Light Against Cancer: How Photodynamic Therapy Targets Tumors While Supporting Healthy Tissue Transcript

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Introduction to Weber Medical and Integrative Cancer Care

Well, this is going to be an absolute treat to have Robert Weber with me here. He is the the second generation of Webber technology. And this is the kind of technology that I use at my center, the foundation of the majority of my integrative cancer therapies.

And so we're going to dig deep into what what we actually do here at the Carl Full Center and what many clinics do all over the world to really address this, this big issue called cancer.

So, Robert, thank you so much for being with me here today. Yeah, thank you very much for having me. And yeah, I'm looking forward to share a little bit about our experience, especially with cancer, with cancer treatment, as this is actually one of the most promising areas when it comes to photodynamic therapy and photo bio modulation.

And yeah, we're happy to inform patients, clinicians what they can do with laser therapy for cancer, because that is a challenge when you deal with cancer.

Yeah, it is to be able to find effective therapeutic therapies that are non harmful. That is not destructive because right now when you go into the traditional oncology model, we know most destructive and all radiation is destructive.

You know surgery obviously is destructive because you're cutting. So the the less we need to do that the better. And it doesn't mean that that is not necessary at some point.

But if we can then bring in technology to either enhance the efficacy of some of these traditional oncology therapies, or we can also add in addition, because there are people now to come to centers like myself that look for therapies that are outside of the medical model.

So tell me a little bit for someone that is not familiar with photodynamic therapy and the laser therapy, what are the principles behind that? Yeah. First of all, you absolutely right.

How Photodynamic Therapy Works

In general, laser therapy also called photo bio modulation, is a therapy which is working in great synergy with many treatments in the field of integrative cancer therapy.

So what you already mentioned, if you're working with infusion therapies, ozone therapies, all the things that integrative centers are offering, if you add photo by modulation, especially intravenous laser therapy, on a systemic level, you can really boost the things you are already giving in, like infusions.

When you open a micro circulation with the lasers, just all the things you are giving into the body are absorbed in a more effective way. And basically you can always gain some extra percent to enhance the effectiveness of the other therapies.

So this is something like a general effect of the laser syrupy. But then of course, when we talk about cancer, we also need to talk about photodynamic therapy because this is a more focused approach.

I would say here we have a two fold approach. We are giving so-called photosensitive, which are binding to tumor cells or to cancer in the body. And then in the second step, you use the light to basically activate them and kill the cancer cells.

And the beauty of this approach is that it's highly selective. And so you in the end you don't harm healthy tissue. And that's a big difference compared to chemo radiation.

What you already mentioned that you're really only targeting the cancer cells that tumor cells. And this is an accepted therapy also in conventional medicine especially in dermatology.

But the main challenges always get deep enough into the tissue. And this is what we developed over the last 10 or 15 years with our advanced laser technology, to be able to also target tumor tissue deeper inside the body.

And that, like you're mentioning, the the challenge has been to get a photo sensitized to the to the tumor. Yeah. When it's not as skin surface. And then to be able to deliver enough energy into that tumor when it is deeper in the body to be able to trigger that photodynamic effect that you're talking about, where that is done, destructive to cancer cells.

So what are some things that that you have done because you're part of? I mean, you've had a development of research and all of that. Now taking on the, you know, the task after your father, Doctor Michael Weber.

So what are some of the challenges that have been photodynamic therapy that you brought technology to overcome now? Yeah, the two main challenges are, on the one hand, to develop good for good, selective photosensitive.

And then, of course, the laser technology for the photosensitive. You know, there are several photosensitive on the market already for 20, 30 years, especially again in their metallurgy where you can just have special creams which you can put onto cancer and for example, on the skin.

But if you want to target something deeper inside the body, you need a very good photosensitive, which can be given by infusion, and which is then basically able to locate the tumor inside the body and to bind just in the tumor tissue and not in the healthy tissue.

And this is something what we not ourselves developed, but we have a very good connection and cooperation with some. Hi. Great. Yeah. Universities here in Germany and Europe, and especially the famous University of Marburg, had a long standing relationship with the pharmacology department.

And they work in this research for more than 20 years. They published hundreds of studies finding the best formulations of such, yeah, photosensitive us, which they can give into by infusion into the body, which are nontoxic, what is very important, which are very selective to tumor cells and which have the right absorption spectrum so that we can target them with especially retina, infrared light and deep inside the body.

So this is the first crucial thing that we developed such photosensitive formulations with the universities.

Overcoming Deep-Tissue Treatment Challenges

And then in the second step of course, where our role is the laser manufacturer work in laser technology, in development and research for 25 years now we have the best sources for that.

Yeah, we are basically developed a very first invasive or minimally invasive so-called endo laser system, where you can apply lasers like minimal evasively into the bloodstream, but also inside of tissue.

You can go into joints, for example, for regenerative applications, but especially in tumors, again, which are deep in the body, for example, deeper breast tumors, also bladder tumors.

We have special technology with special fiber optic light guides where we can bring the light directly to the tumor very close with high power, because that's the second crucial thing that you need enough energy to stimulate the photo sensitize.

I get this photodynamic reaction and kill the tumor cells. And talk to me a little bit about the photo dynamic reaction. What what does that look like in a cancer cell?

What really happens? That's basically a physical photochemical reaction when the photosensitive is bound to a tumor cell. And then the special photosynthesize a you are you are using they typically have a very specific light wavelength absorption.

So this might be mostly in the red laser range or in the infrared. And then when the laser light is hitting the cells where the photosensitive the is accumulated, there is this reaction happening.

The photosensitive is brought into an excited state. And it's basically oxygen radicals that are built. And they are bringing the tumor cell into apoptosis or necrosis.

So it's a very straightforward approach proven by science for many, many years. And again, we have basically been the very first group to really bring this into clinical practice for tumors basically anywhere in the body.

Yeah, I had two of your, you know, large laser devices, you know, where we can then bring in. And to me, I, I'm in love with the technology and I see the effect of people like you're saying is that, you know, the beauty of being able to put a intravenous laser and then treat the blood as its passing by.

So you have essentially a sterile environment and you're able, instead of pulling out blood and treating the blood and then put them back blood again, now we're essentially treating blood assets passing by.

So let's say that blood passes by one spot every every minute, you know, so in a 60 minute session you can then treat your whole blood volume 60 times.

I mean that to me that is just mind boggling. Versus if you do like a UB ultraviolet light irradiation, you pull out 30 cc or 60 cc a blood and treat that.

Here you're treating essentially 5000 cc 60 times, you know. So 5000 times 60. That's that's a lot of treatment. Yeah. Versus just that. So to me that is just so elegant and phenomenal.

And then like you're saying to be able then to bring these laser diodes, these laser needles, you know, to the tumor tissue now using whether it's breast or prostate to colorectal or and now even you have some, some fiber optic that you can bring down in the esophagus.

And you talked about bladder as well. Yeah. It's basically a similar approach. You just put in a regular bladder catheter. And then we have this special circular irradiating fiber optic cable which you could use in the receiver, but also in the colon.

In the bladder you can go close to the prostate. So this is a nice sterile development or a nice sterile tool where you can apply lasers with very high power inside the bladder or inside the colon, and treat those tumors directly with high energy.

Again. And therefore we see actually very good results, especially in bladder or column cancers. And you're mentioning the red light and infrared light.

You know, why is it important to utilize photosensitive that relate to those frequencies red and infrared. Yeah. Because there are a lot of different photosensitive out there.

But why why really target that that group. Yeah of course you're right. There are also other photosensitive us in the blue or yellow range like cumin or hypera.

Those can actually be used as well, but mostly in the bloodstream. So just to add to the points you already mentioned about the intravenous laser, this is also nice, of course, because it's an additional tool to boost the

immune system.

So also here it's a bit different compared to conventional treatment. You're not like bringing down the immune system, but when you do the intravenous laser you're boosting your immune system.

You stimulate mitochondria so patients even get more energy and not like in other treatments when they really get chronic fatigue and totally low of energy.

So that's also a very big difference.

Infrared ICG and Selective Tumor Targeting

And with the intravenous laser therapy, also important to mention when you use it with photosensitive, you can also get rid of like co-infections in the bloodstream.

You know that's very often also a problem with cancer patients. So you can create very nice protocols with this photodynamic therapy. Yeah. But coming back to your question when we talk about local tumor tissue treatment, red and infrared is most important mainly because of penetration depth.

So again blue yellow colors ultraviolet can be used intravenous when you're directly in the blood. But if you're in the tissue and you want to penetrate the tissue, you want to penetrate into a tumor.

You need light which is able to penetrate tissue in a more effective way. And that's actually mostly red and infrared. Light and infrared is the best because it's even able to penetrate bone tissues or just think of bone metastases, think of brain tumors.

You would just need to use infrared light. And therefore, our main focus over the last couple of years and has been using IndusInd in green as a photosensitive substance absorbing infrared light.

And this has just proven to be the most effective photodynamic treatment for us in clinical practice. Yeah. And that that that's one of my, my favorite ones just because it is so, so well distributed into tumor tissue you can introduce it intravenous obviously like we mentioned.

And you can also then inject the tumor environment, the tumor you know with photosensitive to really create that that high concentration. And then utilizing then like you're mentioning the infrared having that that longer wavelength which allows them to penetrate deeper into the tissue so that you can reach that, that, that deeper and deeper metastases to get as much energy there as possible.

I know one of the challenges with the cyanide green is that traditionally, and it's a photosensitive that has been used medically for a long period of time.

So it's not in itself it's not new. But you were talking about the relationship that you have then with the farm, you know, the pharmacy department and the university there in Germany, you developed quite a unique form of ICG in an unsigned green that actually stays in the tissue for a little bit longer than just quickly just fleshing out to give us opportunity to treat that, you know, that tumor for a little bit longer period of time and more effectively.

Yeah, that's absolutely right. We knew from all the basic research what you already mentioned that in the signing, renal ICG is a pretty effective photosensitive absorbing infrared light.

So this is exactly what we were looking for. And because there are no other substances I know about which are absorbing infrared light. But yeah, again the main issue was that regular ICG free ICG, when you give it by infusion, it has a very short metabolism and therefore it's flushed out immediately.

So that's what the university in Marburg did for us. It created very special, unique liposomal formulations to make it selectively bind to tumor cells and also stay in the tissue in the tumor tissue for a longer period of time.

So it's leaving the healthy tissue staying in the tumor tissue. Then you put the light. And this way you have this amazing selective approach without harming any healthy cells.

And again, that's a big difference. You even boost the immune system with the additional protocol. And therefore you can create very nice and nontoxic tumor protocols with it.

Yeah. And then yeah, we're talking about the photodynamic, you know talking about the photo by modulation. So obviously then in the tissue or if we're doing it intravenously, you know, where you have done the photo sensitized or whatever it attaches to, you know, which tends to be then cancer cells.

Or you also talked about infections, co-infections like different viruses, bacteria, etc.. And I know you did a lot of studies in regards to during the era of Covid utilizing, you know, photosensitive and then using the light that that was appropriate for that.

So you can then use if you can't get that photo by modulating effect on healthy tissue that does not have the photosensitive or attached to it, and then get the photodynamic effect on the substances, you know, like the viruses, bacteria, cancer cells that the photosensitive attaches to.

So you can get both healthy tissues benefited pathogens. Cancer cells are attacked. So that's that's a that's a beauty when when you're using the laser.

So can you talk to me a little bit about the the infectious aspect. And during Covid what kind of tools and how how effective it was the therapies that you were doing.

Yeah. So this field is called antimicrobial photodynamic therapy. And the mechanism of action is basically the same like a tumor therapy. You have a good photo sensitized again a selective substance which you can give by infusion.

Or there are also oral photosensitive available. And they bind to microbes to pathogens in the bloodstream. And so what you already mentioned we made a lot of good research on parasites on viruses.

And there's a lot of in vitro lab research available showing that this approach is basically killing all different types of viruses. Envelope one, envelope viruses, all different types of aggressive parasites and bacteria in a very selective way.

And also here we have this very nice approach that we can use very safe, nontoxic substances. I guess many of you know riboflavin, which is just vitamin B two.

So it's a natural vitamin and it's absolutely nontoxic. We have all the safety data available and you can give it high those by infusion or also take it orally, but it won't do anything basically just maybe give you some vitamin boost.

Antimicrobial Photodynamic Therapy and Immune Support

But what most people don't know is that it's absorbing blue and ultraviolet light. And again, when we are in the bloodstream, we can also use those lower wavelengths of light.

And if you give an infusion of riboflavin, you leave it in the circulation for about 30 minutes, wait for it to bind to the pathogens in the bloodstream.

And then you insert by this fiber optic light, get into the bloodstream, the blue and ultraviolet light. You basically can get rid of all those circulating pathogens in the bloodstream.

Again this has been proven in multiple studies in lab data, but also from us. Basically, we did the very first human clinical studies with large clinical or with large patients population, showing both safety but also efficacy against all different types of pathogens.

And yeah, as we work with so many clinics now all over the world, not only in integrative cancer therapy, but also on chronic and acute infections, and we just get amazing feedback for those protocols.

So either if you're a cancer patient suffering from co-infections or if you're just suffering from very chronic infection like Lyme disease and all those things, the antimicrobial photodynamic therapy is the very, very potent tool which can get rid of those infections.

And what you also mentioned already, it's boosting the immune system. It's bringing back the energy. It's helping with brain fog and all those typical related symptoms.

So it's also very nice tool for chronic infection. Yeah that's what I love. Yeah. You're talking about intravenously. You can then you can tag these different pathogens.

And then using the specific wavelength riboflavin that connects with blue and ultraviolet. And you know they attach to the pathogen. And then you can then use intravenous blue.

And that's that's a beauty with your technology. It's not just kind of red light infrared light. You have the ultra violet. You have the blue, you have the green, you have the yellow, the red and the infrared.

So it's that whole spectrum. And we know our mitochondria are they they require that whole spectrum to really drive energy through itself and talking about the immune system.

As for them treating the bloodstream, white blood cells, you know, your immune system, they have mitochondria too. So ask your then treating your blood your essentially you know, creating you know, lazy retired exhausted immune cells.

You know and then you're super up there their mitochondria. So they're now they are the, you know, special forces ready to go and go after cancer cells and go after pathogens.

So you have that aspect that you're super up, then your immune system and you're having the photodynamic effect to kind of remove that, that load. You know, we talk a lot about the terrain and cancer and how pathogens are are part of that terrain.

So if if the immune system is overburdened by all these pathogens, you know, then they they are not going to have time and energy to deal with the cancer in addition to these pathogens are really driving then the kind of the tumor microenvironment to promote the cancer to be as aggressive as possible.

So we can shift that process. And that is the beauty with that photodynamic is that, you know, just that intravenous therapy, it hits a body in so many different ways.

Can you share. So we talked about the kind of the oxidative effect, you know, the production of reactive oxygen species, you know, within the tumor. But are there other mechanisms as well that can be really beneficial when you are addressing cancer.

Yeah of course. So by using the different colors, especially intravenous, there are many things happening on a cellular level. Basically you already addressed a lot of them.

So again there's a stimulation of mitochondria. We have the we have light sensitive chromophore in our cells which are absorbing different wavelengths of light.

So first of all we enhance cellular activity cellular energy production in the mitochondria. We create more ATP and therefore we just have more energy.

And of course from that full cascade of positive effects are happening in the body. So this is one of the main effects of intravenous or systemic laser therapy.

But then of course, again by using that you're also opening the whole micro circulation. You have a better detoxification of the body. You have this entire pathogen effect.

You create nice synergies. What we already mentioned, when you give other nutrients infusions into the body, they work in a more effective way. When you combine it with systemic laser therapy, then we also know that laser therapy is enhancing body's own stem cell activity.

And so the whole regenerative potential of the body is boosted significantly. And this of course, also helps in many different ways to restore balance in the body and to help the body fight.

Also bad cells like cancer cells. You have this immuno stimulative effect you already we already talked about, which is very well proven in in scientific research.

And then of course with blue light you have very strong anti-inflammatory effects. Also, when you have chronic inflammation, you can focus on blue light to bring the bring down those inflammatory processes in the body.

And of course with yellow what we already mentioned, you have those detox effects. You also have a positive effect on the hormone system. Also with chronic fatigue people.

Also, when you're suffering from cancer, very often you suffer from mental issues from depression. Also here the yellow light has significant effects.

And therefore you can again, by combining all those different wavelengths, you can create very potent, very unique protocols focusing on specific conditions or side effects.

And one of the things a lot of people are concerned about that we know that chemo, radiation surgery really does not address our cancer stem cells. You know, that does photodynamic therapy, does it have any impact on cancer stem cells?

Is there anything that you've seen in that area? Well, as far as I know, there is some research available on that. So in general, I would say photodynamic reaction also works against cancer stem cells.

But we did not have any or we don't have any clinical measurements in that regard. So far. So from theoretical point of view I would say yes. But I think we need a little bit more research into that direction.

And so we talk now about kind of the the destructive aspect. You know, the photodynamic is this something. And then obviously clinics like myself, you know, we we bring a lot of these different tools.

We have these, you know, unique photosensitive. And we also combine it with other therapies, you know, like curcumin, like EGCg. You know, there's so many different therapies that we kind of bring and kind of layer these therapies for kind of the benefit of the individual.

Systemic Laser Effects and Cancer Support

Do you have some some stories in regards to what you've seen? Obviously, I can tell a lot of my stories, but that you have seen with the clinics that you work with and obviously what your father is doing at your center there in Germany, the impact on people.

Yeah. Well, you know, cancer is still our main, the main focus in our clinic here in Germany. We are working in this field now for 10 or 15 years with all those different developments, starting with different photos.

Sensitize us now with this IG protocol we already talked about for 7 or 8 years. And yeah, you know, it's pretty effective. We don't even have a website.

We don't make any marketing for that. But people are just reaching out to us because they talk to each other. And

the feedback, the overall feedback we're getting is, I would say, very positive.

Of course, cancer is always difficult, as you know, many people going for this kind of alternative route are very often also people in a relatively late stage.

So also here, the earlier you decide for such a treatment, it's even more promising. But even with late stage four cancer, we still see very good results.

We basically always see a reduction in tumor size, significant improvement in life quality, for sure. That's what we already talked about compared to other chemo radiation therapies, you really lift the mood of the patient.

You bring back the energy. And this is what we basically see in every patient. And we basically help. Yeah, giving the body back the ability to fight the cancer.

And of course it's still a long journey and it's not a miracle therapy, but I feel like it's nontoxic. It's something you just if you're fighting for cancer, you should always target from different angles for sure.

But this photodynamic tool is just one of the most powerful and unique approaches right now in cancer therapy. And yeah, I would always consider that at least as an additional therapy.

And that's the thing is that cancer is still that it is not solved. We we haven't figured out all the ways that we need to address it. And so it's I think at this point we have we have so much technology.

We have so much I mean, the tools that are available now compared to like two decades ago in integrative oncology space is just phenomenal. And I think that this is probably the photodynamic.

I think that is kind of the leading next step in in the evolution of addressing cancer using non harmful tools. And the beauty is I think it's more as providers, what we're doing now is learning how to stack things.

You know, how to appropriately combine it with different if just do the goal infusions like I mentioned a few the curcumin bozella gold e.g. see you know and learning how to kind of bring these things together in a in the best possible way.

And then obviously, you know, it's not saying do this or traditional oncology. It is essentially finding the perfect blend between these different therapies and then how to stack them most effectively.

And I think that that is what we are currently learning, all of us, you know, because yes, I've been doing this. How long has been has it been seven years?

It's been a bit 7 or 8 years I think so, yeah. And you know, we just need more pioneering clinicians like you. So if you're a clinician and listening now to our conversation here, we just need more people working in this potential is tremendous.

You can help so many patients with that. And as Serapis are not even complicated they are not very difficult to perform, especially when we talk about the basic protocols like IV laser in combination with infusion.

You can already stack your existing protocols in such an effective way. But then also we are always happy to help with education at our conferences or to where you are always lecturing to really assist people, to educate clinicians so they can also offer those very advanced photodynamic therapy.

Even the advanced protocols are not too difficult to perform some basic training with us. Join us at our conferences. Then you can apply them with your patients.

And yeah. Believe me, believe Michael, you can make a big impact on cancer patients with photodynamic therapy. Yeah. And the thing is that we we're not short on cancer patients.

Now, there there it is. One. I mean, we're moving towards almost one out of two being diagnosed at some point of their life. So, you know, to me this is a a call for all the providers out there to, you know, really look into this type of technology and bring that into your practice.

Because I feel that as more of us are bringing these type of tools in, we can collaborate and then also be much more effective in what we're doing. And so, you know, for for me, you know, I see tremendous impact on on my cancer patients.

You know, I have patients that are essentially, you know, to come in wheelchairs and walking and also have, you know, patients that are kind of at the end, their cancer journey with traditional oncology.

And now they're they're doing well and they're out there with their grandkids. And so it is a powerful tool. Not saying that there is a tool that is a be all, end all.

That's not what it is. It is how to utilize these tools in a way, alongside with other therapeutics to optimize the, the effect. So and that that's what I, what I love.

So if you're provider out there and this is you have a passion to really help people and and obviously cancer is I would say that's kind of the one of the peaks in regards to, you know, suffering in regards to ailments.

You know, it's kind of like a progression and that's kind of a late stage in regards to disease.

Home Use Laser Devices and Oral Photosensitizers

But but then also like you mentioned, yeah, a lot of people dealing with Lyme disease, a lot of people dealing with, you know, Epstein-Barr virus, a lot of these mold, you know, parasites, infectious agents.

And so just to have this tool for that alone is really powerful as well. So I'm thrilled to bits that we are that, you know, the what you have done to shoulder this responsibility to bring this technology forward so that a clinic like myself can utilize my patients.

But then obviously we we have also personal use. You know, you have patients that are then leaving a clinic and they are want to continue to have the benefit, or maybe they don't have the opportunity to go to clinic and then want to be able to benefit from these type of therapeutics at home, you know, what would that look like?

I mean, do you have technology for the the regular Joe out there that really want to benefit from the photo by modulation aspect and the photodynamic aspect?

Yeah, absolutely. That's also something what we developed, especially during or on this cancer journey because. So in our clinic we have so many people coming from all over the world, international patients suffering from cancer or other chronic disease.

And then they come for 1 or 2 treatments for 1 or 2 weeks of treatment, for very intense treatment, and you get a very good effect. But of course, what you already mentioned is then they go back home and, you know, in such a disease like cancer or other chronic infection, you very often just need an ongoing treatment.

And of course, sometimes they have a provider, a clinic nearby, which we can recommend where they can still continue getting intravenous laser or infusion therapies.

But what is even better, of course, if you have something at home which you can use every day for maintaining the effect, but also for prevention against metastasis and things like that, and therefore we created also special home use home care technology.

First of all, we created a small systemic laser device, which you basically wear on the inside of your wrist. It looks a little bit like a watch. Maybe I can share my screen for a second and show a picture, so then it should.

And the beauty with the watch is that you have bloodstream passes by very closely to the skin right here. So as you have the watch and on that area, you're continually treating the blood as it's passing by.

And then if you combine that with different photosensitive like curcumin or a chlorophyl type. Yeah. There it is. Yeah. Exactly. So here you see it looks a little bit like a watch, but it's actually not a watch.

It's a powerful laser device which you wear on the inside of your wrist where you have relatively thin skin, but a very high blood volume in the arteries.

And then you have a lasers focus, real lasers, not LEDs. So that's a big difference compared to other cheaper technology which you find in the internet.

This is really laser technology with different wavelengths sitting on the arteries and trading in a very focused way. And therefore you achieve also very positive systemic effects.

So of course intravenous data therapy is more effective in general as it's more powerful and directly in the bloodstream. But this is a very nice continuing routine for home use.

If you do this every day for an hour or so, you bring still a good amount of energy into the tissue, into the bloodstream, and therefore you can have create similar effects like every day, some extra energy, cellular energy, every day stimulating the immune system.

You can combine it. You know, many of you probably will take daily supplements, nutraceuticals like oral cumin it g riboflavin orally. So all the substances we already talked about, they are very often available in very good oral form.

And then you take this weight for about 45 to 60 minutes until it's going through the circulation. And then you do this tool on the, on the bloodstream.

And then you still create smaller photodynamic effects for prevention against metastasis or for treating, pathogens in the bloodstream. But again, you're also just boosting your immune system and the cellular activity.

And if you do this very every day you have a mazing effects for prevention and for still treating also chronic disease. And this is just a very nice tool which is not too expensive and something basically the whole family can use at home in a very effective way.

And therefore this became very popular over the last couple of years. Basically, all the cancer patients or people suffering from chronic disease coming to our clinic.

In the end, they go home with a package, with this little device, with the proper photosensitive, the in the oral form. Also here we have created with the university very good oral formulation of the supplements.

And yeah, by using them before in combination with that you can just create auto photodynamic effects. What you see here we work with this so-called bio brand.

So this is actually created by one of those leading scientists from the university we already talked about. So they are not only doing highly effective intravenous formulations, but also now very good liposomal oral formulations.

There is a special liquid supplements or nutraceuticals. They have both where are green tea extract but also some more. And yeah, you drink this before using the laser and you create your own, basically your own small photodynamic protocol at home for everyday use.

In this way you can maintain the clinical effect, you can have a good preventive effect. And I think that's also something what you recommend to your patients.

I do yeah I have I love the bias normal products. And yeah we have patients on that. And the thing like the

curcumin for instance, we know the Bible of curcumin is not that high.

Usually what you see on the market, they throw a little bit black pepper in it, you know, and then, you know, say that that is what's going to enhance it.

Laser vs LED and Brain Helmet Therapy

You know, the the bias soma is wonderful in the way that it is a particle. So it is a becomes a very, very tiny particle of curcumin that's able to penetrate within.

I mean, I, I can't remember the studies, but it was a ridiculous amount. I mean, it was unbelievable amount of cumin that ended up in the bloodstream, you know, from doing that.

And we've also see that if we if you do high enough of a dosage of that, it is almost like you're doing the immunotherapy like a Keytruda. Yeah. The Pd-l1 type of, of inhibitor.

So it is phenomenal. And then combining that with the laser technology that the watch IV counts are really, really powerful tool at home. So and talk to me a little bit about the difference between LED and laser because that that's a big difference.

And here I want people to understand there's a difference. You have watches that you can buy inexpensively that does LED, but this is laser technology.

So what is the difference between the two? The main difference between LED and laser is that laser is coherent light. So it's the light is in a special order in a very focused order.

And in the end the laser is very focused on its penetrating the tissue in a focused way. It's just penetrating deeper. And that's the main differentiator compared to LEDs.

LEDs are also monochromatic light. So that means just emitting one specific color. But LEDs are a little bit more in simple terms, chaotic diffuser flight.

So this is more like yeah, shining into different directions. And as soon as it's hitting the target, it's spreading a lot and therefore it's staying more in the superficial areas of the tissue lasers, like in a very focused way and penetrate really deep into the tissue.

But especially when we want to target tissue from outside. The skin is the main barrier. It's made from us, from nature, for protecting us. And if you want to penetrate the skin tissue, you need very specific, highly focused laser technology.

And this is what we built into this new generation watch type device called Anderlecht. And this way we just have a very measurable, different penetration effect compared to the LEDs.

This is actually what what you could see on this picture showed before that the penetration in the tissue is just significantly higher. And this is what you need for a medical effect for targeting the blood cells.

You need good penetration and therefore you need lazy. And I don't know if the audience remember when going through chemistry. We're looking at the the atom and you have kind of the nucleus and you have the electrons, you know, circulating.

And then we bring energy to the electrons and it kind of jumps orbits to kind of it because it has its able to hold in more energy. And then when it kind of goes back into its normal orbit, it releases energy.

So it's the same thing when you have then substances like your your red blood cells, white blood cells, all the different proteins and things are passing by in, in your bloodstream here as we are lasers that they are kind of

jumping orbits in a way.

They're holding on to that energy from that light. And then it travels throughout the body and then it starts to release that that energy to really by the system.

So it's really phenomenal technology. And before we hand, I wanted also to talk a little bit about your helmet. You know that I it's one that the Weber laser helmet we have that here at the center.

And I mean obviously cognitive issues is a pandemic in itself. You know, dementia, Alzheimer's. You know, people have TBIs people, you know. So can you talk a little bit about that technology?

Because I think it's so important for people nowadays. Yeah, exactly. That's also actually one of our other big fields of research right now, because it's one of the most promising areas.

We had a lot of good research already coming out of Harvard University, for example, showing very beneficial effects of red and infrared light on brain cells.

So especially when we talk about neurodegenerative conditions like dementia or Parkinson's, as very good research available, but also for mental issues, for TBI, for stroke recovery, for cognitive, for general cognitive function.

We have good studies on all those things. And the crucial question is the same here. How do we bring enough energy into the tissue? Because when you think about the brain, you have hair, you have skin, you have bone.

So here you really, really need we focus laser technology for penetrating into the brain. There are many other devices on the market, but they are basically all working with focused LEDs in the infrared range.

They work to a certain degree. There are also some publications available also for us. In the last years we worked with a focused led approach, but again the penetration has been limited.

We had positive effects, but we always knew we could do better with better technology and therefore we developed this new laser helmet device. What you see here on the pictures over the last couple of years, and this is basically the very first real laser brain PDM device emitting different wavelengths of red and especially infrared lasers in a very focused way.

And therefore we have the measurement we can penetrate into the brain. We can have regenerative effects on brain tissue for sure, as it has been proven in all those different publications.

But it's also relevant in cancer, of course, with red infrared, again, you can use InDesign in green photosensitive. You could even think about method in blue as a photosensitive.

And this way you can also treat red tumors with that.

Where to Learn More and Final Remarks

And we actually just had a very good positive feedback from one patient who came to us with with the latest MRI showing 40 lesions in the brain. She came for one week treatment course with ICG and the helmet, and a couple of weeks after she went back home, she did a follow up MRI and the lesions went down to just two.

So this was the most impressive case report we observed so far. Obviously it's a pretty new device, so we don't have a lot of data yet. But I feel like as this is so promising with a deeper penetration, and when you then use the proper protocols, you can really also make use of that as a very effective tool for brain tumors, probably, again, for neurodegenerative conditions where we have millions of people worldwide suffering for something like that.

And therefore this is something both for clinical use. We have a very potent clinical version, but we also have the

same device as a home care version for people who want to use it at home, especially suffering from degenerative conditions like dementia and Parkinson's.

We are just believe you need an ongoing approach here. Even it's even more important, and therefore you can use this every day to basically slow down the progression of such a disease.

And therefore, I think this is one of the most valuable tools now in the field of photo bio modulation. Yeah, a lot of it. And where can people go? I mean, you have providers, you know, how how should they where should they reach out?

You know, if they are interested in this technology and learn more? Yeah. Especially I think most of the people listening to us now are probably from the US, and therefore a good source is always our US website called Vitality systems.com.

This is our US partner distributor where you find both like an online shop for the products we already talked about, like the watches, the helmets. But you also find information for clinicians to also find like a map for the US where you can find the provider nearby.

So this is a good website for you. But then of course you can also check our website where medical.com, which is our European main website where you can find more information on social dynamics therapy and photo by modulation.

You can always reach out to us by email, you know, via the website or just info at info. We are always here to support. Again, that's our main job to educate clinicians to help patients, finding the best providers and most effective protocols both for for cancer, for chronic infection, for whatever this is your suffering from.

We are trying our best to help. So just feel free to reach out to us. Yeah, and I can vouch for having worked with you for many, many years. And, you know, Weber Medical that whenever there's a need and whenever you want to collaborate, you have that opportunity and the sport is phenomenal.

So thank you so much, Robert. Thank you for shouldering this responsibility after your father. Yeah. Because I know he's been pushing for a long time in this field.

And sometimes we need just the next generation to step up and take it to the next level. And you're truly doing that. So thank you so much, Robert, for doing that.

Yeah. Thank you Michael.