



Episode 189: How Red Light Therapy or Photobiomodulation Works & How to Get the Benefits with Joovv

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Katie: Hello, and welcome to the "Wellness Mama" podcast. I'm Katie from [wellnessmama.com](https://wellnessmama.com). And ever since I wrote about it last year, I have gotten a ton of follow-up questions about red light therapy or photobiomodulation. So today for this episode, I've brought back Justin and Melissa from Joovv, which is the red light therapy device that I use. You've probably seen me post pictures on Instagram where I look like something out of "Star Wars" with a really bright light, and we're going to delve into all the benefits today.

But also a fun fact, they also get to work together just like my husband and I do and they also have six kids. So, lots of commonalities, super excited to chat with them. Justin and Melissa, welcome, and thanks for being here.

Justin: Thanks, Katie. It's a pleasure to be back with you on it again.

Melissa: Yeah, we're excited to chat today.

Katie: Me too, and I think there's a lot more people listening since, I think, our first episode and since I even wrote about red light therapy a couple of years ago. So, to start off, I'd love for you guys to start at the beginning and kind of explain the origin story of Joovv and what Joovv is.

Melissa: Sure. Yeah. I'll jump in here with this one. Basically, a few years ago, I was kind of looking for some things to boost my overall cellular health and ran across red light therapy and thought it looked interesting because, you know, when we normally see light things, we think of skin damage, you know, from tanning beds and things like that. So, the fact that this had no damaging effects and only good effects, I was really interested.

And I started going to treatments at a local tanning salon and I noticed within six weeks that eczema that I'd been dealing with was gone, and that just some really other cool things, enough to make me wanna purchase something for my own home, because I was under the understanding that it was good for children too and I thought, "Hey, we could all benefit from this." But when I went to search the Internet to find something, I could only find small handheld devices and I was used to laying in a converted tanning bed to use to treating my whole body.

And so, you know, the handheld device just, it seemed hard and very time-consuming to me. And so I kinda gave up on it for a little while. But then I had run across it again in another healing protocol I'd seen online and I thought I'd really like to try this and I knew there had to be a better solution. So, I asked my engineering husband, Justin, to build something we could use at home, something that was large enough to treat your whole body in a short amount of time.

And Justin is quite a problem-solver, but at the time, he was just too busy and wasn't convinced red light therapy really worked like I thought it did. So he sort of subtly pushed off my request, "Sometime down the road," he'd say. But I didn't give up and I kept searching and several months later, I came across a blog article referencing the power of red light therapy and I knew I was really onto something, and so I finally convinced Justin to look into it.

Justin: And the first attempt at a full body red light therapy product was made of several infrared heat lamps enclosed on a...basically clipped to a two-by-four because we had found some things online where there's potential benefits by using infrared heat lamps. And although it was a convenient design and, you know, it looked fairly crude, we were initially, you know, very excited. So for several months, our entire family gave it an honest go. And even my wife's sister, Liz, had stopped over for frequent treatments.

And the unit emanated a lot of heat, but it wasn't without its problems. So we realized that the infrared heat lamps, they were extremely hot and didn't have the same effect that the treatment that Melissa had done in the salon.

Melissa: And it was kinda funny, Katie, because we actually had...if we ran both of the setups on the same circuit, we were having breakers pop constantly. So we had these extension cords running from one bathroom to another to try to plug this in and both of us, by this time, were like, "Okay, I think there's gotta be a better solution than what we're trying to do here."

Justin: Yeah. So she convinced me to dig more into the science, and at this time, it was going from something that was kind of on my honey-do list to, like, I was beginning to be really intrigued by, "Well, is there really something to this? So, there's some real benefits here." So after digging into the science, I was really surprised, honestly, to find the extensive amount of research that had been conducted and it really was beyond, you know, a lot of the things that we think of when you think of alternative health and wellness.

In the case of photobiomodulation, there's hundreds and hundreds of studies. So, I basically dug into the science and found out that it really just boils down to a few different things, the first of which is that we need the right wavelengths, and that was very clear through the studies that I had read. And then the other thing that was important is the power output of the device or the radiance. And along with that, I realized...that I read that too much heat can negate the benefits, and that made sense, of course, with our experience with the heat lamps.

So, with that in mind, Melissa and I kind of scoured the Internet again, trying to find a product that matched the research in terms of the wavelengths and the intensity. And what we really found is that the only devices on the market were small handheld items, devices that might work okay for skin health on your face, but they didn't have the intensity to really be effective for deeper tissue and certainly not large enough to use on your entire body.

So, at that point, we started to really dig into the science, and my wife's sister, Liz, and her husband, Scott, became involved. And Scott has a background in the medtech industry and he was starting to think, "Hey, this could really be something that people are looking for." So, at that point, he really dug into determining that, you know, if we could deliver or come up with a device that was able to treat, you know, most of your body with the right wavelengths and the right intensity, it could be really impactful.

Melissa: So with Justin's engineering background and my passion for light therapy, we focused on creating our first prototypes. We wanted something that delivered the right wavelengths along with medical-grade power. And, basically, what was born out of that was Joovv.

Katie: That's awesome. I love that, essentially, at the very beginning, it's a family-owned business and that you guys are still in it working together. That's so awesome. And, Justin, you mentioned the word photobiomodulation and all of the studies around that. So before we go any further, can you go a little bit deeper on explaining what is photobiomodulation and how does it work? What's the mechanism in the body?

Justin: Great question. So, really, the science has been around for some time. Originally, it was referred to as low-level laser therapy or LLLT, sometimes cold lasers. And these have been used for decades, in fact, for physical therapy benefits where they would use a laser to target specific joints and reduce joint pain and inflammation, and there are literally hundreds and hundreds of studies. And what has transpired in the past couple of decades is in the '90s, the research discovered that LEDs could be just as effective as lasers due to basically the science of how it works.

And, as you pointed out, with the correct wavelengths and intensity, it really affects our health at a cellular level. So, for our cellular function and the fourth phase of cellular respiration, there's an enzyme called cytochrome c oxidase. And, basically, the wavelengths that are used in our devices, and have been proven in literally thousands of studies of photobiomodulation, help restore this healthy cellular function and boost ATP production, and, more specifically, ATP synthase, which is the precursor to ATP production.

So, when we help restore how the cells operate, then it basically impacts everything, you know, downline from that, whether it's mental clarity, reducing oxidative stress, inflammation in joints, muscle recovery, some of the ones that people are maybe more familiar with in terms of collagen production, so the beauty benefits. So the list really goes on from there.

Katie: That's awesome. And I think it's one of those things that until I really went deep on the research, it was hard to wrap my head around because like Wi-Fi or like EMFs, it's hard to understand how something like light can impact your body so drastically because, unlike food or exercise, you don't feel the change immediately. If you eat something that's bad for you and you're not used to it, you will typically feel pretty bad. Or if you exercise too hard, you'll feel sore. There's an immediate feedback loop.

Whereas I feel like with light and with things like EMFs, you don't have that immediate feedback loop, so it's hard for a lot of people to really grasp just how dramatically light can impact the body. And I'm curious too because I've been seeing so much research on blue light, and on our circadian rhythm and how much that depends on light and certain spectrums of light. So I'm curious, does photobiomodulation, or like red light therapy specifically, play into that at all? And are there specifically times of day you would not wanna use it based on circadian rhythm or is it one that's safe all times of the day?

Justin: That's a great question. So with blue light, as you mentioned, it has the potential to really kind of screw up our body's circadian rhythm and it can really have a negative impact on our bodily function. So, the retina, our retina are actually tied directly to the hypothalamus in our brain, which literally controls all of our hormone production, our mood, sleep, energy, all these things.

So if we're throwing that off by getting, you know, blue light in the middle of the night right before bed, it has, you know, some very dramatic negative effects. The wavelengths that we use in the red and near infrared spectrum also play a role in, you know, the natural lighting that we get from sunlight. So, basically, the times of day that that would be most closely approximated would be early morning and evening. So, you know, ideally, it's something that you can start your day with, helps you wake up, be energized, basically nutrition for yourselves, if you will, to start the day.

And then, you know, in the evening, it's also a great time to do it because you can help restore, help relax, reduce the oxidative stress from basically the way that your body's been bombarded all day, whether it's with blue light, with toxins in the air we breathe, the water we drink, the food that we eat, you know, the emotional stress. All those things have, you know, a dramatic impact on our health.

Melissa: And I'd like to add to that. One thing I found so interesting was in nature, there's never blue light without red as well, which is pretty cool. And the red is very anti-inflammatory. So a lot of times when we're at a show or something like that and we have someone come and try the light that has never tried red light therapy before, they're like, "Oh my gosh, I feel an immediate shift in my nervous system. My body feels so relaxed." And we always tell them it's because they've gotten so much blue and now by getting this red and taking that into their eyes, they're kind of leveling out all the blue that they've gotten and their body's able to just...their brain is able to just let go and relax, which I think is pretty cool.

Katie: That is really cool. And one thing I noticed when I first started using it is that my eyes, in the beginning, were almost sensitive to it, and it probably was because I started it, I think, in winter and I wasn't getting as much bright light and I wasn't outside as much. And I noticed like the first few times, I was like, it almost was hard to open my eyes because it was so bright. But then I've noticed now that I do it regularly, I pretty much never would think to wear sunglasses because I feel like my eyes have just adapted to that type of natural light and are fine with it.

Is there any research on that or have you guys heard that experience from others as well?

Justin: Yeah, I think that's pretty common as you point out. I think a lot of us are blue light-toxic or even just not outside a whole lot to get a lot of natural light as well. And so a lot of times people do find it to be rather harsh initially. And we encourage people to, you know, just go ahead and start the treatments, you know, with your eyes closed and as it feels natural and comfortable, you'll find yourself, you know, opening your eyes, and your body does. Your eyes do adjust to it.

And, interestingly, there's a significant amount of research showing a wide range of eye health benefits using photobiomodulation. So, everything from various macular eye...degenerative eye disorders, to even vision quality. So we've definitely have heard that from many, many customer just from the various benefits that they've seen even related specifically to the eyes.

Katie: That's super fascinating. And it reminds me of another podcast I've recorded in the past with an eye health doctor. I'll link to that in the show notes, but I think he was like the holistic eye doctor and he said, "We're seeing kids with vision problems early." And he thinks there's a few culprits, one being they're staring at screens too much, so their eyes aren't having to adjust to multidimensional things as often. But, also, they're not getting enough bright light because they're not outside enough so their eyes are actually not developing correctly.

So that's a question I know I've gotten and I'm sure you guys must get a lot too is, is it okay to have that light hit your eyes or do you need to wear some kind of eye protection when you're doing red light therapy?

Justin: Yes, and that's really important that we've gone through the...there's actually regulated tests that are required for any registered photobiomodulation device, and our devices are actually now FDA-approved. We've gone through stringent testing that's required for things like eye safety. So that is an important consideration that, yes, it is safe to look at it. It's not our opinion or the opinion of, you know, somebody on our advisory board. Like, Dr. Hamblin is, you know, obviously one of the world's leading experts in the field, but we have gone through the extensive testing and some of which, of course, is related to the eye safety.

Katie: Yeah, that's good to know. And like I said, I've noticed a big difference in just how my eyes respond to light since I've made an effort both to use the red light therapy and also just to spend more time outside. I know you guys would echo that as well, just in your lifestyle of we would all be so much better off if we also just prioritize being outside more. But I want to loop back to the photobiomodulation and the mechanism on the body.

So I think it's really important to delve into that this is not just like the color is affecting us but these lights have specific wavelengths that penetrate the body in specific ways. So they're actually reaching different levels of the body and accomplishing different things. So can you kind of break down a little more the two different wavelengths that are possible in red light therapy and what they each do?

Justin: Yes. So, we use two different wavelengths in our devices, and we are strong believers that both play an important role. And we've mirrored that on the clinical data and the research that has been conducted. And the first range of wavelengths that's shown to have an incredible impact is in the red spectrum, in the mid-600 nanometer wavelength ranges. So roughly between 630 nanometers to 670 nanometers has been shown to have this critical role in cellular health.

So, as I mentioned, that fourth phase of cellular respiration, which is oxidative phosphorylation, it has incredible impact to help restore that healthy cellular function in the mitochondria, which is essentially the powerhouse of the cell.

And the other wavelength that we use is in the mid-800 nanometer wavelength range, which is invisible to the human eye, so it's beyond the visible spectrum. And that wavelength is also powerful for the cellular...helping

restore this healthy cellular function, the main difference being that it's much more effective to penetrate to deeper layers of the body. So, it's much more effective for muscle recovery, joint pain, reducing inflammation, and those sorts of benefit.

So, the main difference and the reason why it's more effective at reaching deeper is just because of how the different wavelengths are absorbed by the tissues of the body. Specifically, water in our tissues very rapidly absorbs wavelengths that are on the lower end of the spectrum, so towards the 600 and below, and then, again, also wavelengths that are much higher than the 850 that we use for the near infrared.

So, you know, if any of you have ever used an infrared sauna, for example, typically, you're using wavelengths that are longer than 3000 nanometers, and those wavelengths we feel as radiant heat because they're very quickly absorbed by the moisture in our skin.

Katie: Got it. And that's another distinction that I think is important to make is the difference between that and sauna and the different things that they do to the body. So like you mentioned, they're related, but can you also talk a little bit more about how they're different in...like, should you use both ideally? Like, what would be an optimal case there?

Justin: Yeah. So, we actually have a sauna that we enjoy using and, you know, it's well-known the various benefits, most of which have been documented around the cardiovascular benefits, and there's also some really interesting studies showing the potential for reducing toxins using sauna therapy. All of those things are related to the heat that's delivered on the body. So, with the mid and far infrared wavelengths, you're able to raise the body's core temperature and you have heat shock proteins and enzymes that are created that help the body to basically eliminate toxins.

And it has very similar effect to cardiovascular exercise because it's basically a stress that you're putting the body under. So, if you're in a sauna for 20, or 30, or 40 minutes, you get out and you feel like you just ran, you know, about eight miles. So, photobiomodulation or what we do with the Joovv lights is a totally different type of therapy. So rather than a stress on the body which has its own, you know, place and different types of benefits, photobiomodulation is more restorative in nature and basically providing food or nutrition for the cells at the mitochondrial level.

Melissa: And we usually recommend for customers that do have both sauna and red light and wanna do both those treatments to use your Joovv after your sauna treatment as a great way to help your body just relax and calm down after the heat stress it's just been through.

Katie: That makes sense. I've noticed that, too. We have a sauna at our house as well, and especially when you get up in the like 160s, 170s, I noticed like eventually you actually feel your heart rate go up. You obviously are sweating. But you feel some of those similar effects of exercise.

Whereas the red light, like you guys said, I feel like it's like my turn-down button. Like, I just kinda like feel my nervous system just turned down and relaxed when I use the red light therapy. So, they're so different. And I just wanted to make sure that we talked about that, that they both have their place and they're both awesome. It's not that one replaces the other by any means.

And that's a great tip, to use the Joovv after. I know that, obviously, most people listening are women, and a

question I've gotten a lot and I'm guessing you have too is, is red light therapy safe for pregnancy and nursing?

Justin: Yes. That is a common question and it's one that we've posed and actually discussed at length with Dr. Michael Hamblin. He's a researcher at Harvard University. He has published or been a part of over 400 clinical papers on the subject of photobiomodulation. While there is not any existing studies that have been conducted during pregnancy, you know, he is of the opinion that there would be benefits for both the baby and mom, and especially actually for the baby due to the high number of stem cells. And stem cells have a much higher concentration of mitochondria, so the theory goes that they would be very receptive to the therapy.

So, that being said, because there is no clear indication through a study that's been conducted, it's something that we would have to recommend people to consult with their physician about.

Katie: Of course. Yeah, always a good idea if you're pregnant or nursing before you do anything. I guess the way I looked at it is these would be spectrums of light that I would have gotten from the sunshine anyway, and most traditional cultures encourage pregnant women to spend time in the sun to get enough vitamin D because they know how important that is for the baby. And, obviously, like the red light's not creating vitamin D but you're getting the other beneficial spectrums, so I felt perfectly comfortable with it. But, yes, great advice. Check with your doctor or midwife always just to make sure it's right for your case.

You mentioned like the several different iterations that you guys even went through in creating the red light therapy device. Are there things that people should be aware to look for in a photobiomodulation device and is there a way to know that it's high-quality? Because it seems like there's been a lot out there on the market.

Justin: Yeah, that's a question that we get commonly. And, since we launched Joovv, we've actually seen a number of different companies come with different types of products that are similar or trying to treat a larger area. And there's a lot of the different things that are important to mention here, but, really, in terms of the effectiveness, it really boils down to the wavelengths that are used, the intensity, or a radiance, and then also the treatment area.

So, with our new Joovv system that we actually just launched, we actually have gone to a modular system which allows people to really customize the device to fit their size and their desired treatment goals.

Katie: That's awesome. Can you explain that a little bit more? Like, because people may not even be familiar with the initial model, but just explain kinda what a red light therapy model looks like, how it integrates into your home. I know we compared it to sauna, so there might be this idea that it's as big as like a barrel sauna or something. Can you kind of explain that?

Justin: Yeah. Excellent. So, we really, from the very beginning, wanted to have a device that was easy for people to incorporate into their daily schedule and, you know, we came up with a design that allows it to hang from anyone's door in their house, so it literally would fit between a door and the wall or, you know, basically the depth of a doorstop. So, it's very convenient to set up really virtually anywhere in your house.

And, as we talked about, it's something you can add to your morning routine or in the evening, and it basically is a very bright LED light panel that has LED specifically designed for the purposes of photobiomodulation and utilizes cooling fans to basically regulate the temperature of those LEDs.



So that was really our initial goal at Joovv, was to basically bring...we were a strong believer in the benefits of light therapy and wanted to bring a product that everyone could use and benefit from.

Melissa: And our new Joovv modular system allows you to connect up to six Joovvs in a single system. So say, you know, "I wanna try this. I'm not quite sure if I want to...you know, the really big size yet. I just wanna see if it works." At any time, you can add onto your Joovv system and make it larger and able to cover more of your body at one time. And so we thought...we've had customers reach out from the beginning of our first models and say, "Hey, I love your system, but here's a tip I would give you."

And so we, you know, we listened to all of our customers and we took, you know, different advice that they offered us and we're pretty excited about our new modular system and how, you know, at any time, you can add on and create multiple Joovvs linked together so that your system can be larger and you don't have to feel like, "Shoot, I should have bought the bigger one."

Justin: Yeah. We're very excited because we've done the third-party testing, you know, regarding the output of the devices. And, really, our goal is to provide basically the best value on the market in terms of the light output and, really, at a fraction of the cost of some of the similar...the products on the market. And, as Melissa mentioned, you know, offering industry-leading sizes that are able to treat your entire body is critical because of the vast amount of benefits that can be achieved when you're treating your whole body.

So, with the new devices, we also have the new Joovv app which allows you to track your treatment times and set up goals so that you can...it basically allows for personalized experience. So, you know, if you wanna do, you know, four treatments a week or five treatments a week, you can track that progress over time.

Katie: That's really cool. And as a follow-up to that, I know I get questions about, how much should you do red light therapy? Is there like a maximum when it's not effective anymore or when it's dangerous? Do you guys have any good guidelines for what seems to be the minimum effective dose? And also if there's upper levels of that?

Melissa: Yeah, we recommend daily, if possible. For some people, that's not in their schedule. And so, then we say, you know, every other day would be great. But, usually, it's 8 to 10 minutes per treatment area and you can treat up to 3 times a day. We just recommend waiting five to six hours between treatments because our cells actually need time to take the light in and process that. So, while you really can't get too much light so you're not hurting yourself by, you know, treating over that time period, you're not gonna be getting any extra benefits either.

Katie: That makes sense. And you mentioned that your kids use this as well, and my kids do also, but are there any special guidelines when it comes to children using the red light?

Melissa: Yeah, I use it for my kids, especially on days when I feel like they weren't outside enough to run around and get some sun. I usually do a little bit less time for them. I kinda cut the adult dosage in half for my younger kids just because I figure, you know, they're smaller than me. But there really isn't...like I said, you really can't overdo the Joovv. And so, for me, a lot of times it's just like I can only get them to stay in there for about six minutes. And then they're like, "I just wanna go, mom. Let me go now."

Katie: Yeah. We could both attest to how hard it is to get kids, especially when you feed them real food to get kids to stand still. They just have all the energy, they wanna move.

Melissa: Yeah.

Justin: Definitely.

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Katie: What are the biggest use cases that people are coming to you for red light therapy with? And I know for me, right now at this point in my life, it's purely vain. I know that it helps with collagen production and I like hit that age where I saw a couple of wrinkles and was like, "Uh-oh." So it's purely vain for me, but we originally found out about it and researched it when my husband had to have surgery and that higher wavelength that penetrates in and helps with healing in tissues.

So, I know that there's multiple use cases, but what are you guys seeing the most from people who are actually using the device?

Justin: Yeah, we actually have a wide range and that's one of our biggest challenges, is because we'll have people that, as you mentioned, are very interested in the beauty benefits, which is probably the one that most people are familiar with just because it's so common in spas to do, some sort of a red light therapy treatment with a facial or something of that nature. So, there's many people that do enjoy the therapy for the skin health benefits.

And then another one that is really quickly catching on is we have actually a lot of professional athletes that use it for the muscle recovery and athletic performance. So, for example, TJ Dillashaw is a UFC fighter, uses it as part of his training regimen to basically help his body recover after what it's, you know, put through with

that training. And we have the same thing with multiple NFL athletes.

So, I would say those are some of the really big ones. And then kind of a close follow up with that, it would be for the testosterone benefits. There's a number of interesting studies about the potential benefit for photobiomodulation as it relates to hormone production and specifically testosterone production in men.

So those are some of the common ones. It really runs the gamut just because there's so many different things that it can have an impact on, and it's interesting because everybody's body responds a little bit differently, really depending on kinda what their body's working on.

Melissa: We also have a lot of people that just start the therapy just for overall optimal health. They just want to add that into their, you know, wellness regimen and they come back and they say, "Hey, I'm sleeping so much better. Is that possible, that the Joovv could be doing that? I've got so much more energy." And so sometimes people will start using the light and don't even know that maybe they weren't sleeping to their fullest or they didn't have the fullest energy they could have and then that it's amazing to them to see their body functioning at a higher level they didn't even know was possible.

Justin: Another one I'll jump in with too that's common and actually FDA-cleared for is for reduced joint pain and inflammation. So that's a huge one for really people of all ages, whether that's a younger with different impacts that they're putting their body through with sports or those that are a little bit more senior in years that find that they're able to just enjoy life at a much higher level by helping to reduce that pain and inflammation.

Katie: I wanna go back to the testosterone thing for a minute because our mutual friend, Ben, talks about this quite a bit. But, can you, for anyone listening, I know largely women listening, but a lot of them have husbands or significant others, explain what's happening with men and why it can increase testosterone?

Justin: Yeah, that's really been one of the big surprises, I must say. Going back to the original video that Ben posted, we had no idea that he was gonna post that about the Joovv, and it was really fascinating just to see the science behind what he, you know, was talking about there in terms of the benefits for the testosterone production, and since then, just to see the incredible feedback from all the people that have, you know, been using the Joovv for that.

The studies are really interesting because they discuss the potential for the red and near-infrared wavelengths to have benefits for the Leydig cells and testing and actual production of testosterone. And I think that's certainly a well-documented process that is very likely to be at, you know, at least one of the mechanisms of action. And I think, additionally, you know, what we're seeing too in terms of the benefits that people are seeing in terms of testosterone is because they're doing it, the therapy, over their whole body.

So now they're taking it in through their eyes, that it's getting through to their hypothalamus and helping to regulate just their overall hormone production, the increased blood flow, and, basically, just the overall improvement in health. I think all these things have a pretty dramatic effect and, for that reason, we have, you know, a number of documented cases of people that have done...have their free testosterone test done before and after, whether it's, you know, a month or a couple months later after using the Joovv light with some pretty incredible results.

Katie: That's exciting. Yeah, it's fascinating. I feel like this is an area...I think light research is gonna be an area we see a lot more research on in the next 10 years or so, both that and EMFs. I'm really excited as we get more data on these things. Also, I know I've seen some research on the hair benefits of these specific wavelengths of light. Can you explain what potentially could be the mechanism there?

Justin: Yeah, it's interesting because that's one I have actually personally seen some impact with as, you know, it has been tied to male pattern baldness. There's a lot of factors involved whether it's hereditary or stress. And what I saw, personally, was, you know, I had a pretty good-sized area in the back of my head that was thinning substantially, and after faithfully using photobiomodulation, that area just totally filled in and thickened out. So, it's definitely something that I've seen personally.

And the studies certainly indicate...you know, there's dozens of studies on...that had been conducted using red and near-infrared light for the benefits of, you know, restoring hair growth. And the theory, I mean, it kinda sounds like a broken record, but it really goes back to that cellular function and going basically into the scalp and the hair follicles and as you restore that healthy cellular function, ATP synthase, ATP production, and restore that mitochondrial function, it's amazing just to see how that hair can really be restored in a relatively short amount of time.

Katie: It makes sense. I feel like so much in the body goes back to ATP, and I think most of the listeners are pretty educated and already kind of understand it. But can you, if you don't mind getting science-y for a minute, just go a little deeper in explaining the cell mechanism, and the mitochondria, and how ATP is so vital? Like, it's easy to underestimate, but how this is truly actually vital to us being alive. It's so important.

Justin: Yes, exactly. Virtually, all the cells of our body have what's called mitochondria, and they're essentially this workhorse or engine of the cell that actually produces energy. So it takes energy that we get, derived from food and it takes energy from light, which has been well-proven. And it basically is the powerhouse that produces ATP production. And breaking that down a little bit more, we have what's called the electron chain transport, and we have the four phases of cellular respiration.

So in the first phase, which is glycolysis, the second phase, which is pyruvate oxidation, the third, which is the citric acid cycle or also referred to as the Krebs Cycle, and the fourth is this oxidative phosphorylation. And in that fourth phase, what we find is as the electrons move down this chain, the energy is released and it basically pumps protons out of the matrix forming a gradient, similar to a battery where you have a gradient of electrical charge.

And so at its core, the body is basically an electrical chemical engine that is fueled by both food and light. And when we use these specific wavelengths, it can help restore this gradient and protons flow back into the matrix through an enzyme called ATP synthase, which creates ATP.

Katie: Yeah, literally vital to every aspect of life. Are there things that are complimentary with red light therapy that can actually increase its effectiveness? I'm thinking, my background's in nutrition and there's so many lifestyle factors that I've researched. I'm curious if there are anythings you guys have found either anecdotally or in research that can help also make it more effective.

Justin: Yeah, I think there's a lot of things the wellness industry is really becoming aware of that either have effects, both positive and negative, on the cellular function, referred to, previously, the negative impact that

EMFs have. And those are basically a non-native electromagnetic fields that actually have a substantial negative effect on these cellular functions. So that would be one that I think people...as people get more aware of those impacts, that we can make more educated decisions about what we surround ourselves with, and what we're exposing ourselves to in terms of EMFs.

So, a simple one, at the very minimum, turn off your Wi-Fi at night. You know, ideally, figure out a way where you can hardline most or all your devices so that you're not exposing yourself to the Wi-Fi signals, you know. Another simple one, you know, put your phone in Bluetooth mode if you're gonna carry it on your person or if you, for example, when you sleep at night. So I think the EMFs is a big one, and then I think another important thing that is just really starting to be understood is the impact of grounding and the way that our bodies take in electrons through the earth's surface.

And I think all these things play, you know, a pretty powerful role in our bodies at the cellular level, you know, where science is just beginning to catch up and understand why.

Melissa: I also think being properly hydrated when you do your treatments is extremely helpful. We started seeing research on how our cells can actually hold on to the light and process it better the more hydrated we are. And so I, a lot of times, tried to take a glass of water in with me and just... I know it's so hard for all of us to remember sometimes to drink our water every day, and so it's a good time for me to be like, "I'm gonna do my treatment and I'm gonna drink some water at the same time." So that's kind of a personal goal I have.

Katie: It's a good idea, and kill two birds with one stone, make it easy like that. That's a good plan. So, I'm curious. What's next for you guys and the future of Joovv?

Justin: That's something that's very exciting, and as you point out, you know, I think the health and wellness industry is quickly beginning to realize the impact that light can have on health, and so it's been really fun to see the interest that's built and the benefits that people are seeing from the therapy.

So, we've really been focusing on providing the best value available for our customers in terms of the light therapy products that they can use, you know, on a daily basis. And then another key thing that we're working on is providing a wide range of mounting options. So, the door system is kind of our original system that works very well, but we've also just launched the mini-stand that's with the Joovv Mini.

So, it's a great way to do targeted light therapy, whether it's for your face or if you, you know, set it down to your ankle, you have...you know, if you twisted your ankle or you have joint pain. And we have some exciting things that we're working on for additional stands that would maybe be better suited for professional settings or something like that, too. So, we have a lot of exciting things in the works and it'll be fun to be able to launch those in the near future.

Katie: Awesome. And links to everything we've talked about, I know that you guys have articles on some of these topics. I also have articles on red light therapy. Those will all be linked in the show notes at [wellnessmama.fm](http://wellnessmama.fm), if you guys wanna delve into more research. There's a link to you guys in the show notes, so make sure to check that out at [wellnessmama.fm](http://wellnessmama.fm).

Questions that I love to ask as we start to wrap up, the first being, if you could spread a piece of advice far and wide, it doesn't even have to relate to this topic, what would it be and why?

Melissa: I always say, "Don't be a follower. What's good for one person might not be good for all." And I always find that I'm the most happy and fulfilled when I create my own paths instead of following just pressure I might feel from what others would like me to do. That's just a piece of advice that over and over in my life I've found extremely valuable.

Justin: And I'll jump in there. I would just say that happiness is one of the biggest keys to a healthy lifestyle that it's often forgotten. So if you aren't happy, I would strongly encourage you to look at, you know, what is causing that or what's preventing you from being happy and work on that because you're worth it.

Katie: Both awesome pieces of advice. And where can people learn more about you and more about Joovv?

Justin: You guys can go to [joovv.com/wellnessmama](http://joovv.com/wellnessmama). And if you use "wellnessmama" at checkout, you will get a cool gift that we'll include with every Joovv purchase.

Katie: What about any book recommendations that have really changed your life? I'm a voracious reader, so I'm always on the lookout for new books.

Melissa: Currently, I'm really interested in a book called, "Do Schools Kill Creativity?" by Sir Ken Robinson. This is a topic that's highly interesting to me because I've definitely chosen a more untraditional schooling route with my own kids and I just love reading others' thoughts on the issue because sometimes it can feel like I'm taking on such an incredible role to be the educator of my children. And so I just...I love reading encouraging books on that topic.

Justin: And one that has been one of the more influential books that I've read is "Bunker Hill" by Nathaniel Philbrick. And it gives a riveting account of the life of the men that, you know, left their homes to fight for the freedom of the colonies despite what must've been insurmountable odds. So it's difficult to imagine, you know, what that must've been like for them. And sometimes I think it's easy to take for granted the liberties and the freedoms that we enjoy today. So that's been a powerful book.

Katie: I will check both of those out. They both sound awesome. Thank you guys so much for your time. It's so cool. I love, like I said at the beginning, that you guys are also a family-owned company and that you have six kids as well. We don't find many people like that. And I appreciate you taking your time away from your six kids to be here and to talk about red light therapy today.

Melissa: Yeah, thanks for having us, Katie. We've really enjoyed chatting.

Justin: Yeah. Thanks, Katie. Always a pleasure.

Katie: And thanks to all of you for listening and I hope to see you again next time on the "Wellness Mama" podcast.

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