

Paleo Solution - 404

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Robb: Hey there, folks. Welcome back to another edition of the Paleo Solution Podcast. As you may know, we've tried rejiggering some of the podcast formats of late. We're shifting much more to a Q&A based format, do a little bit of interviewing but mainly focusing on folks at the cutting edge of research, so academics and clinicians who are doing research in this ancestral health space.

Every once in a while I will introduce some folks if they have an interesting book that I think is incredibly valuable and also a little bit of product base stuff, not a ton around that. Today's show is in that produce space. It's a short show. It's about 15-20 minutes. It deals with this product called a Joovv. I'm talking with Scott Nelson, one of the cofounders of this company and product.

What Joovv is, is a near infrared sauna but it's basically a singular panel that comes in a variety of sizes. I've got to admit I was a little bit skeptical of this stuff but really got in after listening to some of Rhonda Patrick's work about saunas, near infrared exposure and whatnot, and some of the health benefits of this stuff. I ended up grabbing one of these gizmos. Nikki and I had been using it after jiu-jitsu and, man, I just really love it.

Today's show is talking about the Joovv. We get in and talk about some of the therapeutic potential and benefits of near infrared saunas. If you're interested in that, jump in and check it out. If not, give this one a pass. That's totally up to you. We won't be doing a ton of these but every once in a while when I find something that I think you guys might find valuable, we'll jump in and do a short show just to explore it. Let me know what you think. Keep me posted. As always, if you have more questions for the Q&A, do drop those in at the contact page.

Hey, folks, welcome back. Super excited to talk to today's guest. Scott Nelson, how are you doing, man?

Scott: Good, Robb. Pleasure to be on your show.

Robb: Yeah. This has been -- we've been trying to make this happen for the better part of six months and between travel and podcast rejiggering and a host of other issues, it's been a little bit interesting. You guys reached out to me about the Joovv a good long time ago now. We've been using that around the Lazy Lobo ranch. Like I mentioned to you, this near infrared platform that you guys have is really amazing.

Again, we talked for probably 20 minutes before recording but I've really been trying to get more natural sunlight and just therapeutic exposures to infrared radiation via saunas and all kind of things and the Joovv has really been a cool treat around the house and the girls have loved it. Scott, I'm curious, how did you get involved with this? You're a cofounder of this whole platform. How did you get involved with it and what was the genesis of what you guys are doing?

Scott: Yeah, I know. It's great. I guess, before I answer that question, I mean, we were chatting before you hit the ole record button, Robb. It's great to see. Even in one of your recent posts, it sounds like you're getting a lot more natural sunlight. I think we'll probably dig into that a little bit more in detail. But if anyone, a major takeaway would be, yeah, we at Joovv think everyone should probably get a little bit more natural sunlight considering the average American spends 93% of their time under artificial lights.

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There's definitely some power in just the wavelength that comes from natural sunlight. But the Joovv story, it's a classic startup story. I'll try to be brief. I spent my entire career in med tech primarily within the cardiovascular arena with companies like Metronic and Boston Scientific in areas like cardiovascular stents and peripheral atherectomy catheters and whatnot.

Our company was formerly based in Minneapolis, that being one of the reasons why. But kind of going back to the genesis of Joovv, my wife and her sister actually had purchased, I'm using air quotes here, red light therapy packages from a local spa in Minneapolis. They went consistently to the spa for about five days a week or so for over the course of, I think, eight to ten weeks.

They both saw really good benefits especially related to skin health, eczema issues that they had dealt with for quite some time. My wife had some brown spots due to pigmentation issues, et cetera, that actually saw a pretty dramatic improvement over the course of that time. That's onerous, I think, for anyone to be able to go a spa let alone really any location that consistently. It just becomes a toil not considering even the expense of doing that in a consistent basis.

Her sister, Melissa, actually posed the question to her husband, not to introduce too many people in the story, but her husband Justin is an engineer. She posed the question to Justin, "Hey, can you build something that we could use at home?" Everyone in our family could benefit. We wouldn't have to go to the spa. It's going to be less costly, et cetera, a whole host of benefits.

That's actually what started us down this path. We had no interest, at that time anyway, we had no idea building a business around this. Justin started building out some early prototypes. Their family started experimenting with different devices, different wavelengths, different ways of generating power through these devices, et cetera.

With my med tech background, I started digging into the world of photobiomodulation. I personally was blown away by the sheer amount of clinical literature, published clinical literature in this arena. It was something that I never heard of. From the outset I thought this was a woo-woo thing. Red light therapy. It sounds funny. I was naturally skeptical, pretty cynical about it. But once you do a simple PubMed search for photobiomodulation or low level light therapy, you'll find an endless amount of clinical data.

I was blown away by the sheer amount of published literature. We put our minds together as a team, Justin on the engineering side, me on the classic med tech side. We launched our first device in February of 2016. It's been a nice little ride ever since.

Robb: Awesome. It is interesting because the first, I don't know, maybe ten years ago that I started hearing about some red light therapy and stuff like that and I was like, "Oh man, here we go." And then I actually did something crazy which was went to PubMed and started poking around and I'm like, "Hey, there's actually something to this stuff." For a lot of folks, my sense -- I'm trying to ask a leading question but yet not make it too leading.

Oftentimes people get confused about red light therapy or infrared sauna versus the very hot sauna like the dry sauna like Rhonda Patrick tends to talk about. Could you talk a little bit about the differences there? I know that there still needs to be some comparisons on that stuff. What's the difference and what do we understand about the benefits of like one modality versus the other? That wasn't too leading, of course.

Scott: It's a great question. It's probably one of the ones that we're asked most often by either our existing customers or people that are looking at potentially purchasing a light therapy device. I think it's probably best to start with just the different wavelengths of light and the mechanism of actions. Your audience is, obviously, very familiar with macronutrients and the differences between carbs, proteins, fats, et cetera and how our bodies metabolize those.

I mean, halfway decent parallel would be our bodies metabolize different wavelengths of light as well especially during different parts of the day. And so with something like a sauna, whether it's a steam sauna or a high quality infrared sauna, the whole goal with sauna based therapy is to induce heat stress on the

body, raise your core body temperature, induce heat shock proteins. Like you said, Dr. Rhonda Patrick has produced a fair amount of content around this that's really helpful. The whole goal is producing heat.

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And with that infrared sauna, you're doing that through mid and far infrared wavelengths. When you look at both the visible and the invisible light spectrum it's really broad and the far or, I should say, the infrared spectrum in general is from about a thousand nanometers all the way up to 15,000 nanometers. It's really actually pretty broad.

A good high quality infrared sauna is primarily going to be delivering wavelengths in the mid and far or IRB and IRC wavelengths primarily because those do the best job at generating heat. Again, the goal of sauna-based therapy is to generate heat. Well, with photobiomodulation or "light therapy" devices, it's just a different mechanism of action altogether.

And so the wavelength spectrum that you really want to pay attention to is those wavelengths that fall within what's called the optical window or the therapeutic window that's sometimes referenced in clinical literature. But that window, that optical window, is a lot more narrow. Instead of that really broad infrared spectrum you're actually dealing with a spectrum of wavelengths for about 600 nanometers to about 900 nanometers or so, much more narrow than the far infrared spectrum.

That wavelength, and there are certain wavelengths that work better within that narrow window, but wavelengths within that therapeutic window, that optical window, they do a really good job at a number of things but mainly activating an enzyme called cytochrome c oxidase during the fourth phase of cellular respiration. By activating that enzyme you're inducing the normal cellular or the normal mitochondrial production of ATP, adenosine triphosphate. I'm sure most of your listeners are familiar with that acronym.

By doing that, you actually get a whole host of benefits that are really wide ranging, everything from skin health, that we referenced, down to joint pain relief, boosting natural immune function through a shift from an M1 to an M2 phenotype, muscle recovery, athletic performance, a whole host of benefits that almost sound too good to be true but are all supported by a lot of peer reviewed clinical literature.

Robb: Scott, one thing that I have not dug into and it just occurred to me, is there any type of hormetic stress with this type of technology? Sunlight can be a hormetic stress. Exercise can be a hormetic stress. Fasting can be a hormetic stress. Is it

causing a hormetic stress or is it just goosing things in a good direction? Not everything in biology that is beneficial is a hormetic stress but it just occurred to me, is there any type of feature to that?

Scott: It's a great question. I'm probably not the one to speak at a high level to best answer that but I would say, in summary, I would say it's not really causing a lot of hormetic stress. There would be a little bit, I guess, from the production of a small amount of reactive oxygen species or ROS species. There's some of that going on because you get enhanced cellular signaling and some enhanced gene transcriptioning because of that byproduct, because of those ROS that are produced. I would argue that that's probably not creating a lot of hormetic stresses though.

Robb: Right. I'm sketching down a note for myself. I'm going to, after we wrap up, do a little poking around hormetic stress, middle near infrared, blah, blah, blah, and then anything that I dig up on that I'll throw it in the show notes. It might be something for you, guys, to throw on the website too. I was thinking about the mechanism a little bit, wondering how that played out.

I know one question occurred to me initially and it's funny, I was like, okay, how deep does this stuff penetrate and does that really matter? What's funny about it is I was super dismissive of this whole thing. If it wasn't like basically able to go through your whole body I'm kind of like, oh, yeah, but if it just interacts even with the first couple of millimeters of skin that's a massive organ and a lot of surface areas. What is the penetration that occurs there and how deep in are these wavelengths ultimately going with producing this therapeutic effect?

Scott: Yeah. That's another great question that often comes up. It's sometimes hard to answer that specifically to say, well, red light is limited to this depth of penetration, three to five millimeters.

Robb: Right. Because it's a bunch of different spectrums here.

Scott: Yeah, exactly. And near infrared is limited to this. I would say, in general, most of the energy from red wavelength, so 600 to about 800 nanometers or so, most of that energy is going to be absorbed by the dermis and epidermis of your skin. Whereas near infrared light does penetrate deeper than that. I would probably add to that and say there's ample clinical evidence. In fact, there's a robust amount of clinical evidence that does show near infrared light especially does help to regenerate nerves, does help to enhance the healing of bone.

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So, if you look at actually the clinical data, can you answer that question with a very specific number in terms of depth of penetration? Probably not. But it does penetrate deep enough to actually have a clinical relevance in terms of some of those organs or bodily systems that are deeper, certainly deeper than others.

Robb: Again, if we get a systemic effect, does it really matter other than maybe academic curiosity around it?

Scott: Exactly. That's a good point. In fact, Dr. Michael Hamblin, who's a much sharper guy than I am with respect to the arena of photobiomodulation, he's a PhD, runs his own photomedicine lab at Harvard, we're fortunate to have him on our scientific advisory board, one of his theories as to the concept of full body photobiomodulation or full body light therapy is that systemic effect.

Because your dermis and epidermis, there's microcirculatory system in our skin. By inducing a full body effect with wavelengths of light, you get that systemic circulatory benefit throughout your entire body. That's actually one of his main theories as to why full body light therapy works so much better than targeted applications.

Robb: Nice. I'm curious, folks are becoming much more savvy to the importance of circadian biology, circadian rhythm, light exposure at the appropriate times and whatnot. Is there a right and wrong time to use something like the Joovv to get his infrared exposure or is it less critical because it's not in that visual wavelength that really impacts circadian biology?

Scott: Yes. I'd probably say it's more the latter. There's probably really no significant downside to using it any time of day. That's the case with light therapy or photobiomodulation in general. There's really honestly very little downside, if any. Truly, no true contraindications at all just because these are natural wavelengths delivered from the sun.

Having said that, if you really want to bio hack photobiomodulation, I would probably argue that using it in the morning or in the evening to mimic the natural sunrise and sunset is probably best just because when you look at the natural spectrum from sun the majority of red and near infrared light that comes, that you get from natural sunlight is in the morning or in the evening with the sunrise and sunset. It's probably best to mimic that.

That's probably one of the reasons why using these wavelengths at night does induce better sleep and there's clinical evidence that supports that as well. I would say, I guess, the answer to that question, there's really no downside per se but if you really want to optimize this type of therapy, probably morning or evening is probably ideal.

Robb: Okay. That makes sense. It's funny, this thing, we have it in our closet. We have a nice decent size walk in closet but we put in there and the girls were super curious about it. It's literally like a ninja blow dart. They want to sit down in front of this thing and they're like -- Sagan is pretty good about going to bed. Zoe is that kid that if there's any stimulus at all she just keeps cycling and cycling. We have to be like, "Okay, calm down. It's time to go to bed. No more craziness."

Sagan is not really a big issue with that but literally it's like somebody just ball peen hammer back at the head, bam, she's out. But Zoe, you can see her, the twitching and she starts winding down and then she's like, "Dada, I'm really sleepy." I'm like, "Yes, you are. Go right to bed."

Scott: Everyone with a six-month old that's listening to this are like, "I need to try that out."

Robb: It's pretty incredible. I think we mentioned before we recorded, Sagan had a little bit of a weird eczema type thing on one leg and we couldn't -- we pulled this thing out of her food and that thing out of her food and supplemented with some vitamin D and it didn't really change all that much. We were maybe three months into tinkering with this and it's significantly better. I took some photos. I'll pull those up and throw them in the show notes.

I mean, very anecdotal n equals one but definitely that stuff on her leg looks better now. It's a fun winding down process. We don't always read stories in front of the Joovv but maybe half the time we do and then we'll jam back and get our little photo exposure. But I was curious. I'm like, okay, we're wearing blue blockers, we're doing all this stuff, am I putting one foot on a brake and one foot on the accelerator doing this thing? But it doesn't really seem like that would be the case.

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Scott: You're describing an anecdotal story but it is something that I personally experienced on a consistent basis. I know others too. I know you're friends with the Dry Farm Wine guys. I was having conversation with Anthony over there because he was like -- he wanted to pick up a second smaller device just for the sheer purpose of illuminating his room at night because he noticed such significant enhancement to his sleep.

I'm like, "Dude, I'm the same way." I usually do most of my reading in the evenings, in bed. Because I started using it more just a sheer mood enhancing illumination device at that point not necessarily for therapeutic reasons, I get about three pages in and I'm conked out, you know what I mean?

- Robb: Books take me months to finish now because I'm just like *crash*
- Scott: Blame it on light therapy. Blame it on the Joovv device. That's funny. It certainly seems to be the case with a lot of people, for sure.
- Robb: Awesome, man. Well, Scott, thank you so much for coming on the show. Again, apologies for taking so damn long to get you on here and being patient with me. We've done a lot of rejiggering with the podcast and just had a lot of stuff going on. Tell folks where they can track down more information about what you guys are up to?
- Scott: Yeah. One, I totally appreciate the opportunity to jump on your podcast, Robb. I'm truly grateful for the work you do and the opportunity to come on the show. In terms of finding more information, if you want third party information, I mentioned this before, do a simple search on PubMed for photobiomodulation or LLLT, which is low level laser therapy or low level light therapy, kind of the same thing, you'll find a number, hundreds upon hundreds literally of clinical studies.
- If you want our perspective on light therapy maybe in a more condensed sort of way, go to joovv.com and there's probably two areas I'll point you to. If you want to dig into the science in a little bit more detail, go to the learn section of our site, a whole host of article that are all referenced appropriately. But if you want to stay a little more high level and just hear what people experience in their words, go to the review section, which is cool just to hear the different experiences people have with our devices and light therapy in general. That's where I suggest if you want our perspective on the world of photobiomodulation.
- Robb: Awesome. That's fantastic. We'll get that stuff in the show notes. I'll make sure to get some of those before and after photos of Sagan and include that in. Looking forward to seeing you guys in real life. Are you going to be out at Paleo f(x) or anything like that?
- Scott: We are. We are, yeah. Totally looking forward to be connecting in person. We'll actually have a Joovv treatment room set up on site. If you want to experience a treatment first hand, you're at the show, definitely stop by and try it out.
- Robb: I will do that after I get the crap beat out of me doing jiu-jitsu. I'll sign up first. Scott, thank you again for accommodating my schedule and thank you for the work that you guys are doing. This is really exciting stuff. I'm very excited to see where you guys are going with this.

Scott: Cool. I appreciate it, Robb.

Robb: Okay, take care. We'll talk to you soon.

Scott: All right. Thanks.

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