Can Light Be the Answer? Exploring Red Light Therapy for Alzheimer's Transcript

(Transcripts are generated by AI and may contain errors)

Podcast Intro and Summit Welcome

Welcome to Doctor Talks, the podcast where every episode leads to a healthier you. Join us as we navigate the world of optimal health, uncovering groundbreaking strategies to conquer chronic disease.

In each episode, we'll bring you the latest insights from leading health experts, medical innovators, and wellness warriors. If you're seeking to transform your health journey, or if you're looking for answers to burning questions, you've come to the right place.

Get ready to unlock the secrets of lifelong health and vitality. This is Doctor Talks, real talk from real doctors on the issues that matter to you most.

Welcome back to the Reverse Alzheimer's Summit. I'm your host, doctor Heather Sanderson, and I'm so delighted to introduce you today to Doctor Lou Levin.

He's the founder and CEO of V light. And we use the light every day at Marana for our residents there. And I can't wait for him to answer some of my burning questions about the light.

And also to answer yours, of course. So, doctor, doctor, then I would love for you to just describe a little bit about how you got into this space, how you discovered the light and red light therapy, and what made you think to put this into a cap that people can wear on their head for brain optimization?

Yeah. Well, thank you for asking. This actually goes back to in the mid 90s.

Lou Levin's Origin Story and Early Light Research

I'm now in Toronto, but at that time I was in California in, you know, the Bay area, and we were doing some technology work. You know, of, LEDs, flat panel displays, for, you know, for the, for the, for, say, virtual reality.

We were very early, experimenters at the time, but what I found was with, lasers, it produced some really interesting things. To the body, but we actually.

Well, I actually looked at what was not really, published in English literature, but in the Russian language. At the time, a lot of the laser work was done by the Soviet bloc at that time.

A lot of Moscow and, Estonia was part of Russia at the time. There was quite a lot of activity. So what they were doing then was, experimenting with injecting light, red light specifically into the blood circulatory system and, they were saying things like, you know, is actually improve the, certain outcomes, like, you're recovering from diseases, your immune system better, and, you know, post operation better, and stuff like that.

But actually, the first discovery published was in, the mid 60s in Hungary. But it led to this, it led to quite a lot of interest in that particular part of the world.

And, and if you know a little bit about physics and biology, and I'm beginning to ask the question, why do we need to take a liking to the when, when, when actually red light and infrared can penetrate through the skin.

So there is a lot of, you know, removal of intrusions, right. You know, so I tried that and you and then ask the question if you were to try to if you were to try to do it in an effective manner, you want to see where the membrane is thin and light, able to penetrate.

One of the areas that's convenient is actually the nasal membrane. So maybe you can penetrate the skin in the

hand or whatever, but, nasal membrane could also possibly take a very safe low level.

Level of energy. And then, we I tried that and, look through the microscope and see what's happening to blood samples and they actually improved, to cut it short.

So. Okay. That's a really good way. To do that. But, the technology wasn't available, and it at a time to make a simple, you know, device that can be used conveniently by the everyday folks.

So we had a way to do experiments going on, was doing a number of other things, but it was actually in the mid 2000, we the solid state technology was good enough for me and my engineers to, produce something.

And we continue to do that. And we actually released, pretty much under the radar intranasal devices, and achieve the same thing. So, we slowly, you know, formed the light and, marketed it to the world.

So I just want everybody to know what it is we're talking about. So there's a cap that you put on your head, and then there's an intranasal clip. So you put it up, and you put the light into your nose, and then there's a clip on the outside so it stays put.

And then you turn this light on for about 20 minutes. And what we see is that there are potentially benefits for Alzheimer's and dementia. And so we have the privilege of talking with you today to understand all of the details about how that might be working, why we would expect that to work, what might be going on, what the mechanisms might be, and then also some of the research.

So you describe some of the early research which was in lasers that were very, very expensive, from what I understand, in the 90s. Yeah. You couldn't get a lot of light, you couldn't get a lot of lasers.

They were just so expensive. And many of them were hot. I guess there were also cold lasers. But we're talking about a pretty specific, part of the spectrum of the of the light spectrum.

And not all of it is visible. Even so, let's let's dive into some of these pieces. So why why the cap? Why the why on the head and the nose. So you describe the, the mucosal surfaces.

Now it's any of that light actually penetrating into the brain through the nose. Yeah. You know we we actually had our first case, around 2011, 2012, with a Dutch immigrants who, who lived in Vancouver, British Columbia, and his family was, you know, it's like clockwork.

The the siblings were all getting Alzheimer's at a certain age. So he was due to have it, he was actually, facing mental decline and diagnosed Alzheimer's disease.

Intranasal and Headset Design for Brain Targeting

So at that time, we only had the, intranasal and, actually, presented that particular case, but we didn't publish it because it's just one case, you know, and but, so we, we measured is, his, his cognitive performance.

He actually improved, because one case, you can dismiss it. Okay, maybe placebo, something else happening. But this was real. Real, solid case today. His, his his mid 80s is still doing well, but he's progressed from the intranasal only to this all his that that you're familiar with.

Now then we did another small study. That I'll call this, you know, included, Michael Hamlin, Harvard at the time. And Megan, he's from Boston University.

On a few cases, with people diagnosed with, dementia. And this was very we didn't filter them by what were levels. And we found that, at that time, we only had the the neural alphabet.

The first the first prototype, the perfect ten has. So I knew where we I, I kind of okay, let's aim at a default Monday

and we'll talk about it later with the intranasal and see what happened.

Actually the number of subjects, five of them, they actually improve. We did. We showed an image. He scored actually improved significantly. So he seems to be working again, you know, small numbers.

And then and then I thought, okay, when you study, how memories was encoded, gamma begins to feature more prominent prominently around the time. So we're talking about 2015, 2016, someone was coming out of, UCSF stuff.

So, so we we didn't case again, it wasn't published, but we did, presentation on another case in 40 days. He was a professional opera singer who was diagnosed with Alzheimer's disease.

And, he improved. But this time we also did a the measures on the EEG reading, and we found that his gamma actually went up. Now, incidentally, at the same time, towards the end of 2016, MIT published this pretty well known even in that field, again, a study when they they're actively screening, like flicker flickering at 40Hz, which is 40 times a second in, in an animal study, you know, in a rat model with lots of bread, with symptoms of Alzheimer's disease.

The, the animals improve the measure. They found a reduction in, markers of bad amyloid and stuff like that. So that was okay. Okay. Seem to converge with the other things I'm doing.

I'm already developing the the gamma and tested on this particular person. So that was, that was that was a, you know, that's quite a learning. And I think from there we kind of established, okay, everybody is saying for this now we are doing more, more experiments.

We are actually doing, what's happening to components of the brain, like microtubules and stuff, live cells, we posit different frequencies. We working with, University of Alberta.

This is one like, involved quantum biologists, physicists, and, you know, biophysicist and people like that. We are finding some really interesting thing, regarding the beginning to understand more and why for this, for it is interesting and maybe even higher.

You know, so I want everybody to understand when you say alpha and gamma, what do you mean? What is the difference between those two settings? So it. Marama, we have the neuro duo and neuro for brain rate.

So it's the cat for the brain. It includes the nasal piece and then it's the duo. So the duo means there's two, right. And you can go back and forth between Alpha and Gamma.

So I want everyone to understand like why would you use Alpha. Why would you use gamma. And then how how do you do it. Okay. The, before we do that, let me just briefly go through why these various components.

Now the introduce is important. We use infrared so it penetrates deeper 810m. Now the olfactory is actually part of the brain. It has direct projection to the hippocampus which is a memory area.

And the amygdala which is the emotional area and importantly the thalamus, which is kind of like, you know, it does this, redirecting of signals to other parts of the brain.

So, the nasal is important. And the, the other components are all the nodes of the default motor network. Now, why default mode network is a template network.

When you are resting, you are not doing performing a task. You know, there's some introspection. You get in and close your eyes. We get into that. And that's when your default mode network comes in.

The when the default mode network is healthy, it usually leads to a healthier brain. And Alzheimer's disease has been related to the health of the default mode network depression and a bunch of other conditions, including,

Parkinson's disease and so on.

Alpha vs Gamma Frequencies and Brainwave Effects

So that's, now when you, the rest getting to, you know, the your, your default mode network, you know, coming into play actually, when you post and this is actually help because ten years is also the same kind of mode that when you get in a default mode network, you in your alpha state is also similar.

When you close the eyes and does nothing, you're in an alpha state too, so that helps. And and there was, early animal study done at Harvard on, on animals that, simulate the way to, you know, traumatic brain injury.

And it tried different frequencies and found that, you didn't test for the first, but it did Alpha at ten and found that that particular pulse frequency produced the best outcomes in terms of recovery from T from an injured brain.

So that led to that, you know, ten hertz now now 40Hz is, is now what I'm learning is not published. But I'm hypothesizing here from all the work we're doing, there seems to be a switch in our, 3940.

Does that kind of, maybe move when you are activating and also the default mode? You may be moving away from it and activating some other network that actually makes you think, better yet, more alert.

You know, like the the sensor network, for example. So it gets into that. And in the meantime, what the MIT study did, was it activated, the some brain cells called the microglia, which, which is job is actually, to remove this unwanted debris in your brain.

And, you know, stuff is active when you're sleeping and, you know, your active brain and the lymphatic system, the clever stuff. What we figure in the microglia can be, talk to toxin.

The events over activated because it causes inflammatory condition in the brain. But in this one, we, in the research field, we are believing that what?

Abi modulation is probably activating the non inflammatory, subtype calling m2, so. So we could be doing that. And it actually helps the microglia to help remove this.

You know, the unwanted debris in the brain, which includes the beta amyloid deposits, blocks in that. So, so that's why some we often recommended use the camera when, you're taking a nap or when you're sleeping.

You actually helps it helps it a bit more. So that's very briefly. So gamma is the 40Hz and then alpha is the ten hertz. Is that right. And three pulses of light per second.

So ten right okay. So there's ten pulses of light per second with alpha. And is that a do I understand correctly that it's amplifying your alpha waves.

Is it associated with the brainwaves. Alpha and gamma. Yeah. It's it's it's interesting. We published a paper in 2017. And show what happens when we do the gamma 40Hz on the healthy brain and found that it actually elevated the power of the faster waves like alpha, beta, gamma, and reduced the delta theta.

Now, this is interesting because, in the world of neurofeedback, you're there for many conditions. You're looking at something like this, like when you have ADHD, even, you know, some evidence regarding schizophrenia and so on.

Now this, so that and Alzheimer's disease also can be correlated with too much of the slow waves. You know, that's why you behaving like that. And not enough of the first waves. So, so that, you know, we are able to change the, the waveforms to with when we direct gamma even in healthy brains.

So, now with, with ten hertz, based on the animal study done. Of course, there are a lot of experiments that can be

done. We just use what's available was published in what we know.

May accelerate, you know, a brain that's been through, some physical trauma, like traumatic brain injury, concussion from other sports, from from blast explosions.

So that, so in May in May accelerate healing based on animal study done in Harvard. So, so that's why, you know, this is some of the rationale and generally, some people report, you know, for 40 years, brain is too active, too busy.

And, whereas we don't hardly get anything like that from ten hertz. So generally speaking, the default, you know, the go to frequency is probably ten hertz.

And if you want a higher functioning and and you have to clearly when your brain is going through some degeneration, 40Hz is probably, you know, the device to go to.

So so that's the gamma. So the gamma 40Hz if that's more associated with help for Alzheimer's and dementia. Now we are really excited to have the alpha as well at Miramar because anxiety is something that often comes with dementia.

So many of our residents, they suffer, especially at the beginning when they're transitioning and getting into the routine at Miramar. And so we find it very, very helpful to have that alpha mode to help, to calm people down.

So I'm wondering if you guys have seen the same thing and if that's in the research as well, that using that alpha state, that ten hertz, is helpful for kind of other things.

Yeah. It's it's very interesting. It's actually I get, feedback, you know what, way from neurofeedback practitioners who often say they prime the patients with the ten hertz, before against, neurofeedback and they get better results.

So, so he maybe, you know, it's established your brain to be in a better state and become more receptive to, to other treatments. But so this is stuff we, we, we are seeing now, I have to say that, we, you know, I can't go and say, okay, for sure.

We're going to treat Alzheimer's disease with any of these devices. That's why we're doing, a large, pivotal clinical trial, that's been stymied by the pandemic for 2 to 3 years.

So we restarted again. And, and try to prove it. So for now, you know, we say we just helping, helping the brain to function better as a general statement.

Okay. So let's talk about those mechanisms. My understanding of the Hamlin work. You mentioned Michael Hamlin. He published with you. He was extremely prolific and publishing, papers and data around red light therapy, the use of red light therapies, and some of the mechanisms.

And so my understanding of those is that there's a few mechanisms that are proposed, but the one that may be best understood is the effect of red light therapy on activating the mitochondria and the production of ATP through.

Is it this cytochrome c oxygen Ace enzyme. And so, it what I understand about it is that you essentially, after using it multiple times, hopefully over time daily or six to 5 to 6 days a week, you're activating the mitochondria in a way that they are more efficient at producing ATP or the fuel that our brains and our cells run on.

And a lot of us, I mean, naturopathic doctor, right. And I see patients and often when I think about mitochondria, I think are more carnitine, more ribosomes, more riboflavin, more CoQ10, those nutrients that are so important for mitochondrial function.

And there's the red light therapy. And how it works was just it kind of like my brain had to like reshuffle, thinking about what was possible and what impacts the brain and all cell function.

So it's speak to that a little bit. And how I think I think it's kind of like zooming out. Right. What are all of the things that impact cell health and that, you know, we do the British and protocol, we think.

But what are all of the things that are going to impact brain health, for better or worse? And it's light is one of those things outside of kind of the typical box, right, the medical model of adding nutrients or pharmaceuticals or something.

So I digress. Please tell us how this works.

Mitochondria, Inflammation, and Proposed Mechanisms

Yeah, I actually the most, go to explanation for mechanism behind for the by modulation is the activation of mitochondria. And actually what's happening is the the mitochondria becomes more receptive to further by modulation when it is performing optimally.

And so the modulation equals v light. It equals this red light therapy. Right. That they're synonymous. Oh right. Right. Yeah. Yeah. So for Abi modulation was mainly I say no get experimented with light.

But is is the effect of light on on the body, on the cells and so on. Now is usually red tuning for red, because the, the mitochondria is actually receptive to, you know, this window of wavelengths of light.

So the theory is that it activates the, you know, cytochrome c oxidase or cytochrome c oxidase enzyme in the last terminal of the electron transport chain.

Now, what's happening is multifactorial is not just the increased production of ATP, ATP, it creates energy. And, you know, there's some other things to but, one important thing it does is, you know, often the mitochondria is, performing suboptimal because, nitric oxide is somehow stuck, you know, stuck in the, in the electron transport chain.

So with the when it absorbs this red light, it releases there's nitric oxide. And that's what I say is the versatile status because reduces your body.

Does a bunch of other things too. But it is well known for helping the blood vessel walls to, to relax so you get better blood circulation. Now, what it also does is the evidence of other, transcription factors.

So, you know, this, factors that can alter the proteins or alter your genes, for good and bad reasons. But what about a modulation is usually good, because it helps release things like, you know, PDF, which is, you know, brain derived neurotrophic factor, which helps the brain to regrow.

It helps to, controls toxicity, you know, brain, when your brain is right, when your brain does anything, it does. The byproduct is, is, toxicity. So it helps to, you know, neutralize that.

It, you know, it does to improve the integrity of the cell walls and in a bunch of, of, other things. So, so it's a collective thing. And what it also does is we, and this is important for the work we do is it seems to reduce the markers for inflammation.

Now, you know, in your practice, you see, too much inflammation is not a good thing. Inflammation in the body is trying to to heal something or to do with, the immune system dealing with, allergens invading your body and stuff like that.

But you see, in film, actually, just to summarize first and then go into details, that was the disease other than the, the other like cascade hypothesis, which is, you know, with the drug companies are really going on and the recent drug that that's been showing good data, like animate is focusing on the, on the animal, like, depositing clearing it.

It's got some serious side effects, but generally it's slowed down the decline call, due to Alzheimer's disease. But

the other major, hypothesis is, one is the like the health of the mitochondria because it does so much other than energy and also, inflammation.

There's increased recognition that Alzheimer's disease is a disease of it could be of your immune system. And there's could there's evidence that it could be autoimmune.

And this is discovered interesting. And interestingly enough, over the research done for Covid 19, you know, the brain is is being seemed to be for Covid.

You know, the the effect on the brain seem to be quite similar to, Alzheimer's disease. So very similar, presentations. And it did this, you know, a lot of marker studies and so on.

And what is quite common is it seems to be an increased level of cytokines, which are more inflammatory factors. So there's inflammation going on. There is, there is evidence of it being an autoimmune problem.

It could be because, you know, in, in Covid 19, we'll be doing a big clinical trial of Covid 19 by which if we finish one and we're going to a long Covid study.

So we we understand the mechanisms here, is not is not completely understood what's happening. Let's say long Covid, for example, the damage to, you know, to the, the, the vascular system, the micro vascular system seems to be, creating this response from the body.

And when is chronic is going to be lingering on. And, you know, this level of inflammation is on all the time. And, it seems to be also affecting the brain.

And, then the, the, the compare the markers with Alzheimer's disease. The presentation is similar. So it could be, you know, it could be a, inflammatory, disease.

So, so, there's more research. Actually, a lot of this is coming out of, in Canada and in the at the University of Toronto. Fine. Trying to find a cure for Alzheimer's by looking at the, inflammatory factors.

So now, if you look at what abi modulation, as a matter, as a science, and on its mechanisms, there's quite a lot of discussion about how for the by modulation obviously mitochondria right.

Michael. Oracle activity and also helping with, reducing these two high levels of inflammation. So that's you know, that's harvesting. And then for me I always wonder when someone is talking about inflammation of the the v light is helping to clear it out.

But I also wonder if it's helping at a level, to prevent inflammation. Right. Because when there's inflammation it's usually in response to something.

So my question is always well why. And the inflammation what triggered that. And certainly in the case of Covid 19 we could say oh was a virus. And I think in Alzheimer's we can point to things like herpes or it's associated with with the production of beta amyloid plaques and other inflammatory markers that are associated with cognitive decline.

And so it's interesting to start connecting those dots and say, well, like a it's going to help no matter what the cause of the inflammation is, right.

We're going to reduce some of that by getting it out, by helping the mitochondria produce more energy and work with and all of the ways that they work, so that there's just more efficient metabolism and processing in the brain at the at the level of the mitochondria and then at the cell.

So very exciting stuff. And when we talk about, you know, certainly part of the reason why I was very quick to bring light into Marama is because the risk is so low.

It's essentially it's cost and time. Right. And at Marama, we have the luxury of being able to spread the cost over, over the 12 people who live there.

And so we can we can diffuse some of that. We get so and then but the, the risk is so low really compared to so many of the other things that are typically available, available for people.

And then also what we see is, you know, of course, we know that exercise is one of these modifiable risk factors. That diet is a modifiable risk factor.

Sleep. There are lots of things. And as people progressed through the process and the degeneration associated with Alzheimer's, it's harder and harder to get them to engage in those behavior changes that would be so beneficial.

And the V light is something that we can just put on. It's very passive. Right. And so we have had residents and participants in the clinical trial at my office, who used to be light.

And even when they're in those later stages, we, we certainly anecdotally noticed benefit and even even in that day. Right. I mentioned the reduction in anxiety with the alpha and and so that's part of why we've, we've incorporated so incorporated it so quickly.

And our program also, of course, the research that you've been waiting to that, that, that it is very much evidence based. So I'm curious, are there any side effects or any risks that maybe I'm overlooking?

Well, we've got tens of thousands of devices, you know, around the world. We hardly hear of any serious side effect. Some people, when they use the, you know, if you like, device, the the experience a headache in the beginning.

Maybe there's some adjustment, happening. But, after the first treatment is not there anymore. So, you know, that's that's a good thing. Now, one thing about, trying to understand why, you know, about, treatment and the level of energy it's supposed to deliver.

Why do we often say, okay, for a normal, healthy person, you don't need to use it more than once every two days or so if you have, if you have if you have a condition, you can use it every day.

Try to take one day off, from treatment. Now, the reason is. Yeah, by now, one of the things, one of the markers does produce that photo by modulation is just like everything else.

You do have some activity, you produce some level of, reactive oxygen species, which is a free radical. And you can imagine if you get pumping. Well, the free radicals is good.

Safety, Dosing, and Circadian Rhythm Considerations

At a low level, you stimulate an immune response, you know, now, if you keep doing it too much, there is a danger of, coming to a threshold where the effect plateaus off and you keep doing it, it might get into a negative effect.

So this is the bif biphasic response in for the by modulation that, this also discussed. So you want to do do you have the right energy but not do much of it.

So that is we haven't seen people using it along and getting this, getting this problem. But we want to, prevent it if possible, so that that is, why, you know, it's also convenient because, okay, all you need to do is you have a condition, you want to do it once a day.

It shuts off automatically after 20 minutes. You can do all the all your activity. I use it when I go to sleep. You know, I just put it on it just put it just, slumber of, people, different people do it differently if you do it while they're meditating.

Oh, yeah. I can talk about meditation if you want to. There's a lot of stories behind it, you know? Yeah, it it just does that and that's it, you know, so I don't know, people would really keep doing it continuously.

I see there is a, a possible risk in trying to do that. You all you need is just a certain amount of energy and that's that's it. So it also helps with circadian rhythm.

Do I understand that correctly. Because red light I always think back to like okay, hunter gatherer ancestors. They were exposed to that red red spectrum in the morning during sunrise and then at sunset.

And is there some degree like, does that make sense to you that we're sort of approximating that? And would it be helpful to use the view light more in the morning or more in the evening, like around sunrise or sunset, to help with that circadian rhythm?

Yeah, we've had I think I'll be interested to do a sleep study, but we've had reports of people using the red like candles in the evening. It actually helps to go to sleep.

There is evidence that, Red actually is published quite a number of years ago. When this, athletes in China were exposed to red, the actually increased the level of melatonin, which, you know, which is a sleep hormone.

You know, that's that could be helpful. But some people say we'll put a gamma, especially in the beginning, I'm just my mind is to alert to that didn't help with sleep. So.

But I tried for years and I still went to bed. So what might be different than, like, yeah, maybe gamma in the morning and Alpha in the evenings? Yeah.

Yeah. But, mostly just use once. Once a day is enough for most people or once every two days. Okay. You don't either win. Okay. So not using them both, in the same day, using one or the other.

But but you can experiment is not going to harm you too much and see how you feel. You know, if it's, you might find it if you keep doing that, you, you, you know, you you I don't know what is going to be like my experience, a little bit of fogginess or something, I have no idea, but maybe too much.

Yeah. Yeah. Interesting. So you had mentioned before we started recording, something really interesting I'm so excited to learn. Is that the the positions of each of the lights on the cap, on the, on the helmet kind of device, it's not a full helmet.

I don't want to give anybody the idea that it's a full helmet, but it's this device that you wear almost like a hat. And then plus the nose clip that each of these sites are very intentional, very thoughtful and important about where they are and why.

And you were talking about the default mode network and, and then also that the, the nasal one is going into the amygdala, the hippocampus and the thalamus.

Now, are there other parts of the brain like parts of the cortex that are associated with vision or any or sensation or anything like that that you're targeting, or is it is it just this default mode network?

Yeah. We we, first of all, we try to make it simple and comfortable. Yeah. No, there's one very important thing that we try to do. We. It may not, you know, at this moment, may not be perfect for everybody, but we try to have contact on those particular spot, while they make it convenient.

Now, we we measure everything, you know, we measure what? You know, what is, what what energy, what power we want to deliver over what period of time.

So it's a matter of dose. Not to be predictable is when your contact and when you, that's why we don't we design in such a way where it's not one full helmet because everybody's head is different.

And if you try one of those fixed size helmet, for with those bigger heads, you will actually not, you know, it's just a bare. And when you have small heads like children is, you know, you wobbles and stuff.

So it's not it's not stable. Now the big difference is this, if we are able to have contact, the you know, we can, you know, the amount of energy is predictable the further you are away.

Actually, the attenuation is squared by the distance. That's that's physics. Do you know the inverse square law? Now, the problem with this fixed size helmet is, first of all, there is, you know, this, circuit board in there with the LEDs.

They got to keep away from contact. So there's a film, there's a from this to. But they cannot make it too hot. So there's quite a lot of distance. And we measure, our, you know, what is landed on this curve?

You want it to be like, here is 75 is 100. You know, but the nose is it is, is nine over nine, nine milliwatts minus because of your milliwatts? Now, first of all, the LEDs that we use, customized for us. So, so the manufacturer for LED does this LED just for us that you can go to, very high.

Have you able to control with a micro circuit? What you will there is, is intelligent. There's mostly good ones everywhere. Now animated to 100 because for safety reasons, they go to much.

If people use it too much, it is. It could be for some degree higher than this threshold for people. It's kind of like when you go to the bright centers, what you know, we are you evolved to be able to handle that level of power and and most most companies, all they can only get LEDs.

Until recently about 23mW. So it is pretty low power. Imagine you away from that. Hardly any power touches it. I don't I swear the numbers I say it's very, very low.

Okay. I'm just surprised it does anything. So we, we, we are very careful about the engineering, the level of precision as much as we can. So we are continuing to do the research and maybe improve the comfort and form factor.

And this is a vehicle that okay, we do not have a lot of, of LEDs and, for reasons that we want to have maximum effect with comfort. Right I see okay.

So it's not about covering the entire head. It's really about specific and targeted about where it's going and making sure that is well, yeah. And you have enough energy delivered.

You have a lot of LEDs that's not far away from you. Okay. There's not enough power to do anything.

Clinical Trials, Future Research, and Closing Remarks

Yeah. It's not going to penetrate into the brain where you want it to do the work. Exactly. Right. Okay, so what's on the horizon for you? It, v light.

And also, just like the new discoveries, and particularly as it pertains to Alzheimer's and dementia. Well, we are going to restart the clinical, trial, which is the big task.

You know, we are looking to recruit about, 220 patients and do a double blind study. And, this time we, we might be revising our protocol to the these opportunities we got, we will stop, you know, for reasons beyond our control.

Okay, let's find a good reason to restart. So we, we are developing a new a new device, a new version, easier to do a double blind study. Let me add one more module to it.

You know, at the moment, the neuro has an accessory. This optional, the X plus to the head can add to the bag. So that could be added into the clinical trial.

And we are we are going to do a life of like comparison with the drug. This does getting a lot of publicity. This is our chance. You know to say okay this drug is getting all this outcome with side effects.

Let's see how we do right. Follow the same protocol and see okay, you guys showed a slowdown of decline by 27% over 18 months. We have some early studies that show maybe we could do some reversal, which is a totally, totally, you know, new level perspective, you know, for the whole thing.

So and I believe that there won't be any side effects. You guys have micro swelling in the brain. For them, acting like, 12% is swelling. Two people died in a in the, phase three study, like 17% in micro bleeds.

So I think we don't have any of this stuff, so. So I think it's a good chance for us to do a clinical study and like, for, like and see how we, we compare.

So that's coming up for sure. But we have a, we have it I mentioned we have a big long Covid study being is we hope to start a lot of this will probably start in the first quarter of next year.

We've got actually we have a bunch of results in waiting to be published. I, you know, there is there are some papers independent. For traumatic brain injury, athletic performance.

There was a paper published by, I can say now, the Italian, researchers for autism. Some really good interesting results. Using the dual actually, you know, alpha in the morning and, and gamma and evening.

Yeah, we got, we're doing meditation, study, which is super, super interesting. Long term meditators able to switch, you know, that is at a certain frequency, switching to an altered state, a place like this, like the step of a finger.

So the, the, the, you know, steady performance and, you know, kind of not a lot of things. But we also doing fundamental research, like I mentioned, I'll get do well maybe to you personally.

And the effect on microtubules, which is visual components of the brain and see how the various frequencies are affecting. And I see that, in the next couple of years, we will be more and more able to customize treatment for, for specific condition because we understand brain better.

So we have, a, the neural probe, which is a very sophisticated version that does you can change parameters and there's a bunch of things. But but you got to understand, you know, brainwave forms to appreciate and use it better.

But we're using that to experiment on the meditators, see if we could how do elevate brain function. How amazing. So you guys are focused not only on, the mechanisms and like the basic science of how is this working and describing that, but also very much on the outcomes of how are people doing, what is what is their experience of life when they use this intervention, which is so much more important, at least in my opinion.

Then surrogate markers like how many plaques or tangles are present, but more, like, what are people experiencing and what is their the state of their disease and, and how do they function in the world, whether it's autism or, infection like Covid or dementia and Alzheimer's.

So really, really exciting stuff and clearly helpful across all of them because it's supporting the cell function fundamentally or supporting cell function.

And so and in a, in a way that is very, safe. So I hope everyone can understand why we've incorporated this for all of our residents at Marana, and we'll certainly tweak it a little bit after this conversation.

And I, with me learning more directly from the story. It's it's such a privilege and pleasure to connect with you, doctor. Thank you so much. I want to make sure everyone knows how to find out more about you.

Like. Well, go to the website. Velikonja. There is, you know, it it. I don't keep up with my own website, but I know that, you know, quite a lot of things being explained.

We maybe we tend to get a little bit too scientific, but, but I guess, you know, just read what and absorb whatever you can't, because we we're just doing a lot more.

We have a lot of researchers and scientists in, in the team. I think the more researchers and other hospitals in the company and, yeah, we we collaborate with numerous universities.

We're talking about top universities and top, top people in this field. We also collaborating people are not even in this field and only they do. You know, there are some other fields that we think, we can use that to understand this.

You know, this, this modality, so exciting, really fun and exciting stuff. Yeah. So Violet is via Liga Ft.com and if anyone's kind of confused and wondering what we're talking about because you can't see it, head straight to the website.

There's a picture of a woman wearing it right on the front page, and, it'll make perfect sense. Everything we've been describing when you see that and it's it's great.

One second. Let me get my. Oh, yeah. There you go. So everyone, it's very easy to use. You just put it on. And as Jacqueline was describing, it's it's relatively, comfortable.

And then there's the clip into the nose and, turns off. I should have been more prepared here. Perfect. It turns off automatically. Right? You just turn it on, and then it turns off automatically after 20 minutes.

So it was just put it on like this around the ears. And then an over the head piece there. So you press a button and comes on and voila, it's on helping you hear.

So so automatically after 20 minutes. Yeah. You don't even have to think about it. No set off and it automatically. You just have to remember to take it off.

And we love that people can multitask. They can meditate. So I somebody told me she talks vegetables while she's wearing it. So lots of things that you can get done at the same time.

And it's easy to do a very passive si, for people, you know, if you're struggling to get a loved one with dementia to exercise more or, you know, eat a ketogenic diet or whatever it is that the other components of the Renison protocol, this is one of those things that's pretty easy, relatively accessible for people to do.

So again, Doctor Lim, it's just been an absolute pleasure having you here. Well, thank you for having me on them. I hope people will understand this better and yeah, if, you know, you can always write to in Ford V line.com and someone also they don't have it.

All this point I can I can speak from experience. I have I have emailed info at every like before and everyone has been so helpful and supportive and you guys really have a great team over there.

Thank you, thank you, thank you for the work that you're doing. It's an absolute pleasure to be on this. Thank you for tuning in to Doctor Talks. We hope today's episode has enlightened and inspired you on your path to optimal health.

Each day is a new opportunity to make choices that empower your well-being. For more insights and strategies, subscribe to our podcast and visit our website WW di Doctor talk.com.

Stay connected, stay healthy and join us next time on Doctor Talks. Real talks from real doctors on the issues that matter to you most.