



Wendy Myers:

Hello, everyone. My name is Wendy Myers of myersdetox.com. Thanks so much for joining me on today's podcast. We have my good friend, Ari Whitten on the show of theenergyblueprint.com. He has written a book called *Red Light Therapy: The Ultimate Guide to Red Light Therapy*. We are going to be talking about obviously red light therapy and near infrared therapy, far infrared therapy, the difference between that, and the sun, give you lots of tips and tricks for using near infrared and red light panels, and does red and near infrared light actually detox you, or is actually far infrared that detoxes you? Lots of really interesting information, information you haven't heard before. We're going to make a lot of distinctions about the benefits and myths of red light therapy and near infrared therapy and far infrared therapy. Fantastic show today.

Wendy Myers:

I know that so many of you listening are suffering from chronic fatigue or other serious health issues and are searching for answers. That's why you're listening to this podcast. I have over thousands of clients and their number one complaint was fatigue. My goal has been to find a way to help people improve their energy production in their body. I researched toxic metals. In my research in conjunction with Dr. Bruce Jones, I found that there were certain metals like arsenic, aluminum, tin, thallium, and cesium that are very prevalent in people today that interfere in your body's ability to produce energy.

Wendy Myers:

When you remove these metals from the body, people have increased energy production, increased ability to exercise and improved ability to lose weight, better sleep. They have better mood as a result, and they have the energy they need to heal the body. Healing is a very energy intensive process, so improving mitochondrial function, which the mitochondria are our body's little powerhouse as they produce our body's energy is the key to improving energy production and improving your health.

Wendy Myers:

I developed a very simple three-step supplement kit, a three-step system called The Mitochondria Detox that involves a binder. It involves activated silica that helps to grab onto metals that cause fatigue and remove them. It's a very simple, inexpensive kit that you can get to help improve your energy levels, so if you want to learn more about that, go to mitochondriadetox.com to learn more.

Wendy Myers:

Ari Whitten is a bestselling author in nutrition and lifestyle expert and the founder of The Energy Blueprint course. He's been studying and teaching health science for over 20 years. He is a bachelor of science in

kinesiology and recently completed the coursework for his PhD in clinical psychology. For the last five years, he's teamed up with world renowned scientists and physicians to develop The Energy Blueprint system, which is a powerful evidence based system for overcoming fatigue and increasing energy levels. You can learn more about his work at theenergyblueprint.com.

Wendy Myers: Ari, thank you so much for coming on the show.

Ari Whitten: Yeah. It's a pleasure to be here. Thank you for having me.

Wendy Myers: Why don't you tell the listeners a little bit about yourself and how you came to do what you're doing?

Ari Whitten: Yeah. Well, I'll summarize this pretty quickly here. Obviously, we could probably spend an hour talking about all the details of this, but I was into health from a pretty young age. I started as a 13-year-old when I got into fitness and bodybuilding and started studying nutrition and exercise physiology and biomechanics very intensively. At that time, my goals were pretty superficial. I just wanted to build muscles and get biceps and abs and [inaudible 00:04:16]. Fat loss, muscle gain, body composition, physical fitness, that was my world for about 10 years.

Ari Whitten: It was still my passion. I went on to do a degree, my undergraduate degree in kinesiology. Then, I still was studying nutrition and physiology very intensively for about a decade. I went onto medical school. Thought I wanted to be an MD. Absolutely hated it. Medical school, I mean, just having gone into that environment after studying nutrition and holistic health for a decade just wasn't a good environment for me because they don't teach you a single class on nutrition or lifestyle and how that plays a role in any of these diseases. I was literally in the hospital working with people with diabetes or heart disease, which are diseases of lifestyle. Seeing these people who are on 12 or 15 different medications and not a single person is telling them anything about nutrition or lifestyle and how that's playing a role in their condition or playing a role in the path to get better, and so I mean it was maddening to me to be in that kind of environment.

Ari Whitten: Made a very, very tough decision to leave. One of the hardest, probably the hardest decision of my life to do that because I dreamed of being a doctor up till that point. Spent about a year or so not really knowing where I wanted to go from there. Then, decided to do a PhD program in clinical psychology. I went on, did all three years of coursework and a PhD program. Then, at the end of it, realized I didn't really want to be a clinical psychologist. That's when I started to find out things like, oh, well, once you get your license, then you actually are limited from practicing, for example, nutrition in your practice. They can actually revoke your license for practicing outside of the scope of what that credential qualifies you for.

Ari Whitten: I actually realized very counter-intuitively that not having that credential actually opened up more possibilities for me to practice the way I wanted to practice [crosstalk 00:06:32].

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Wendy Myers: Yeah. I know people that give up their medical license so that they can practice the way they want.

Ari Whitten: Exactly. Yeah. I kind of went through four years of undergraduate and then five years of graduate school and realized I didn't really want to do those things and then basically started teaching people about health the way that I wanted to teach people about health. That was in about 2012. Prior to that, I was a personal trainer and nutritionist for many years. In 2012, I started building my online business and have been doing that ever since. Then, for the last four years, I've been doing The Energy Blueprint. That's the name of my brand and the system that I've developed with the help of a lot of different researchers and physicians to help people overcome fatigue and increase their energy levels.

Wendy Myers: Yeah. I think it's such a fantastic program. You're so intelligent. You have so much amazing research-based information on why people are chronically fatigued and how to regain their energy levels in that program, just theenergyblueprint.com. It's amazing. I highly recommend it, and so-

Ari Whitten: Thank you.

Wendy Myers: I'm sorry.

Ari Whitten: I said thank you. I really appreciate that.

Wendy Myers: Yeah. We talked a lot about on this podcast about energy and fatigue and how to remedy those issues, so I really admire the work that you do and what you've accomplished.

Ari Whitten: Thank you. Yeah. I've learned a lot from you and your work in heavy metals and detoxification.

Wendy Myers: Thank you. Yeah, so let's talk up today about red light therapy. You have a new book out called Red Light Therapy, and it's a fantastic book. This is such a popular subject. I was actually looking the other day on my YouTube channel. The most popular videos were about infrared saunas and red light therapy. My two most popular blog posts are about the same thing. People want to know about infrared saunas and red light therapy, so we're going to make some distinctions today and dispel a lot of myths and misinformation about infrared saunas and red light therapy. First, let's talk about why our bodies need light in the first place to just set some foundation.

Ari Whitten: Yeah. Well, real quick digression, since I published my book on July 10th, it's actually been plagiarized six times, so yes, you're correct. It's a very popular field. Why do humans need light? Yeah, this is I think a really nice introduction to this whole field because most people really do not think about light in this way. We think of light as like, "Oh, I turn on a light switch to see things." Light is the opposite of darkness. Light is what happens during the daytime when the sun is out. We think of it in a visual context, in this sort of light versus darkness way.

Ari Whitten: What people don't realize is that there are actually numerous different kinds of light that have effects on our biology that are bioactive wavelengths of light. A couple of these, people have some familiarity with. Maybe they haven't really connected the dots. They don't really know what I'm talking about yet, but everybody knows about vitamin D, right? Vitamin D from UV light from the sun. UV light hits our skin and then creates different biochemical reactions that result in cholesterol essentially being turned into vitamin D. Vitamin D, of course, controls the expression of thousands of different genes in our body, immune function, the health of lots of different aspects of our body.

Ari Whitten: That's just one of the types of wavelengths of light that is bioactive in humans. One other one that people maybe have some familiarity with now, it's being more talked about in the last five years ... Hopefully, I've contributed to that. This is something I've talked a lot about in the last five years or so, which is circadian rhythm. A circadian rhythm is our biological clock in our brains, and it's pretty much literally a 24-hour clock that is set in response mainly to the rise and fall of the sun. If this sounds like kind of a weird abstract idea, just think about the fact that every night, for some reason, through no volition of your own, you all of a sudden get tired and sleepy, and then go to sleep, and then spend seven or eight or nine hours in a totally different state of consciousness. Then, all of a sudden, the next morning, through not volition of your own, you wake up and all of a sudden feel more energy and a desire to get out of bed and go do things.

Ari Whitten: Well, all of that is being orchestrated by the circadian clock in our brains that's regulating all sorts of different neurotransmitters and hormones and all kinds of different biochemical reactions in our body. Just that one topic, there's an enormous amount of complexity. There's a mountain of science going into all sorts of nuances of that, but that's the basic idea, is we have this clock in our brain, and it's primarily regulated by the rise and fall of the sun.

Ari Whitten: Specifically, mainly blue wavelengths of light, also to some extent, green wavelengths of light, but blue wavelengths of light actually get into our eyeballs, feedback through nerves into what's called the suprachiasmatic nucleus. That's the place where the circadian clock in your brain is. Then from there, basically, that's the signal that tells your brain, "Oh, there's blue light present. That means it's daytime, the time to be awake, alert, active, energetic." Then, it creates all sorts of different effects on various neurotransmitters and hormones that control energy levels, appetite, metabolism, motivation, lots and lots of different function, the function of various organ systems and so on. Again, that's blue wavelengths of light.

Ari Whitten: Now, if blue light sounds weird to you, just think of you look outside and you look at the sky. The sky is blue. That is because blue wavelengths of light are entering your eyeballs. That's blue light. It should be only present during the day time. In a natural context, the context of our ancestors prior to the invention of artificial light, blue light was really only present during the day. I'll leave that topic there for now. I don't want digress too much, but basically, we have these two kinds of light

that I've mentioned so far, UV light, vitamin D in the skin, blue light setting the circadian clock in the brain, regulating all sorts of neurotransmitters and hormones.

Ari Whitten: People have probably also read about artificial light at night and the need for blue blockers and kind of low blue light mode on your iPhone and your iPad and things like that. Well, that's because you're trying to eliminate those blue wavelengths of light at night when you shouldn't have them in order to preserve healthy function of your circadian clock. That's two wavelengths of light, UV, blue.

Ari Whitten: In addition to that, there are actually three others, so we have far infrared, which we feel as heat. When we go out into the sun and we feel the sun heating up our body and maybe even causing us to sweat, well, that's mainly from far infrared light that's actually penetrating into our body, heating us up from the inside out. There's an enormous amount of literature on that as far as stimulating blood flow and dilation of the capillaries. If you're sweating in the context of, let's say far infrared saunas, that's of course going to help with detoxification as you talk about extensively. There are a number of other potential effects associated with that on blood pressure and cardiovascular health and things of that nature.

Ari Whitten: Then, there are two other kinds of light that are bioactive in humans that are affecting the way our cells in our bodies function, and I kind of lump these together because even though they're technically different wavelengths of light, one is invisible to the human eye, one is visible to the human eye, they're actually functioning the same at a biological level. These are red light, which is literally visible red light that you can see with your eyes, and near infrared light, which is just next to that spectrum of red light. That's invisible to the human eyes.

Ari Whitten: Now, real quick digression so I can explain that. When I say it's next to red on the spectrum. If you guys do a Google image search of electromagnetic spectrum, what you'll see is basically a range of all of these various types of electromagnetic energy. On one end, we have things like X-rays and gamma rays. These are very, very small wavelengths. Then, we go up the spectrum a little bit, and we start to get into UV light. Then, we get into the visible light spectrum. This is electromagnetic energy that humans can see with our eyes. These are the colors of light.

Ari Whitten: You remember studying in elementary school ROYGBIV. If you pass some light through a prism, it creates a rainbow, or if you just see a rainbow, the colors of the rainbow are ROYGBIV. That's the colors of the visible light spectrum, so that's red, orange, yellow, green, blue, indigo, violet. The violet kind of meshes with UV. Now, in the context of this electromagnetic spectrum in terms of the wavelengths, it's actually flipped. It's actually, first, violet, then indigo, then blue, green, yellow, orange, red. Then, once you get out of that visible spectrum, then you get into near infrared energy, then far infrared energy. Then, you get into things like microwaves like what your microwave at home uses, and

then things like radio waves, which are really big wavelengths. That's literally what's broadcast on the radio.

Ari Whitten: Okay, so that's the big picture of the electromagnetic spectrum. Now, a lot of these different things have activity on a biological level including things like X-rays or gamma rays, which can damage our DNA quite easily and can be quite toxic to us, but within the therapeutic stuff, that's where we get into UV, blue, red, near infrared, far infrared. Those are the key players as far as bioactive wavelengths.

Ari Whitten: Basically, to sum this up, it's basically a huge reframe for people who are used to thinking of light as just, "Oh, light. I turn on a light switch. Now, I can see things. Light is the opposite of darkness." Well, now, we know that there's many different types of wavelengths of light that are bioactive in us and that humans actually need. This is an important point. Humans need optimal doses of all five of these different bioactive types of light in order to express optimal health.

Ari Whitten: One more point on that, in the modern world we live in, very, very few people are actually getting proper doses of those types of light. We live in an environment that is what I call mal-illumination, okay? That's basically the nutrition equivalent or I should say the nutrition equivalent of mal-illumination is malnutrition, right? Everybody knows what that is. That's when you eat a crappy diet or you're like literally malnourished either because you're starving or you're just eating a diet that is totally inadequate, that is not giving you the nutrients you need.

Ari Whitten: Well, if you're not getting the light nutrients that you need from proper light exposure habits, then you end up with mal-illumination. Most people don't realize that there's a big body of scientific research showing that that may be close to as harmful as the effects of eating a crappy diet. Light exposure's a very, very big deal to our health, and we need, again, we need adequate exposure to these different types of light in order to express optimal health.

Wendy Myers: Let's talk about some of the ideal light wavelengths that are bioactive in humans that possibly affect our cells, our mitochondria, which are little cells' powerhouses that make our energy in our bodies just overall.

Ari Whitten: Within these five bioactive wavelengths that I just talked about, there's kind of an interesting phenomenon. It seems kind of peculiar, but then it seems to make more sense as we explain the different layers of this. Here's what I mean. If we look at the penetration of different wavelengths of light into the human body, most of the wavelengths of light, so for example, the colors of the rainbow, so UV light and purple light and blue light and yellow and orange and green, they all pretty much get stopped on the surface of our body. They really don't penetrate deeply into our body. They stay really on the surface. They kind of just get absorbed into the skin and don't make it beyond that.

Ari Whitten: If that's the case, it's really hard for any type of light to have really significant biological effects directly on the cells in a particular area if all that light's getting stopped at the level of the skin. Now, we still

have some effects, right, because UV light actually creates vitamin D in our skin, which gets absorbed into our blood stream and gets pumped throughout our whole body, so it gets systemic that way, but most of these other types of light really just get blocked there. They kind of don't really do anything beyond just hitting the skin and getting absorbed at the level of the skin.

Ari Whitten: Now, red and near infrared light are very unique in a sense that they don't get blocked by the skin. They actually penetrate very deeply into our bodies. They can penetrate ... some estimates are two or three inches into our body. Now, when you were a kid, you probably remember taking a flashlight and shining it through your hand or your fingers and being able to see light coming through there. Well, if you remember or you can actually do this experiment now, you'll notice that it's specifically red light that actually makes it through. The other colors get blocked, so you don't shine a flashlight against your hand and then see blue light coming through. Not going to happen because that blue light's getting absorbed in your skin. It's red light that makes it through. Near infrared also makes it through, but again, that's invisible to the human eyes.

Ari Whitten: That's quite an interesting thing, right, just the simple fact that red and near infrared light are able to penetrate very deeply into our bodies. Now, in addition to that, they don't just penetrate through the layer of the skin. They actually penetrate through cells. They can actually go entirely through cells in your body and go layers and layers and layers deep, literally more than two inches deep in your body. I don't know how many ... Maybe that's millions of cell layers deep if it's two inches. I don't know how the math works out but maybe something to that effect. It can affect cells through your body in a huge, huge way just by virtue of the fact that it can penetrate that deeply.

Ari Whitten: Now, what is it doing once it gets there? Well, red and near infrared light, the way that they work ... I told you about UV light, vitamin D, blue light and the circadian rhythm, and we talked far infrared, and then, now it's red and near infrared light. What are those doing on a cellular level? Well, it turns out that they may do a few different things, but primarily, what's going on is they stimulate the mitochondria in our cells, which are our cell's energy generators. This is what's responsible for generating pretty much all of the energy needed by all of your cells to function. Whether it's your brain cells, your heart cells, your liver cells, your muscle cells, every organ and gland in your body, every cell in your body depends on the energy produced by mitochondria inside those cells.

Ari Whitten: It turns out that red and near infrared light actually enhance mitochondrial energy production. That's the fundamental mechanism by which they work. Now, basically, we're probably going to dig into this a bit but red and near infrared light have this kind of seemingly like panacea like quality that they can ... There's always positive research on so many different things from skin anti-aging to muscular performance, athletic performance, to fat loss, to brain enhancement and-

Ari Whitten: ... performance to fat loss, to brain enhancement and healing of brain injuries to literally dozens of other different types of effects. Effects on pain and inflammation and all sorts of different things. And there are actually people who look at that and go, "Something's fishy here, this seems kinda weird that one particular treatment or type of therapy would be beneficial for like dozens of different conditions that are like totally different." It's kinda bizarre and it almost makes people think, this might be snake oil, you know. Something's not right here.

Ari Whitten: And the reason why, again, is just that pretty much every system in your body, whether it's a gland, an organ, muscles, anything, your skin, the health of those cells depends very directly on the efficiency of energy production by the mitochondria in those cells. Good energy production inside skin cells or brain cells or heart cells means healthier skin or brain or heart. And so that's fundamentally why it can impact all of these different systems and all these different conditions in the body in a positive way is because we're getting at something that is universally beneficial to every type of cell in our body no matter what it does. Which is that if a cell has more energy, it will work better.

Wendy Myers: Let's talk about why somebody would want to expose themselves to red light or to near infrared light or far infrared light like they would find with a sauna, an infrared sauna.

Ari Whitten: Yeah well you know that ... very interesting question. There's a lot of nuances to this but there's a range of different potential goals that this can help facilitate. So for example, do you want to lose fat? Well there's research showing that red and near infrared light therapy can enhance fat loss. There's something called laser liposuction, which there's certain clinics that use laser directly on fatty areas. But there's also research showing that red and near infrared light, and by the way that laser that I'm talking about is actually red or near infrared light in the form of a laser beam.

Ari Whitten: So it can either be concentrated in what's called coherent light, which is a beam of light from a laser. Or it can be more incoherent light, diffuse light, from things like LED panels for example, or potentially incandescent bulbs and things light that. And by the way, there's research that has compared the effects of those two things. It used to be thought that you needed laser for a lot of these benefits and you know there was kind of this aura surrounding it like you had to go to a clinic where they had one of these lasers to use it.

Ari Whitten: Well one of the big breakthroughs in the last five or ten years is that research has shown that non-laser light, incoherent light from things like LED panels can basically have pretty much all of the same effects as laser light.

Ari Whitten: So anyway, little digression but fat loss, one example of this. In addition to the liposuction type of treatments, the laser liposuction, it's not actually like surgery, non-surgical liposuction you could call it. There's

also just research showing that red and near infrared light therapy can be paired with things like exercise and nutrition interventions and can actually greatly enhance the fat loss benefits of those. So you see ... there's even some research showing about 200% improvements in the amounts of fat loss compared to an exercise intervention that didn't also use red and near infrared light. So that's just one example.

Ari Whitten: Another example is muscle performance and adaptations to exercise on that front. So for example, somebody's weight training or doing cardio, well there are studies that have compared those exercise interventions with and without doing also red or near infrared light therapy. And by doing red and near infrared light therapy, you see much bigger improvements in insulin sensitivity, greater gains in strength, greater gains in endurance. Using it before the athletic event for example, you can enhance performance. Using it after you can enhance the speed of recovery. So you're sore and in pain less long. And you can get back in the gym or do more workouts sooner.

Ari Whitten: So there's just two benefits on sort of body composition. But there's also brain benefits. They're using this in the context of treating depression, anxiety, neurodegenerative diseases, just enhancing cognitive performance and mood. They're using it in the context of treating traumatic brain injuries. They are ... we're also, we can use this in the context of skin anti-aging. This is a very, very popular one and there are actually anti-aging clinics and spas that use these services and will charge you \$75 or \$100 per session to sit in front of one of these lights or lay on one of these lights for half an hour, let's say.

Ari Whitten: So what does it do for skin anti-aging? Well it stimulates collagen and elastin production primarily. So ... and that's largely as a result of enhancing mitochondrial energy production in the cells that produce collagen and elastin. So there's a whole bunch of research showing that it decreases wrinkles, enhances skin firmness, decreases cellulite and so on. A range of different anti-aging benefits.

Ari Whitten: What else? There's so much more to this. There's a number of more obscure sort of contexts of treating for example diabetic ulcers and healing of hard to heal wounds, wound healing is a big one. Whether it's bone healing or skin healing. Enhancing different function of different organs. There's also a number of studies that have used this in the context of Hashimoto's hypothyroidism and shown really amazing benefits in terms of how many people are able to ween off and reduce their doses of thyroid medications while maintaining normal thyroid hormone levels. As well as ... there are a few studies that have even shown that a portion of people are able to completely get off of thyroid hormone medication and maintain normal thyroid hormones.

Ari Whitten: So there's a range of different benefits for the brain, for the muscles, for fat loss, for skin anti-aging. I think those are the big ones. There's also pain relief and anti-inflammatory effects. But I would say those are probably the big ones, the most common uses for this technology.

Wendy Myers: And that's for the near infrared and red light? For ... those are the benefits for both of those?

Ari Whitten: Correct, yes.

Wendy Myers: And let's talk a little bit ... do those spectrums help to detox heavy metals and chemicals? Let's talk a little about that. 'Cause I think there's some confusion, questions I've gotten with these near infrared and red light panels, if they detox your body.

Ari Whitten: Yeah so in terms of actual research, probably almost nothing to show that directly. And to my knowledge maybe hasn't even been studied. Now where most of that's gonna come in is probably in the context of far infrared and actually stimulating sweating. And sweating, obviously as you talk about, is a powerful method of detoxification and there's a whole bunch of research showing that using saunas, whether traditional saunas, infrared saunas, just sweating itself is a powerful method of helping our body to purge toxins.

Ari Whitten: Now there's one potential area that might be an exception to this. Which is ... well, maybe a couple areas. One is that there's some research showing that red and near infrared light can enhance liver health. So if you're lean enough for that light to actually reach your liver directly, and that means just that you don't have a huge layer of fat over your liver, then that light can actually potentially directly act on your liver. And that may enhance detoxification. There is some studies, mostly animal studies, showing that it can enhance liver health.

Ari Whitten: The one other aspect of this, and we can start to talk about mechanisms of what this is actually doing on a cellular level, that might be an interesting conversation to get into. But one of the things that this is doing is actually building up the, it's something called the antioxidant response element in our cells. And really in our mitochondria. And this is an internal system that we have that helps to quell excess oxidants and inflammatory compounds in and around the cellular environment.

Ari Whitten: Now that system is also intimately intertwined with for example glutathione. And so when we build up our internal antioxidant defense system, that entails, part of what that's doing is actually building up our internal stores of glutathione which is a powerful compound involved in the detoxification process. So you can kind of theoretically connect the dots even though we don't have research directly testing red and near infrared light on detoxification of heavy metals for example. You can kinda just connect the dots and based on understanding those mechanisms, you go, "Well even if it's not directly sort of purging heavy metals from my system, it's at the very least helping my cells be better able to deal with these toxins and get rid of them."

Wendy Myers: Yeah and also the near infrared bulb saunas, they're called near infrared bulb saunas, they are actually emitting mostly far infrared light. And so that's why they are hot, they heat you up and facilitate detox even though they're typically referred to or called near infrared bulbs.

Ari Whitten: Yes, that's correct. And this is kind of a misnomer, this is something I talk about in my book kinda extensively. But basically there's companies out there that kind of talk about their saunas as near infrared saunas and even some that kind of try to make the distinction between near infrared saunas versus far infrared and saying their near infrared saunas are better because near infrared is better for you than far infrared. Well you know all of that is kind of nonsense because near infrared by itself does not heat up your body.

Ari Whitten: So if you had truly a real genuine sort of near infrared sauna that was just a wooden box that emitted only near infrared light, well it would just be a wooden box that is completely at room temperature that's emitting invisible light. There's no heat element to that. So the heat comes in, the sauna aspect of it, comes in when you introduce far infrared energy to it.

Ari Whitten: So this can be, there are sauna companies like Sunlight or Clearlight make saunas that have far infrared emitters and they also have near infrared LEDs in them. Or there are companies like Sauna Space that use the incandescent style heat lamps, which they call kind of near infrared and many companies that make these call near infrared emitters. But they actually emit red and near infrared and lots of far infrared energy. They're actually mostly far infrared energy. And they're emitting mostly heat. And that's why they make you hot and that's why they create a sauna effect.

Ari Whitten: So you know, there's some kind of tricky language that people use and some misnomers there. But those lights do also emit near infrared and red light.

Wendy Myers: Yeah and thankfully 'cause they do help to detox you.

Ari Whitten: Yes.

Wendy Myers: And so let's talk about some difference between the far infrared or near infrared saunas, whether they be the lamp saunas or the Sunlight one with the far infrared emitters and the LEDs. So let's talk about some of the differences between those and some of the benefits or pros and cons.

Ari Whitten: Sure. So as I just said, the heat lamp style bulbs do emit red and near infrared. Now there's kinda debate back and forth, you know there's one company out there that makes red and near infrared LEDs that's called Joovv that wrote an article basically trying to take down Sauna Space and the companies that make these heat lamps saying, "Hey you know, these don't emit enough red and near infrared light to even be effective in terms of red and near infrared light therapy."

Ari Whitten: Then Sauna Space actually wrote a rebuttal article to them with their own measurements showing that like hey, actually they do emit enough red and near infrared light to be therapeutic and the dose is high enough.

Ari Whitten: I agree with Sauna Space. Sauna Space is speaking the truth on that. However, there are some nuances here that are somewhat important. Which is in order to do red and near infrared light properly, you need kind of a few things in place. The dose is important. And the dose needs to be different according to exactly what goal you're trying to use it for. So for example, skin anti-aging on the face requires a much lower dose and usually you'd wanna be at further distance away from the light as compared with treating like deep tissues. Like organs and glands and the brain and the muscles and fat tissue and things like that.

Ari Whitten: So the dosing parameters for like where you would use that light from, well with a LED panel, you can control that very precisely and you know your numbers of exactly how much you're getting and you know what the proper dosing range is. So you can get the proper dose for skin anti-aging on your face and use the light from a much closer distance for things like treating deep tissues like muscles and glands and so on, and tendons. And that's important because in order to treat those deep tissues properly, you really do need the light source to be close to your body and you need a pretty high dose of that. As compared to like treating anti-aging and the skin you need a much, much lower dose.

Ari Whitten: Okay so there's some dosing parameters that are really important here. Now one other aspect of this that gets complicating when you start to use the saunas is that when you're introducing a sauna element to it, you're now introducing far infrared and this sweating. So that's great, there's a huge amount of health benefits just associated with sauna use and I'm a huge advocate of sauna use. But the problem here is that the dosing that you would need for a sauna, the amount of time that you'd wanna sit in front of those heat lamps and sweat it out and get the sort of benefits of sauna use and feeling hot and sweaty may not be the same in terms of the right dosing as for skin anti-again on your face or treating deep tissues in your muscles or tendons or glands and organs and so on.

Ari Whitten: So it can be done ... well actually there's one other element to it that's another complicating factor. Which is with the heat lamp bulbs, the light intensity and thus the dosage varies pretty dramatically depending on whether you're talking about the directly in front of the lights. So for example if the bulb is here, the light intensity directly straight out from that is pretty high. But as soon as I go at angles from it, like up here or down here at let's say a 45 degree angle from that bulb, the light intensity drops off dramatically. So as opposed to an LED lamp which emits a consistent power intensity or light intensity across that whole surface of the light. So there's a difference there too that also kinda further makes dosing somewhat complicated.

Ari Whitten: Despite these different complications, I would say it can potentially still be done. But you're probably ... like in order to do it right, you probably don't wanna just sit in front of the same ... in front of the heat lamps in the same exact body position. You probably wanna be kinda rotating to a few different body positions and have the heat lamps on different parts of your body. Otherwise you're probably getting, assuming you're

sitting in the sauna for 20 minutes or more, you're probably getting too much red and near infrared light on one particular area.

Ari Whitten: So again despite the complications it can be done. It's just you have to have some awareness of kind of how to rotate your body at different intervals during that sauna session.

Wendy Myers: Yeah I tell people to rotate like a rotisserie chicken. You know, like just continue rotating to get the ideal benefits.

Ari Whitten: Yeah so that's a good general guideline to help avoid the potentially overdosing on red and near infrared light in any one particular area.

Wendy Myers: Yeah so let's talk about the sauna versus the sun. So the sun emits a full spectrum of light near, mid and far infrared. Let's talk a little bit about some of the differences between sun exposure and doing a near infrared and red light therapy. Or going in the sauna.

Ari Whitten: Yeah so I would say there's a couple distinct differences. With sunlight, you're getting, I'd say the main benefits are that you're getting UV light and vitamin D and also something called cholesterol sulfate, which there's quite a sizable amount of research showing that cholesterol sulfate, which is another compound that is synthesized in our skin in response to UV light exposure. Is also a very, very important compound in health. So vitamin D, cholesterol sulfate, the blue light and the effects on circadian rhythm, which affect a whole bunch of different neurotransmitters and hormones.

Ari Whitten: So those are all things that you're gonna get from sunlight that you're not gonna get from let's a far infrared sauna or even a far infrared sauna plus a near infrared sauna.

Ari Whitten: On the other hand, one of the things that we do get very powerfully from saunas, whether traditional saunas or infrared saunas, is heat hormesis. And that is basically heating up our body to a very high degree that it actually creates a temporary metabolic stress. Which sounds like a bad thing, people associate stress with bad things. But just think of it this way, this type of heat hormesis or temporary metabolic stress, exercise is also that exact same concept. Exercise is not something intrinsically helpful, it's something that is creating a temporary metabolic stress. And by virtue of doing that it stimulates certain adaptive mechanisms in our bodies. And those adaptations to that type of temporary stress are what ultimately confer all of the benefits that we know that the mountain of thousands of studies that we know are showing that exercise has all these benefits for prevention of neurodegenerative diseases, cardiovascular diseases, obesity, insulin resistance and diabetes, on and on and on just to name a few, right. And increases longevity and so on.

Ari Whitten: So you know it's kind of an odd thing to think about, that something that is actually a stressor on your body would confer all of these health benefits and extension of longevity and resistance to disease and resilience to various kinds of other stressors. But that's exactly what's

going on. So when certain kinds of stressors are applied in the right way in the right dose then they actually lead to adaptations that make us stronger and healthier and live longer and more resistant to disease and more resilient to stress.

Ari Whitten: Exercise does it. Heat does it in the context of sauna use, whether infrared or traditional. Heat does it very strongly, there's amazing research on the benefits of sauna use. And we didn't talk about this earlier, we can go into the mechanisms of red and near infrared light but red and near infrared light actually work also by hormesis. That's one of the mechanisms that they work by. In addition to directly stimulating mitochondrial energy production, they also create a temporary metabolic stress that stimulates ... it actually creates a burst of inflammation to a very small degree and that little burst, that trigger of inflammation on a very small level, actually creates a very robust response at the cellular level. Something called the NRF2 pathway and that is what builds up the ... what's called the ARE, the antioxidant response element.

Ari Whitten: And that is our internal antioxidant defense system that helps protect ourselves and our mitochondria from oxidative stress from different types of stressors. And actually makes us more resilient to stressors and ultimately what that means is resistance to disease and extension of longevity and greater energy levels and especially greater energy levels in the context of the stressors that we're all being bombarded with.

Ari Whitten: So that type of hormesis ... you that's kind of a very broad overview of this concept and how it relates to a lotta different things we've been discussing. But in the context of sauna use versus sunlight specifically, by doing this in the context of sauna and really heating up your body very strongly, you're getting that heat hormesis effect. You're also potentially sweating more. You know, if you compare sun exposure in a ... you're going for a run or a long distance bike ride or something in the hot sun on a 115 degree day in Phoenix, maybe there aren't that big differences because you're still gonna stimulate that heat hormesis pathway just being outdoors in the sun. You're also gonna be sweating a lot. So at that point some of the differences start to dissolve a little bit.

Ari Whitten: But in general, with a sauna, you're getting more of a heat hormesis effect and you're getting more of a sweating and the purging of toxins through the sweating as well.

Wendy Myers: Yeah so that's fantastic. So we've got the benefits of the near infrared and the red light therapy. Benefits of far infrared, which you'd find in a sauna for detoxification, other benefits. So let's talk about some of your, like your ideal tips. Like what is the ideal amount of sun exposure and then near infrared and red light exposure and sauna exposure with the far infrared?

Ari Whitten: Yeah good questions and the truth is that the answers are somewhat complicated because it depends a little bit on the individual and where they live and how much sun they're getting. So let's say for example somebody is living a hunter gatherer lifestyle. They're still hunter

gatherers in the world today. You know like there are hunter gatherer tribes in Africa and South America and the South Pacific and so on.

Ari Whitten: So if somebody's living in a hot tropical equatorial environment, spending hours and hours and hours a day in the sun and sweating and doing physical activity, they're ideal dosages of let's say sauna exposure or red and near infrared light therapy are gonna be very, very different from the average westerner who's spending all day indoors getting minimal to no sun exposure and so on. Does that make sense?

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Ari Whitten: ... getting minimal to no sun exposure, and so on. Does that make sense?

Wendy Myers: Absolutely, but they're not listening to this podcast, and they don't need [crosstalk 00:48:11].

Ari Whitten: Fair enough. Yeah. Even within the average westerner, are we talking about somebody who lives in Seattle, or Norway, or the UK, where they have large stretches of the year where they're not getting sun exposure? In those cases, I would say the more that that is true of you, or even if you live in a place with sun exposure, but you just don't make time for it, the more that is true, the more necessary it will be for you to do lots of red and near infrared light therapy, lots of sauna exposure. You will get more benefits from those things if you are more deficient in sunlight.

Ari Whitten: Now, with sun this is a tricky one. This is something that probably we could do an entire podcast on, because the research here is remarkable, but also really goes against a lot of the common, typical advice that's been out there for 10 or 20 years, which is avoid the sun. The sun is bad for you. The sun will give you skin cancer. The sun will accelerate your skin aging. Stay away from the sun, because you're gonna get melanoma and die. Everybody's learned to kind of cover themselves up, and stay out of the sun, and if you go in the sun, then you gotta wear sunscreen, you know, all this kind of fear mongering over the sun.

Ari Whitten: The reality is, if you actually look at the data, and the data is pretty darn conclusive, as of 2018, we know that those habits, that lack of sun exposure, is profoundly harmful to health. It is. There's actually some data that has quantified this. There was a study based out of Sweden where they tracked I think about 30,000 women. It was a huge study that they tracked them over I think 20 or 30 years, and they actually looked at disease and mortality outcomes. What they found at the end of the day, when they crunched all the numbers, is that not getting sun exposure, the people with the lowest levels of sun exposure compared to the people at the highest level of sun exposure, that was related to disease risk and mortality risk, that's the risk of dying in that certain span of time, it was as powerful as a factor, sun avoidance was as harmful to your health as smoking a pack of cigarettes a day.

Wendy Myers: Wow. Yeah.

Ari Whitten: If you want to actually quantify how bad it is for you to not get lots of sun exposure, that's how bad it is for you. It's on par with cigarette smoking.

Wendy Myers: Yeah. I actually believe my father died from mal-illumination, because he developed esophageal cancer at 68 years old and passed within six months of his diagnosis. He was white as a sheet. He never went in the sun, you know, because we had family members that had skin cancer removed, and all this evidence, and the sun was bad for you at the time, in the 80s and 90s, and all that fear mongering. He never went in the sun for any reason, never went in the sun.

Ari Whitten: Yeah. I actually talked to a lot of people. You know, I have my Energy Blueprint Program. We have over 2,000 members in the Facebook group, so I have conversations with people daily, and we do coaching daily. The amount of times that I have asked somebody, "How much sun exposure are you getting?" ... This is before they go through my program and learn about all the science around this, but the amount of people who start out, and I ask them how much sun they're getting, I am just shocked that probably at least 50% of these people say that they really never get sun exposure, like maybe they get it from walking from their house out to their car or from their car in the parking lot into their office or something like that.

Wendy Myers: Getting their vitamin D.

Ari Whitten: Yeah. They're getting very, very little. Most people it's on the order of a few minutes a day, if that, and probably not at the right times of day to get UVB in the proper doses, or I should say UVB, period. In the proper doses takes a certain amount of time. There's a huge epidemic of sunlight deficiency, and there's some nuances to discuss here. I don't want to spend too much time on this topic, because I think we've already gone about an hour. This is something we could probably talk about for an hour.

Wendy Myers: Yeah, I could keep going.

Ari Whitten: You know, in terms of this, we can look at, for example, melanoma. Now, let's say you just look at ... Basically we have a full pie let's say of all the research on sunlight with regard to 100 different disease outcomes, and mortality outcomes, and measures of health, and things like that. Now, one little sliver of that pie is sunlight and melanoma, okay? Now, even there, the research is actually pretty complex. This is not just a simple case of more sun equals more melanoma. I'll give you an example of why it's complex. Rates of skin cancer are actually lower in outdoor workers, as compared to indoor office workers. Just think about that for a moment, right? If more sun leads to more melanoma and skin cancer, how could it be possible, in what planet would it be possible that people who work outdoor jobs and spend hours a day in the sun all year round would have lower rates of skin cancer than office workers? It makes absolutely no sense.

Ari Whitten: One of the tricky parts of this data is that sunburn is bad and can absolutely cause DNA damage in your skin that can absolutely manifest as skin cancer. It is also true that there are complex interactions between a person's diet and lifestyle habits and their degree of skin resistance to UV exposure, to be able to tolerate it healthfully without getting DNA damage, without getting sunburn. So, where it becomes really problematic is when you take somebody who's mostly indoors, like typical indoor office workers, and then they go on let's say vacations where they get tons of sun exposure. They get burned really heavily.

Ari Whitten: When that happens several times each year, well, that's the kind of thing that can eventually manifest as a type of skin cancer, whereas in contrast, somebody who's an outdoor worker who gets consistent, daily sun exposure, and their skin has built up an adaptation to that via melanin, via a tan, that melanin actually works to ... It's what's called a photo-acceptor. It absorbs UV light and basically helps prevent DNA damage in your skin, so the skin adapts, because UV light is also a hormetic stressor, by the way. Our skin adapts to it to become more resilient to that. In the process, by doing consistent light exposure in the sun on a daily basis or near daily basis, all of a sudden skin cancer rates get lower. So, again, sunburn is bad. Going from very little sun exposure to very heavy sun exposure in bursts is problematic.

Ari Whitten: Consistent, daily sun exposure, especially when paired with good lifestyle and nutrition habits, and there is lots of different nutrition habits, like polyphenols and various colorful plant foods, that will enhance your skin's resilience to sun exposure, that is actually a wonderfully good thing. But let's just say, going back to this pie, so we look at this one sliver of pie in the relationship to sunlight and skin cancer risk. Let's say that overall body of evidence says that sunlight exposure is harmful to outcomes of melanoma and is a problem for melanoma. Okay. Fine.

Ari Whitten: Now, let's look at the other 99% of this pie. Let's even look at all of the dozens of other types of cancer in relation to sun exposure. All of the sudden, we look at all of these different disease, all these dozen types of cancer, all of diabetes, and heart disease, and neurodegenerative diseases. We look at that entire body of evidence, and now all of the sudden we see, oh, wow. Sunlight exposure is linked with positive health outcomes on almost every other disease outcome imaginable.

Ari Whitten: Basically, what I'm saying is if you look at that whole pie, the data that sunlight is beneficial to health, and helps prevent disease and helps prevent early death, and extends longevity is just overwhelming. I mean, it's just so amazingly positive that it's mind boggling how we've all ended up in this position where everybody's afraid of the sun, because of skin cancer. Anyway, that's sunlight for you.

Wendy Myers: Yeah. Hook, line, and sinker, I was sold on that bill of goods. I used to wear gloves when I was driving. I used to have an umbrella going to classes, when I went to USC, which is totally overboard, a fear of aging from the sun. Now, I'm just frying my skin as much as possible every day.

I feel great. There's a reason you feel really good after you go in the sun. It energizes your body, in addition to so many health benefits.

Ari Whitten: Yeah. Yeah. Absolutely right. It's because we need ... Again, this is a necessary nutrient for our health. We need sun exposure to be healthy, and not getting it is the equivalent of smoking a pack of cigarettes every day. Yeah. In terms of dose, I'm a big advocate of bigger doses. The amount of doses that I personally get, you know, I spent three hours surfing this morning, and I was getting sun exposure. Then I went ... I got home. I wanted to spend some time with my son, so I took him to the beach for an hour and a half and played with him at the beach for another hour and a half, getting sun exposure that whole time. I don't get burned, because my skin has adapted to it, because of consistent sun exposure plus a great diet, so I don't even get close to being burned by spending five hours in the sun.

Ari Whitten: My recommendations are lots of sun. For most people living in the western world, in terms of the actual dose you're getting, I would say it's almost impossible for people to overdo it. The only caveat to that is don't get sunburned. You have to do this in a smart, systematic way that's slow and progressive, and literally you may start with three minutes. If you're somebody who's very pale skinned, very fair skin ... I forget the exact ... They have specific names for the skin types, but certain people, for example, of Irish or certain Scandinavian ancestry sometimes have really pale skin that is pretty intolerant to sun exposure.

Ari Whitten: The doses for those people are certainly gonna be a lot less than for people like me with more of a mediterranean ancestry or more olive skin, or people like from equatorial environments, or people from Africa with very dark skin, or African ancestry. The skin factor plays a role here for sure. Some people may need to start with just three minutes of midday sun, and that's their starting point. Then maybe they rest a day, take a break from it the next day, and then the next day maybe they go to four and a half minutes. You literally start that and maybe work your way up over the course of weeks and months, to the point where you can tolerate 30 minutes, or 45 minutes, or an hour, or something like that, but in terms of the actual amount that would benefit our physiology, if we look at our hunter/gatherer ancestors, it's probably on the order of hours of sun exposure a day, which seems like an enormous amount and is for the average westerner.

Ari Whitten: It will result in sunburn for the vast majority of people if they try to do that initially. This is something that you have to build up to. It's sort of the equivalent of exercise. You know, is running a marathon good for you? Well, if you're really fit, and you're able to run a marathon, and it's not really even that amazingly taxing for you, then ... maybe I'll give the example of five miles as a better example.

Wendy Myers: A 5K. A 5K.

Ari Whitten: A marathon's a lot. Okay. So, it's five miles of running, is that a really hard thing? Well, for some people it's pretty easy. They might be able to

run 10 miles pretty easy. They can run at a fast pace, no big deal for them, but if you take an average sedentary person, who's not doing any exercise and hasn't run since they were in junior high school PE class, and you ask them to run five miles, that actually becomes a very damaging thing to them. It becomes literally harmful on a biological level, because it's an overwhelming amount of stress at the cellular level that actually creates damage. Same concept with exercise, is that you have to start whatever you're at, and then build up your tolerance over time, and let your body adapt, and as the tolerance increases, then you can do more and more, and get benefits from more and more.

Wendy Myers: Do you have any tips for us for red light therapy and near infrared therapy?

Ari Whitten: Yeah. There are specific doses. It's actually pretty complex, to be honest with you. It depends also on the specific light device that you're getting and what's called the power density, which is sort of like the amount of light, photons, basically being emitted from that light. It's calculated in the context of the surface area of that light as well. I'm gonna overwhelm you with a little bit of complexity here, and then I'll simplify from there. If you have a really big device, well then you have to be concerned about total body dose, so there's total body dose across all body parts that you need to be aware of. There's also the right dose for specific areas that are being treated.

Ari Whitten: As I mentioned earlier, the right dose for treating the facial skin for anti-aging purposes is a very different dose than for treating muscles and tendons for tendonitis, or pain, or arthritis, or for accelerating muscle growth, and strength, and recovery, and things like that, or for fat loss, or for treating the brain. These require radically different doses. The doses are measured in something called joules, and basically, to give you an idea, the right dose for let's say skin anti-aging might be on the order or let's say 3 to 15 joules, somewhere in there. The right dose for treating tendonitis, or deep tissues, organs, glands, the brain, muscles, things like that might be 5 times higher than that or 10 times higher than that. Let's say if you gave 5 joules for facial anti-aging, maybe you'd want to give 50 or 80 joules even potentially, 60, something like that for treating some really deep tissues, like muscles or tendons.

Ari Whitten: So, there's orders of magnitude difference just based on the specific context of what exactly you're treating. In order to calculate that, you have to know how powerful your device actually is, so what device are you using? What's the amount of what's called the power density, the intensity of the light output? Then you can calculate, okay, well, my light's this big. It's emitting this much power density. That means it's got this many joules per minute. Let's say it's 1 joule per minute or 2 joules per minute. That means if I do 5 minutes, then I'm getting ... 2 joules per minute, 5 minutes. That means I'm getting 10 joules. Okay. So, that's a good dose for my face. That's basically how you have to calculate it. That's if you go and get just any random devices, you actually need to know those numbers to do the proper dosing.

Ari Whitten: Now, in my book, I give several recommended devices, and I've actually done all the measurements beforehand, so I give all the numbers of, here's the actual power density numbers. Then based on this, for let's say skin anti-aging purposes, for muscle and tendon treatment, for brain treatment, for treating deep tissues versus superficial tissues, what are the proper doses? It's literally just broken down. I know this all seems really complex, but it's all just broken down like, hey, if you have this light and you want to treat deep tissues, then use it for 5 to 10 minutes. If you have this light and you want to treat skin anti-aging, then use it for 1 to 4 minutes, for example. Okay? That's the basic gist of how much all of this complexity can just be simplified into very practical, easy recommendation.

Wendy Myers: Yeah. So, just get the book, and then you can have all this laid out for you. What are your favorite recommendations for near infrared, and red light panels, and even for the far infrared saunas?

Ari Whitten: Yeah. There are a few companies that make really high quality devices. In particular, I would say there's a company called Red Therapy Co, and they make a light called RedRush 360. It's a 360 watt light. It's about this big or so. If people are listening to this and not watching, I think it's like 18 inches long, something like that, but it's extremely powerful. The cool thing about even though that light is not necessarily a full body size light, it's not six feet tall, it's very powerful, so you can actually move it away from you a significant degree, like two feet or three feet away from you even, and it will still be in therapeutic doses for skin anti-aging.

Ari Whitten: Now, the benefit of that is that light spreads out the further it is away from you, so by having the device two or three feet away from you, you can actually now treat, in terms of skin anti-aging, you can treat almost your entire body. Even though the light device is 18 inches long, you can now treat let's say five feet of your body, almost the entire body basically. So, you don't even really need a full length light device. Now, that's I would say my number one choice. Joovv also makes high quality lights. They're significantly more expensive, but also high quality lights, slightly less irradiance. In terms of equivalent sized lights and equivalent prices lights or similarly priced lights, the RedRush is gonna be a more powerful light, but Joovv makes high quality lights as well. There's another company called Platinum Therapy Lights that makes also powerful lights that are pretty well priced.

Ari Whitten: Those are my top three recommendations for a general use LED panel. There are also potentially specific things that you can get, like a Vielight, which is meant to treat the brain specifically, so it's kind of like a head unit. It's about \$1,700, so significantly more expensive. That's used for treating brain specific issues. That's another potential option. There's also hair loss specific devices. There's a few other specific applications, but the general use LED panel can be used for almost every application. I would say if you go with one of those three brands that I just recommended, those would be the best bets.

Ari Whitten: I also have discount codes set up with these companies, so if people want to use my discount code, they can get like 40 bucks off, 40 or 50. I think Joovv doesn't offer a discount anymore, but the other two companies that I mentioned do offer a discount, so if people want to use ... I think it's just Energy Blueprint when you're checking out with give you I think it's like 20% off. Yeah. Those would be my recommendations for specific devices.

Wendy Myers: Fantastic. Well, all right. This has been such an interesting conversation. I know the listeners who are infrared sauna fanatics and wanting more distinctions, this really satisfied their curiosity for pursuing more knowledge, because there's a lot of information about far infrared saunas and far infrared light, but not as much about red and near infrared light spectrum, so thank you for making so many distinctions today.

Ari Whitten: Yeah. Absolutely my pleasure. Thank you for having me on and having this discussion. I think it's a hugely important topic, and this stuff, there's just a mountain of research, over 3,000 studies, showing that this type of technology has the capacity to benefit so many different aspects of our health, so I thank you for having me on and exposing people to this information.

Wendy Myers: Tell listeners where they can find you.

Ari Whitten: They can go to TheEnergyBlueprint.com, TheEnergyBlueprint.com. Then my book is on Amazon, and it's The Ultimate Guide to Red Light Therapy.

Wendy Myers: Fantastic. Well, Ari, thanks for coming on the show, and listeners, you can find my work at MyersDetox.com. I've got hundreds of podcasts, hundreds of articles about detoxification, health in general, tons of free information. If you want to get my Top 10 Tips of Detox Like a Pro Checklist, go to DetoxForEnergy.com. I've worked with thousands of clients. I've distilled down my top 10 tips for detoxification at home. Thanks so much for listening today, and I'll talk to you next week.

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