often they dose it, and the dosing parameters. One of the problems in this field is yes, you have thousands of studies, which is awesome. But the problem is so many of these studies use different devices and different dosing protocols and different frequencies of dosing. So there isn't, in most cases an established consensus of like, alright, for an ankle sprain you should use this device and you should use it in exactly this way, use it two times per day for five minutes,and that's the right way to use it because we've tested it against all the other protocols and this one is the one that works best.

For the most part, that body of evidence that we could use to make those kinds of conclusions doesn't really exist. So we can say, well, this particular device in this study, they used this device and they used it once a day for a 10 minute treatment and it led to these observed benefits over eight weeks. And so you could say, well, you know, the study did this protocol, so I'll follow that same protocol and that's kind of the best way to do things. Right now, I would say, I'll answer the question specifically on facial skin, anti-aging.

So let's say you get a device that's something like this. This would be used once a day. You could potentially use it twice a day as well for 10 minutes. That's the simple answer to your question. Now, that recommendation differs for other body parts and other devices, but that's the simple answer for, let's say a device like this for facial skin antiaging.

Dr. Wendy Myers

Is that product Lamara?

Ari Whitten

Yes, this facial mask is from a brand called Lumara. Now, I don't wanna get too detailed and too technical now, but there are many other masks. Well, first of all, it's important to know that most devices on the market in most categories are garbage. There's a lot of bad devices. There's a lot of junk out there. Now, even within something like a facial mask, there are many other devices, dozens, maybe hundreds at this point of companies that make a mask that looks like this on the outside that's similar in shape, but if you were to look on this side, you would see big differences and these differences are very important.

This is the difference between a junk device and a device that's effective. One factor is the irradiance. How much light output is being emitted. That's a critical factor. That one factor is the difference between junk and something that's effective. And the other factor with a device like this that's very common is low LED density. So if you look here at this one, what you'll see is that there are lots and lots of LEDs, almost every, I wanna say quarter inch, probably if most other face masks are not like this. So if this one has, I don't know, 300 or 500 LEDs. Many other face masks that look like this from this side, from the outside, might only have 50 to a hundred LEDs.

Now the reason that's important is you want uniform light coverage on your skin. You want the light to cover your skin evenly. When you have large spaces between each LED, even if you were to have the right radiance and the right light intensity being emitted from each LED, what you have is essentially a hot spot and a cold spot. So you're getting light in this area here from the LED, and then you get light over here from another LED, but in the space of half an inch or an inch between, you have

essentially no light. So a device like this with this high LED density that LEDs are spaced very close together solves that problem and basically creates uniform light coverage over all parts of the face.

Ads 32:51

Are you taking collagen supplements? Well, check this out. Our friends at Organifi have sourced the best collagen on the planet, and you can get it with 20% off savings today, too. So, what is collagen? It's the most abundant protein in our body. It's everywhere. It's in your muscles, joints, hair, skin, fingernails, everywhere. It's one of the fundamental building blocks of life. Your body uses collagen constantly to keep itself refreshed and repaired. But as you get older, especially as women who are going into menopause, you can lose 30% of your collagen within the first five years of menopause, and that starts in perimenopause as well. Your body just stops making as much of it, and you start losing it, especially as your estrogen levels come down. That's why consuming collagen is such a great idea every single day. It gives your body a fresh supply to keep working at its best.

It's not only good for your hair, skin, and nails, but it helps to support your gut and metabolic health, immune system, cardiovascular strength, and all of your muscles and moving parts too. Collagen is nothing new. It's one of the oldest supplements out there. Collagen supplements have been around for quite a while now. But what makes Organifi so special is it's all about the quality.The non-organic collagen scare 16 me. They're really problematic because they can be full of glyphosate, pesticides and other chemicals that you do not wanna be taking on a daily basis. Not all collagens are the same. It can come from many different sources and the source can drastically impact its potency and effectiveness as well.

Some manufacturers just go with the cheapest stuff that they can find and then add fillers and artificial flavors and they still charge you a lot of money for that. Organifi always goes the extra mile to ensure their quality is the best. They blend five collagen types from four different sources, and they taste and test until it's perfect. And then they go even further to test for things like glyphosate residue and other sneaky toxins that can get into the mix. After passing through all of these goalposts, it finally gets the Organifi seal of approval so you can rest assured it's the highest quality and

non-toxic. I love that this company is a company that I can trust that their products will be safe and effective exactly as they say they will be.

In the supplement world these days, that kind of honesty and transparency is getting harder to come by. So, if you've never tried collagen, now is a great time to start. And if you're already taking it, now is a great time to switch to a better brand. Upgrade what you're doing right now so you and your entire body is gonna love Organifi Collagen. It is something that I take on a daily basis. It's been a part of my supplement routine for the past five years, since I went into menopause, and so I can't recommend it highly enough. Now let's talk about saving you some cash as well. Here's what you do. Go to organifi.com/myersdetox and put in coupon code Myers detox to get 20% off. You'll save an extra 20% off by putting in my special coupon code Myers detox. So, like I said, collagen's one of those things that I take every single day. It's one of the most important parts of my anti-aging protocol, the things I'm doing to fight off the clock. So for me, taking clean collagen is really important. It's hard to find, so I highly, highly recommend Organifi collagen.

Dr. Wendy Myers

That's such a great distinction. I wanted to have you come on the show and talk about this 'cause there's so much garbage on Amazon and stuff from Alibaba. That's where they put a nice little logo on stuff that's just nonsense.

Ari Whitten

You have a lot of companies just pulling cheap stuff from China and the same garbage, just a lot of junk products and a million companies selling the same junk products from China. Something like this is unique, even though it looks similar on the outside with this flexible face. I actually know the person who created this device and he's involved in electrical engineering and he created this unique technology that's different from all the other devices on the market. I sound like I'm shilling for this product. I'm actually not. There are several face masks that I recommend that are good quality, probably three or four good ones, but this happens to be one, and this happens to be unique from all the typical junk that is sourced from China.

Dr. Wendy Myers

Talk to us about what people should be looking for when they're trying to buy a red light product. How can they recognize that something is junk and they should?

Ari Whitten

Well, unfortunately, that is a difficult problem to solve. I'm gonna try to break down some heuristics, some rules of thumb for how to navigate this. The problem with how the typical person could navigate this well on their own, the big problem with it is that many of these companies, if not most of them, are actually lying about the technical specifications of their devices. So, the information that you would get on their device from their website is not accurate. And that means that you can't just go online and read whatever specifications they're telling you about their device and trust it, and then discern what's good and what's not good based on that.

There are lots of devices, flexible pad style devices, not necessarily face masks, but flexible pad style devices that might go around your joints. Almost universally, those devices with one or two exceptions of products, they're almost all underpowered, so they all suffer from very low irradiance, very low light intensity. Most of those devices are somewhere between like two milliwatts per square centimeter to maybe 10 on the high end, maybe 14 on the high end. The light intensity is very low. It's just too low to create a really meaningful effect for anything, maybe other than the very surface of the skin.

That's the only thing that's gonna receive enough light to create a biological effect. Even then, you might have to wear the device for a long time now. So you can even just with that one layer of the story, just think about what I'm telling you. These are devices marketed for treating deep tissues, muscles and joints. But I'm telling you that the technical specifications of them are such that that light will not penetrate beneath the surface of the skin with a meaningful enough intensity to actually create biological effects in any deep tissues. So in other words, most of those devices are junk you straight off the bat, which is unfortunate because it would be nice to have a good device that's a flexible pad style device.

There's a couple exceptions to that rule, but the other big problem is, again, the LED density. Most of those flexible devices have this issue of big spaces between each LED. So not only is it low light intensity, but if you were to measure it in between those

two LEDs, there's actually zero light coming out of those spots. So you have large parts of the body surface underneath that light pad that aren't even getting any light at all or minuscule amounts. So that's one big issue. At the same time, if you go read the technical specifications of what a lot of those companies are saying, they might claim their devices are 50 or 75 milliwatts per square centimeter when it's really five or 10.

That same issue is rampant also with panels. Lots and lots of manufacturers are lying and misrepresenting the irradiance of their devices. This is an issue I'm trying to clean up with my new book and I'm trying to encourage people to only buy from manufacturers that are displaying third party certificates and third party, I shouldn't say certificates, third party testing results of the light device and the actual, true irradiance numbers that have been measured by a light laboratory.

So that's the way that you can actually discern. Some companies, fortunately, are now moving in that direction and starting to do that. So I would encourage people to buy only from those companies. The other big distinction, big picture principles to think about is, first of all, what are you trying to do with red and ear infrared light therapy? There is this vast landscape of potential benefits for skin, anti-aging, for hair loss, for joints, for muscles, for body composition, et cetera, et cetera. So what is it that you are trying to do? And based on that, there is a more and less appropriate device for your needs.

Now, one key principle is superficial versus deep. So are you trying to treat things more on the surface, more superficial tissues? This is superficial in an anatomical sense, not in a value judgment. Do you want to treat the skin or do you want to treat something internal? Joints, bones, muscles, internal organs, things like that. Now, to the extent that you're trying to treat things on the surface, you want a relatively low irradiance device. You want to be more in the red wavelengths, okay? To the extent that you want to treat deep tissues, whether it's muscle or bone or internal organs or joints or anything like that, you want to be more in the near infrared wavelengths and you want a much higher radiance, a much higher light intensity.

Those two things, the higher light intensity and shifting more to near infrared wavelengths will create a lot more light delivery to those deeper tissues. So for

example, this is a device that I use a lot that I like a lot. This is one of my go-tos for treating deep tissues. This is from a company called SunPower, LED. It's a palm device, I think it's their palm ultimate. And this device actually can do red or near infrared. Basically I have this little switch here. I can do all red or all near infrared. It's got uniform light coverage and it's very high power. It's something like 150 or 170 milliwatts per square centimeter and that's in pure near infrared, in contrast to something like this face mask, which is probably like 15 or 20 milliwatts per square centimeter. It's literally 10 times higher light intensity with the other device and all in near infrared. So I'm gonna get a massive amount more of those light photons delivered to the deeper tissues with that one device versus the other.

Dr. Wendy Myers

That’s such an important distinction. There are so many devices out there, unfortunately that have the hard panel. It can be more challenging to treat areas like your lower back or a knee for instance, because it's uncomfortable. So people are tempted to use the more flexible pads that may not have nearly the effectiveness of it all.

Ari Whitten

That's right. Unfortunately the panels are often not a great solution either. They're definitely good for some things, I would say as a general rule. One distinction is superficial versus deep tissues. I just went into that. The other big distinction is local versus systemic effects. Local effects are everything that I've been referring to thus far. Local effects are light photons delivered directly to the tissues, the cells that you actually want to affect and by those cells absorbing those light photons, a certain benefit to those tissues is created. But actually there's this whole other layer to the story of photobiomodulation red in your infrared light therapy that many researchers, including Dr. Michael Hamlin, would argue that is actually even more important. That is the systemic effects of red and near infrared light therapy.

It turns out through a variety of different mechanisms, which we could talk about, the red and near infrared light doesn't only affect the tissues that those light photons are directly interacting with. It creates whole body systemic effects that potentially benefit every system in your body. This has been demonstrated in lots and lots of

studies. For example, there are studies where in both animals and humans, they'll look at a brain condition, let's say Alzheimer's or Parkinson's disease or something like that. Or they'll take animals, they'll administer a toxin or a neurotoxin.

And then sadly, we humans do this to animals. We do this, and then we assess how good a particular intervention, a drug or red light therapy combats the negative effects of this particular toxin on the brain. Now, in these studies, what they've done is they've looked at what happens when you apply red light directly to the skull, to the brain, red or near infrared light, and how well that works. They've also compared it to applying the red and near infrared light to the legs. What has been shown in both animals and humans is similar efficacy in applying the red in your infrared light directly to the target tissue or applying it to a totally different site of the body where it still works.

Now that seems bizarre and it arouses skepticism until you learn the mechanisms of how that works. It turns out there are blood mediated mechanisms of how this works. So, it actually alters the circulating immune cells and it shifts them, macrophages in particular from an M1 to an M2 state phenotype. Basically, this is from a pro-inflammatory to an anti-inflammatory phenotype. It basically creates this body-wide shift in how the immune system is behaving and inflammatory cytokines in particular. The other big thing that it does, which I think will turn out to be very interesting, I think will turn out to be a big part of the story, is it alters stem cells so red and near infrared light interact with stem cells directly in the local tissues that are exposed to it, but it also stimulates an increase in circulating stem cells throughout the whole body.

So that's at least part of the reason why you can shine red and near infrared light on one part of the body and then get healing in a totally different organ system that never received any of those light photons. This was shown in a study by a guy named Yuri or Oran, if I remember his name correctly, where they basically induced myocardial infarction. They induced a heart attack in rodents, and then they shined red light on the tibia, on the shin bones of rodents, which caused a release of stem cells into circulation.

They found that those stem cells were within minutes or within hours actively repairing damaged cells in the heart. So light isn't only constrained to the cells that receive that light. You get a whole body systemic effect that can potentially interact with repair, regenerate any system in your body. And in that context of systemic effects, this is where the dosing parameters shift a bit, where we become less concerned with like all the things I was talking to you about before, about, let's say, oh, well, do I have a hot spot here and a cold spot here. I want the irradiance to be, let's say 15 or 20 milliwatts per square centimeter for my facial skin.

I'm concerned with how this device directly interacts with this tissue. Well, the other component when we're looking at systemic effects is actually total light dose delivered to the entire body. And in that context, this is where a much larger light that is delivering light to a much larger portion surface area of your body. At a higher irradiance, we'll deliver a massively higher dose. So let's say I use this face mask for 10 minutes, versus I use a full body panel on my entire front or the entire back of my body. Or let's say I use one of those expensive pods that might be 50 or a hundred thousand dollars that gets my whole body at once.

Well, I'm delivering a total light dose to my body with those devices that is a thousand times higher, let's say, might be even more than this face mask is. So that total dose matters in a big way. We have these different parameters we need to optimize for what's ideal for a particular tissue. How do I deliver light to that tissue in the best way? How do I optimize the systemic effects and the whole body effects as well.

Ads 51:46

attack or stroke in people with microplastics lodged in arterial plaque and others have identified plastic particles inside brain tissue itself.

This is why reducing daily toxic exposure wherever possible is such an important part of long-term health. And it's not just old or damaged cookware. Research suggests that even brand new non-stick pans can begin shedding particles from every use. This is one reason that I'm very, very mindful about the materials that I use in my kitchen. That's why I recommend the P600 ceramic cookware. I personally use these. The P600 is completely free from Teflon, PFAS and plastic based coatings. It's made with Swiss engineered, ceramic designed to be truly non-toxic. It heats evenly, it cleans easily, and most importantly, it doesn't add to your toxic load.

So reducing exposure doesn't require perfection. It's just about making smart upgrades where they matter the most. So, if cookware is something that you use daily, this is a very meaningful place to start. Right now, the P600 cookware is 50% off, and for a limited time for my listeners, you can take an additional 20% off by using coupon code Wendy 20 at checkout. Just go to chefsfoundry.com, use the coupon code, Wendy 20. Your body and detox pathways will thank you

Dr. Wendy Myers

Let's talk about weight loss and fat loss 'cause there's a lot of claims that red light can help with fat loss. Is that true?

Ari Whitten

It is broadly speaking, but it is controversial and controversial in the sense that the mechanisms are unclear. But the research is honestly pretty darn clear there. There are many studies that have shown this quite robustly that it does work to stimulate fat loss. The initial experiments thought that it creates what's called transitory pores in the fat cells, that it literally creates holes in the fat cell that stimulate the release of fatty acids into circulation Now, even if that's true, just by stimulating the release of fatty acids into circulation, those fatty acids still have to be burnt off.

If you're not in an energy deficit where your body is not burning more calories than you're consuming, then the net effect will be that those fatty acids that were released

in the circulation will end up back in adipose tissue back in your body's fat cells. The best way to think of this is not as a magic pill that works for fat loss by itself, but as something that is supportive of fat loss in the context of someone who is actively living a good lifestyle that is moving them towards leanness.

This is the same as exercise by itself is not very effective for stimulating fat loss. It has to be paired with also a dietary approach that is conducive for fat loss. That's the right way to think about red light therapy. Now, where it might be uniquely beneficial, and I make the case for this in my book, is with something called stubborn body fat. Stubborn body fat is the last place that we lose fat. It's the parts of our body that we store fat that are the hardest to get rid of, that our body is most resistant to releasing. For men, that tends to be the spare tire around the lower abdomen and the love handles in the lower back.

For women it tends to be more around the butt and the thighs, and that's even in a woman who is already very lean or a man who is already very lean, that's the last place that they'll still hold onto fat. What most people don't know is there are very distinct anatomical differences in those body fat areas. This is actually quite easy to see if you have one of those thermometers to check your child's temperature to see if they're sick. If you take one of those skin thermometers, like a laser skin thermometer and you apply it to those areas of your body, you'll actually see that those areas, like your butt, your thighs are actually several degrees cooler in body temperature than the rest of your body.

The reason for that is they're receiving less blood flow and that has to do with the capillary density, the blood vessels in the area. It also has to do with adrenergic receptors that potentially dilate and control blood vessel dilation and blood flow to those areas. Essentially the body tries not to allow lots of blood flow in those areas because it's trying to hold on to fat in those areas.

Now, what red and urine infrared light do is they can modify that environment in such a way where it peruses the area and it stimulates release of fatty acids from those fat cells. Now if you pair that with physical activity, this is my own speculation in advance of the studies that would test this. But you can alter that environment in such a way where you can more easily release and burn off those stubborn body fat

areas compared to just diet and exercise approach without modifying those tissues directly. There's lots and lots of anecdotes of people doing this successfully. So I think in my view, that's the best way to use it for fat loss.

Dr. Wendy Myers

Does red light therapy oxygenate the tissues? Is that one mechanism?

Ari Whitten

I don't know if there's good evidence to show that it oxygenates or stimulates the mitochondria in some way to produce energy. One of the mechanisms that people talked about two decades ago, and going back to the origins a few decades ago, is what's called cytochrome c oxidase. It is on the mitochondria themselves, and it's part of the electron transport chain of how mitochondria produce energy. And that cytochrome c oxidase is a photo acceptor. So it's essentially a receptor for photons of light, and it receives specifically red and near infrared light.

Those are the specific wavelengths that activate cytochrome C oxidase. When the mitochondria receive red and near infrared light, it's stimulated to produce more energy, more ATP. Now, back in the day, including even from my first book 2018, that was the main thing we thought was going on. Red and near infrared light, stimulated or absorbed by cytochrome c oxidase in the mitochondria to stimulate mitochondria to produce more energy. Therefore, it produces all these benefits that we observe. It's now thought that it's still going on. There's no debate about that. That is a real mechanism, but it's now thought that that's probably a smaller layer of the overall story of what's going on.

Now people pay more attention to changes in gene expression and lasting changes in growth factors, how it alters the immune environment, and things like stem cells. The main reason why is that the changes in ATP production that you get are relatively short-lived. They might last for maybe a few minutes, maybe an hour at the most but the changes in gene expression and the changes in growth factors that you stimulate through red and near infrared light have been shown to last for days. And so it's creating this very lasting response that alters that cellular environment for a

very long period of time, even from, let's say a five or 10 or 20 minute session with red and near infrared light.

Dr. Wendy Myers

Why don't you tell us when your book is coming out? What is the name of the book?

Ari Whitten

This is the book. It's the Ultimate Guide to Red Light Therapy Version II. Version one has a white cover, version two has a red cover. It's a big book and this is not a typical fluffy health book. This is, I would say halfway or maybe more than halfway to a proper textbook. This is more like technical dryness. It's not very fun reading. This is not the kind of book that you wanna read cover to cover. It's more like a reference manual. It's more like reading the sections that interest you. For example, there's a whole bunch of sections on different benefits.

For instance, this is how to use it to prevent sunburns and heal sunburns. This is gut health. There's a section on pets. There's a section on neuropathy. There's a section on joint health and arthritis. So you don't have to read all of those sections that don't interest you or don't apply to you. You skip to the sections. This is the section on fat loss, so you skip to the sections that are on benefits that interest you. And then there's a practical guide to first of all, identify what your goal is and then from there, are you superficial or deep tissues? Do you want general anti-aging, wellness, health, or are you interested in something specific like facial skin, anti-aging?

Based on that, how do you select the right device and the right dosing parameters? How do you maximize the systemic effects, the whole body systemic effects? Basically you have practical guidance on all of that stuff. So, you skip around to the sections that interest you. Don't try to read it like a novel. It's an awesome reference manual to guide you through how to make sure that you get a good device that actually works, and not waste your money on junk devices, and how to use it effectively.

Ads 1:03:13

For anyone listening who really wants to detox their body, go to heavymetalsquiz.com. I created a quiz for you. It only takes a couple of seconds, and it's based on some lifestyle questions. You can get your toxicity score and get a free video series that answers all of your frequently asked questions about how to detox your body. Check it out at heavymetalsquiz.com

Dr. Wendy Myers

I would expect nothing less than a textbook from you, Ari, but that's fantastic. Again, I was really thrilled when I saw you had a post on social media about having a second version, an updated version of this coming out, and it's so needed in this space with so much garbage out there. Thank you for coming on the show and illuminating us on red light therapy. Thanks for coming on the show.

Ari Whitten

Yeah, my pleasure. And great job on the pun there.

Dr. Wendy Myers

Oh yeah. Well, everyone, thanks so much for sticking with us for this whole episode of the Myers Detox Podcast. I'm Dr. Wendy Myers, and I love doing this to help you guys make those distinctions to help you get those little pieces of the puzzle together in your health so that you can feel good, 'cause that's what I want for you. So thanks for tuning in.

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