Give Me 45 Minutes... and I'll Show You How Red Light Therapy Works Transcript

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What Is Red Light Therapy?

Hey, Dr. A. I've been hearing more and Hey, Dr. A. I've been hearing more and more about red light therapy, but I have more about red light therapy, but I have no idea why someone would do it. Can you no idea why someone would do it. Can you break it down? Sure. Let's get into break it down? Sure. Let's get into that.

that. that. I'm Dr. A. Thanks for coming to the I'm Dr. A. Thanks for coming to the YouTube channel. I use this channel to YouTube channel. I use this channel to disseminate healthc care information, disseminate healthc care information, answer questions, etc. And this is a answer questions, etc. And this is a really good question that we got. My really good question that we got. My background is I've been working and background is I've been working and researching in the integrative and researching in the integrative and naturopathic medical communities for 30 naturopathic medical communities for 30 plus years. and I've been seeing plus years. and I've been seeing patients a long time. I use that patients a long time. I use that background to help answer these sort of background to help answer these sort of questions. So, let's get into the idea questions. So, let's get into the idea of red light therapy. Red light 101 we of red light therapy. Red light 101 we could call it. The first thing is before could call it. The first thing is before we get into the mechanics of light we get into the mechanics of light wavelengths and penetration and things, wavelengths and penetration and things, why would I use red light? What does it why would I use red light? What does it do to the body? Well, when we get into do to the body?

How Red & Infrared Light Support Mitochondria

Well, when we get into the red and infrared end of the the red and infrared end of the spectrum, we have a direct effect on the spectrum, we have a direct effect on the energy producing portions of the cell energy producing portions of the cell called the mitochondria. And red, near called the mitochondria. And red, near infrared light, etc. go in and they infrared light, etc. go in and they affect a number of factors in and around affect a number of factors in and around the mitochondria. One of which is called the mitochondria. One of which is called cytochrome cioidase. And a portion of cytochrome cioidase. And a portion of what cytochrome c oxidase does is to what cytochrome c oxidase does is to increase mitochondrial energy increase mitochondrial energy production. But the bottom line sort of production. But the bottom line sort of the punchline is it helps with the the punchline is it helps with the mitochondria operating and creating more mitochondria operating and creating more energy for the cells which then creates energy for the cells which then creates more energy for the body. Now how would more energy for the body. Now how would this help me if I'm sick or healing or this help me if I'm sick or healing or whatever? And the bottom line is and whatever? And the bottom line is and this has been studied a lot in like this has been studied a lot in like wound healing models. So you injure wound healing models. So you injure something that's a wound and you go and something that's a wound and you go and you need to heal something up. In a you need to heal something up. In a wound healing model, what they find is wound healing model, what they find is that if we increase the amount of that if we increase the amount of cytochrome cox and the other attendant cytochrome cox and the other attendant sort of enzyatic and non-enzyatic sort of enzyatic and non-enzyatic activities that go with that, we improve activities that go with that, we improve mitochondrial function and that allows mitochondrial function and that allows the cell to heal better. And if you have the cell to heal better. And if you have enough cells together in a tissue and enough cells together in a tissue and the tissue is damaged, it will heal more the tissue is damaged, it will heal more quickly. So basically what we're looking quickly.

Healing, Recovery & Chronic Fatigue

So basically what we're looking at is improving the respiratory chain at is improving the respiratory chain and the mitochondria, improving and the mitochondria, improving mitochondrial function, and improving mitochondrial function, and improving the healing trajectory or recovery the healing trajectory or recovery trajectory. So let's say you don't have trajectory. So let's say you don't have a full-on wound, but you're trying to a full-on wound, but you're trying to recover from an excessive workout or you recover from an excessive workout or you just finished a marathon or some other just finished a marathon or some other thing. Recovery is another great use of thing.

Recovery is another great use of red, near infrared, etc. And then red, near infrared, etc. And then another place that we see this healing another place that we see this healing sort of mechanism work is in people with sort of mechanism work is in people with inflammatory conditions that are either inflammatory conditions that are either due to infection or post infection or due to infection or post infection or some other related problem like a low some other related problem like a low energy state such as in chronic fatigue energy state such as in chronic fatigue or fibromyalgia or something like that.

or fibromyalgia or something like that. So we see this a lot in long COVID etc So we see this a lot in long COVID etc to try and help get the mitochondria to try and help get the mitochondria back online to improve the energy state back online to improve the energy state of the person. So now that we kind of of the person.

Red vs Near Infrared Penetration

So now that we kind of have seen, okay, it's going to improve have seen, okay, it's going to improve energy, improve healing, what's the energy, improve healing, what's the difference between the red light end of difference between the red light end of the spectrum. So if we get to the end of the spectrum. So if we get to the end of the spectrum that is red and then we go the spectrum that is red and then we go beyond the visible spectrum, we get an beyond the visible spectrum, we get an infrared. So it's red than infrared. So infrared. So it's red than infrared. So in the red end of the spectrum, we're in in the red end of the spectrum, we're in the, you know, 600s to 700 800 end of the, you know, 600s to 700 800 end of the spectrum to get red light that the spectrum to get red light that absorbs pretty well. It gets down absorbs pretty well. It gets down usually the subcutaneous fat, the fat usually the subcutaneous fat, the fat that's below your skin, right? So that's that's below your skin, right? So that's good because it can get into the good because it can get into the circulation affect cytochrome C in the circulation affect cytochrome C in the circulation and those tissues. Near circulation and those tissues. Near infrared is going to be 7 to 800 range infrared is going to be 7 to 800 range up through 2500 nanometer range and up through 2500 nanometer range and that's called near infrared. That's that's called near infrared. That's going to get down about twice as deep going to get down about twice as deep usually into the muscle layers of the usually into the muscle layers of the person. Now, if there's a near infrared, person. Now, if there's a near infrared, there's also a mid infrared that's about there's also a mid infrared that's about 2500 25,000. And then far infrared is 2500 25,000. And then far infrared is 25,000 up to quite a large amount of 25,000 up to quite a large amount of nanometers. And each one just goes nanometers. And each one just goes deeper. Okay. Far infrared is often used deeper. Okay. Far infrared is often used as the heat source in a sauna. Quick as the heat source in a sauna. Quick interruption from the regular video. If interruption from the regular video. If you are a healthcare practitioner and you are a healthcare practitioner and you have an interest in this topic, you have an interest in this topic, we're going to put a link in the we're going to put a link in the description below to my CE website and description below to my CE website and specifically the webinar that is about specifically the webinar that is about this topic. So see you over there.

this topic. So see you over there.

How to Use Red Light Safely

Thanks. So most of the red near infrared Thanks. So most of the red near infrared devices that you see are for topical use devices that you see are for topical use on the body and their wavelengths like I on the body and their wavelengths like I say are going to penetrate either to the say are going to penetrate either to the subcutaneous layers or the muscle layers subcutaneous layers or the muscle layers and they're going to help with this and they're going to help with this cytochrome c oxidase and there's other cytochrome c oxidase and there's other things around cytochrome oxidase that things around cytochrome oxidase that just basically help the mitochondria to just basically help the mitochondria to work. So when you're using these things, work. So when you're using these things, the first thing that you want to think the first thing that you want to think about is if I'm going to increase my about is if I'm going to increase my mitochondrial activity, that will often mitochondrial activity, that will often result in me having more energy. But result in me having more energy. But some people actually if they're some people actually if they're especially using big body pads, you especially using big body pads, you know, red near infrared, they'll know, red near infrared, they'll actually get really calm and some people actually get really calm and some people nap when they're doing red near nap when they're doing red near infrared, which is great. But some

infrared, which is great. But some people are stimulated by it because the people are stimulated by it because the mitochondria feel that right away. So, mitochondria feel that right away. So, if that's the case, always test out red if that's the case, always test out red light near infrared therapies earlier in light near infrared therapies earlier in the day cuz if you do get stimulated by the day cuz if you do get stimulated by it, you don't want to do it at night and it, you don't want to do it at night and then not be able to sleep or something.

then not be able to sleep or something. The next thing is is that we generally The next thing is is that we generally have people work their time up and if have people work their time up and if somebody's and it's not, you know, right somebody's and it's not, you know, right before bedtime, you can easily do 15 to before bedtime, you can easily do 15 to 30 minutes as your first dose and just 30 minutes as your first dose and just see how it goes for you. But people see how it goes for you. But people certainly can do longer doses. Now, certainly can do longer doses. Now, there's often this sort of uh divide there's often this sort of uh divide where people will see research that was where people will see research that was done with just a few minutes of red or done with just a few minutes of red or near infrared therapy and they'll think, near infrared therapy and they'll think, "Oh, well, why am I going a red light "Oh, well, why am I going a red light bed, you know, for 15 minutes or 30 bed, you know, for 15 minutes or 30 minutes when they did this research, you minutes when they did this research, you know, at 2 minutes or 5 minutes or know, at 2 minutes or 5 minutes or something like that?" There's a couple something like that?

Research vs Home Device Power Differences

" There's a couple reasons. One is most of that type of reasons. One is most of that type of research is done with extremely powerful research is done with extremely powerful red or near infrared generators. They red or near infrared generators. They might be laser. They might be might be laser. They might be high-owered LED, but the power may be high-owered LED, but the power may be different between the research device different between the research device that was used and the red pad that that was used and the red pad that you're on or near infrared pad or the you're on or near infrared pad or the bed that you're going in. So, a lot of bed that you're going in. So, a lot of times you need a little bit more time times you need a little bit more time than what was shown in the research to than what was shown in the research to get the same effect because the power get the same effect because the power levels are different. The next thing levels are different. The next thing after you make sure that you know you after you make sure that you know you tolerate it and it doesn't you know make tolerate it and it doesn't you know make you too overstimulated to sleep or you too overstimulated to sleep or something is you know where you might do something is you know where you might do it and what you might do it for. Well, it and what you might do it for.

Whole-Body vs Localized Treatment

Well, globally speaking, people who are globally speaking, people who are recovering from bodywide issue like a recovering from bodywide issue like a chronic fatiguing state, fibromyalgia, chronic fatiguing state, fibromyalgia, long COVID, all of these sort of things, long COVID, all of these sort of things, they're going to probably, if you have a they're going to probably, if you have a body size mat or at least a, you know, body size mat or at least a, you know, torso size, you can move around. That's torso size, you can move around. That's going to be better because you're going going to be better because you're going to affect more mitochondria at one time.

to affect more mitochondria at one time. This is why the big light beds can be This is why the big light beds can be very very useful if they go red near very very useful if they go red near infrared because you're going to get infrared because you're going to get deep and across all of the body cells or deep and across all of the body cells or most of the body cells at the same time.

most of the body cells at the same time. If you're using it to heal up a specific If you're using it to heal up a specific injury which like done in physical injury which like done in physical medicine a lot there may be either an medicine a lot there may be either an external source that looks like a lamp external source that looks like a lamp or a pad that wraps around the joint. So or a pad that wraps around the joint. So they make them for shoulders and elbows they make them for shoulders and elbows and knees and all sorts of stuff. That's and knees and all sorts of stuff. That's also not uncommon. If you you're pretty also not uncommon. If you you're pretty good everywhere else, but you've good everywhere else, but you've injured your shoulder, for example, you might your shoulder, for example,

you might just do localized therapy there. So, to just do localized therapy there. So, to summarize, red and near infrared and summarize, red and near infrared and then the other infrareds get in through then the other infrareds get in through the skin. They absorb red gets in a the skin. They absorb red gets in a decent amount. Near infrared is deeper, decent amount. Near infrared is deeper, etc. and they affect mitochondrial etc. and they affect mitochondrial energy systems and enzymes that improve energy systems and enzymes that improve the energy production of the cells in the energy production of the cells in the area that you are putting in the red the area that you are putting in the red light. And so they can be very very light.

Photobiomodulation Explained

And so they can be very very useful and helpful in healing both with useful and helpful in healing both with pure wounds with traumas that are pure wounds with traumas that are recovering and then bodywide systemic recovering and then bodywide systemic things such as a chronically fatiguing things such as a chronically fatiguing What is you know quote red light What is you know quote red light therapy? Because you might think well therapy? Because you might think well you know am I going to paint a light you know am I going to paint a light bulb red and you know that'll help heal bulb red and you know that'll help heal me somehow and to to a degree that might me somehow and to to a degree that might happen but normally we talk about red happen but normally we talk about red light therapy especially under the light therapy especially under the oposes of the medical therapy called oposes of the medical therapy called photobiomodulation photobiomodulation photobiomodulation and there's other names for it as well and there's other names for it as well phototherapy etc. What we're really phototherapy etc. What we're really talking about is either using light in talking about is either using light in the red end of the photodnamic spectrum the red end of the photodnamic spectrum or in the near or far infrared end of or in the near or far infrared end of the spectrum to effect healing. What we the spectrum to effect healing. What we want to talk about today is what we call want to talk about today is what we call red/ne red/ne red/ne infrared or red nir. And the reason why infrared or red nir. And the reason why I talk about that is that's the most I talk about that is that's the most commonly used especially commonly used especially over-the-counter but really in North over-the-counter but really in North America probably the most commonly used America probably the most commonly used medicalized type of medical light medicalized type of medical light therapies that you're going to find. So therapies that you're going to find. So these are really very useful and we just these are really very useful and we just want to demystify it a little bit. So want to demystify it a little bit.

Understanding Wavelengths & Nanometers

So the spectrum is measured in a small unit the spectrum is measured in a small unit of measurement called nanometers and it of measurement called nanometers and it has to do with the wavelength that that has to do with the wavelength that that color occupies in the spectrum. So red color occupies in the spectrum. So red is going to be somewhere around 600 to is going to be somewhere around 600 to 700 nanometers give or take either 700 nanometers give or take either direction and depending on the chart direction and depending on the chart that you find online you'll see it that you find online you'll see it scooted one way or the other but scooted one way or the other but somewhere up there in the 6700 range and somewhere up there in the 6700 range and then infrared nowadays is divided then infrared nowadays is divided actually into three categories infrared actually into three categories infrared AB and C which you also will hear talked AB and C which you also will hear talked about as near mid and far infrared. So about as near mid and far infrared. So those are going to start where red light those are going to start where red light ends. So we're going to start around ends. So we're going to start around 700-,400 nm for near infrared and then 700-,400 nm for near infrared and then 14 to 3,000 for mid or B and then above 14 to 3,000 for mid or B and then above 3,000 for far infrared. But because most 3,000 for far infrared. But because most of the light therapies that you're going of the light therapies that you're going to see and especially the over- to see and especially the over- the-counter ones or the things that you the-counter ones or the things that you might see recommended online are going might see recommended online are going to fall in the red/ne.

to fall in the red/ne. you're going to be having either a broad you're going to be having either a broad group of LEDs or laser devices or group of LEDs or laser devices or whatever that are going to generate 6 to whatever that are going to generate 6 to 700 to cover red and then 7 to,400 700 to cover red and then 7 to,400 nmters to cover near infrared. And a lot nmters to cover near infrared. And a lot of times what will happen because the of times what will happen because the modulation is kind of manipulated by the modulation is kind of manipulated by the types of

light devices that are in the types of light devices that are in the either the tool or the pad or the light either the tool or the pad or the light device etc. is you'll usually have some device etc. is you'll usually have some red ones that are tuned to a certain red red ones that are tuned to a certain red spectra like 610 is common. So you're spectra like 610 is common. So you're well into the red end of the spectrum well into the red end of the spectrum and then your near infrared might be 810 and then your near infrared might be 810 might be 880 etc. So rather than having might be 880 etc. So rather than having sort of this broadband of 600 all the sort of this broadband of 600 all the way to,400 you're actually going to way to,400 you're actually going to probably have like I say 610 630 650 probably have like I say 610 630 650 something like that to hit red and then something like that to hit red and then something in the neighborhood above 800 something in the neighborhood above 800 like an 810 880 850 sometimes other like an 810 880 850 sometimes other things. So then you're hitting red and things. So then you're hitting red and near infrared. Now, one thing that you near infrared. Now, one thing that you want to look at on devices, if you have want to look at on devices, if you have them, or maybe you're going to a clinic them, or maybe you're going to a clinic to get them, is some devices have just to get them, is some devices have just one setting at a time. Some devices are one setting at a time. Some devices are only red or only near infrared. And then only red or only near infrared. And then some devices have the opportunity to some devices have the opportunity to have multiple settings or cycles. And have multiple settings or cycles. And there's different benefits we'll talk there's different benefits we'll talk about next with regard to the different about next with regard to the different spectra and how deep they get past your spectra and how deep they get past your skin and then what kind of benefit skin and then what kind of benefit that's going to have downstream on your that's going to have downstream on your cells. So for example, in a clinic that cells.

Choosing the Right Device Settings

So for example, in a clinic that I send people to, they have multiple I send people to, they have multiple different types of devices, but one is a different types of devices, but one is a light bed. And the light bed has the light bed. And the light bed has the option of red only or near infrared only option of red only or near infrared only or a cycle going between red and near or a cycle going between red and near infrared or a continuous where all of infrared or a continuous where all of the light devices are on the same time.

the light devices are on the same time. So you're getting continuous red near So you're getting continuous red near infrared as you go. So you can do this a infrared as you go. So you can do this a number of different ways. Now in order number of different ways. Now in order to do that with most of these medical to do that with most of these medical light beds, those can be the more light beds, those can be the more expensive type of light devices, etc.

expensive type of light devices, etc. So, if you're looking, you know, for a So, if you're looking, you know, for a lot of the online product, do your due lot of the online product, do your due diligence on the company. Make sure diligence on the company. Make sure they're actually, you know, rated and they're actually, you know, rated and ulisted and they sell the proper things.

ulisted and they sell the proper things. But if possible, say you're going to get But if possible, say you're going to get a pad, which is real common, and you're a pad, which is real common, and you're going to do therapy for some chronic going to do therapy for some chronic illness or healing from a surgery or illness or healing from a surgery or something like that. Then if possible something like that. Then if possible want to have a combo of a red spectrum want to have a combo of a red spectrum like a 610, 650, whatever, and a near like a 610, 650, whatever, and a near infrared like an 810, 880, something of infrared like an 810, 880, something of that nature. So they're both mixed in that nature. So they're both mixed in there. Now, you still get benefits with there. Now, you still get benefits with both, but if you can get both going at both, but if you can get both going at the same time, in my mind, you get sort the same time, in my mind, you get sort of a broader coverage, if you will. So of a broader coverage, if you will.

How Light Penetrates Skin & Muscle

So the next question that comes up which is the next question that comes up which is really the question we should all be really the question we should all be asking is from a medical point of view asking is from a medical point of view or a biochemical point of view what is or a biochemical point of view what is going on? Why do these light wavelengths going on? Why do these light wavelengths go through the skin? But then what are go through the

skin? But then what are they doing once they get there? Well, they doing once they get there? Well, the first thing is that when we're the first thing is that when we're looking at red and near infrared, what looking at red and near infrared, what we are going to get is red light is we are going to get is red light is going to penetrate through the skin and going to penetrate through the skin and it's going to get all the way into it's going to get all the way into what's called the subcutaneous tissue.

what's called the subcutaneous tissue. So, that's a fat layer. Okay? Now, in So, that's a fat layer. Okay? Now, in the back of your hand, it can be very the back of your hand, it can be very thin or almost non-existent, thin or almost non-existent, microscopic, so to speak. In other microscopic, so to speak. In other areas, like the fleshy part of your arm, areas, like the fleshy part of your arm, it might be a centimeter thick. It might it might be a centimeter thick. It might be thicker than that depending on how be thicker than that depending on how big the person is. So the first step is big the person is. So the first step is to get into the subcutaneous. So red to get into the subcutaneous. So red light gets to the subcutaneous. And you light gets to the subcutaneous. And you might say, well that doesn't seem very might say, well that doesn't seem very far. But here's the reason it's far. But here's the reason it's important. In the subcutaneous tissue important. In the subcutaneous tissue and around it is a giant network of and around it is a giant network of literally billions of tiny capillary and literally billions of tiny capillary and arterolar beds, etc. So there's a lot of arterolar beds, etc. So there's a lot of uh circulating blood going through. So uh circulating blood going through. So the red light's going to have access to the red light's going to have access to that. It's also going to have access all that. It's also going to have access all the way from the top of the skin through the way from the top of the skin through to the subcutaneous to cells of our to the subcutaneous to cells of our immune system that are hanging out in immune system that are hanging out in different places. So we usually think of different places. So we usually think of cells of the immune system hanging out, cells of the immune system hanging out, you know, in the bone marrow or or you know, in the bone marrow or or floating around in the blood or in the floating around in the blood or in the lymph nodes or something like that, lymph nodes or something like that, which is true, but also we have immune which is true, but also we have immune cells all over our body that are not in cells all over our body that are not in any of those places. They're in our any of those places. They're in our tissues and they are sort of first tissues and they are sort of first responders. So the red light is going to responders. So the red light is going to get to the tissues itself. We also have get to the tissues itself. We also have access to that superficial layer of fat, access to that superficial layer of fat, the subcutaneous fat. And if you were to the subcutaneous fat. And if you were to cut somebody open in different areas, cut somebody open in different areas, what you would notice is once you got what you would notice is once you got past the dermis, you would see a layer past the dermis, you would see a layer of yellow fat cells and that is the of yellow fat cells and that is the subcutaneous fat. What you'd also see subcutaneous fat. What you'd also see there is a big network of very tiny there is a big network of very tiny blood vessels like we mentioned. So red blood vessels like we mentioned. So red gets all the way down into there, which gets all the way down into there, which is really pretty good. And then near is really pretty good. And then near infrared and further into the spectrum infrared and further into the spectrum goes through the subcutaneous into the goes through the subcutaneous into the muscle itself. Now once you get to the muscle itself. Now once you get to the muscle, you're picking up all of the muscle, you're picking up all of the things on top that we just mentioned in things on top that we just mentioned in the epidermis, the dermis, the the epidermis, the dermis, the subcutaneous, the local immune cells, subcutaneous, the local immune cells, and the vascular network. And then once and the vascular network. And then once you hit the muscle, you get pick up two you hit the muscle, you get pick up two huge things. One is the muscle. So, your huge things. One is the muscle. So, your skeletal muscle below the subcutaneous skeletal muscle below the subcutaneous fat is what moves you around. One of the fat is what moves you around. One of the most large organs in your body that has most large organs in your body that has highly metabolically active cells. So, highly metabolically active cells. So, we're going to get right to them and we're going to get right to them and their, you know, mitochondria and their their, you know, mitochondria and their cells and their metabolism. But the cells and their metabolism. But the other thing about the muscle tissue is other thing about the muscle tissue is we now add not just the fine layer of we now add not just the fine layer of you know billions of little arterials you know billions of little arterials and capillaries and things of subq but and capillaries and things of subq but now we're adding a lot of massive blood now we're adding a lot of massive blood flow that we have access to. So once we flow that we have access to. So once we get into the near infrared and further get into the near infrared and further into the spectrum, we now get to the into the spectrum, we now get to the muscle tissue which not only affects all muscle tissue which not only affects all the abovementioned things but also it the abovementioned things but also it affects everything flowing through the affects everything flowing through the muscle. Your muscle is extremely well muscle. Your muscle is extremely well

perused with blood which is not just perused with blood which is not just going to stay here. So if I put a you going to stay here. So if I put a you know red near infrared pad on my know red near infrared pad on my shoulder and my arm, I'm not just shoulder and my arm, I'm not just treating the muscles and and the skin treating the muscles and and the skin and the subcutaneous there. I'm treating and the subcutaneous there. I'm treating the massive amount of blood flow that's the massive amount of blood flow that's going to flow through that area that the going to flow through that area that the pad is on. And so you can start to see pad is on. And so you can start to see that you're going to have a systemic that you're going to have a systemic effect. Now, as I said, red is fine all effect. Now, as I said, red is fine all on its own. You get a 610 pad or a 650 on its own. You get a 610 pad or a 650 or a 680 pad. You're going to get red or a 680 pad. You're going to get red light effect. You're going to affect all light effect. You're going to affect all those surface uh tissues. You're going those surface uh tissues. You're going to affect the immune cells. You're going to affect the immune cells. You're going to affect all those miles of capillary to affect all those miles of capillary beds and the subcutaneous fat, etc. If beds and the subcutaneous fat, etc. If you add on or you cycle in red plus near you add on or you cycle in red plus near infrared, then you're going to add in infrared, then you're going to add in the deeper layer the bigger amount of the deeper layer the bigger amount of metabolic tissue being the muscle and metabolic tissue being the muscle and then the larger amount of blood flow then the larger amount of blood flow going through which means also then the going through which means also then the red blood cells, white blood cells and red blood cells, white blood cells and other immune cells are going to benefit other immune cells are going to benefit as you use near infrared type of as you use near infrared type of procedure. So, there's lots of different procedure. So, there's lots of different ways to do it, but when it comes to ways to do it, but when it comes to dosing, what we're really thinking about dosing, what we're really thinking about with dosing is what kind of spectrum can with dosing is what kind of spectrum can I get? Then, how long should I do it and I get? Then, how long should I do it and then how often? But before we get to then how often? But before we get to that, let me just break down what is the that, let me just break down what is the benefit for my cells. Well, once red and benefit for my cells.

Cellular Energy, Oxidative Stress & Healing

Well, once red and near infrared light get to the near infrared light get to the mitochondria inside your cell, they're mitochondria inside your cell, they're going to do a group of things. The first going to do a group of things. The first thing is they're going to directly turn thing is they're going to directly turn up the energy inside of your cells and up the energy inside of your cells and they're going to do this through they're going to do this through affecting the mitochondria and the rate affecting the mitochondria and the rate at which oxidative phosphorilation goes at which oxidative phosphorilation goes through your mitochondria. So your through your mitochondria. So your cellular respiration is going to speed cellular respiration is going to speed up. So that's the first thing. The up. So that's the first thing. The energy is going to go up. When you raise energy is going to go up. When you raise energy, one of the things you will do, energy, one of the things you will do, especially if you've been sick, but even especially if you've been sick, but even under the best of circumstances, is under the best of circumstances, is inadvertently inadvertently inadvertently you're going to create cellular you're going to create cellular respiration, but you can throw off a lot respiration, but you can throw off a lot more oxidants, a lot more free radicals, more oxidants, a lot more free radicals, proxidation. Well, it turns out that a proxidation. Well, it turns out that a nice benefit of red and near infrared nice benefit of red and near infrared light, depending on how deep they're light, depending on how deep they're going, is that they directly decrease going, is that they directly decrease the free radical buildup and the the free radical buildup and the oxidative formation. So, you're getting oxidative formation. So, you're getting the benefit of energy without the the benefit of energy without the benefit of oxidation because the red benefit of oxidation because the red light is taking care of that. And then light is taking care of that. And then through those and some other means, you through those and some other means, you are going to help the cell not only to are going to help the cell not only to kickstart and to work faster, but you're kickstart and to work faster, but you're going to help the cell to build up more going to help the cell to build up more healing capacity. Because if you have a healing capacity. Because if you have a sick cell that is running slowly and the sick cell that is running slowly and the mitochondria in the cell are running mitochondria in the cell are running slowly, it cannot heal like it ought to.

slowly, it cannot heal like it ought to. This is one of the reasons why in the This is one of the reasons why in the medical research and now with some human medical research and now with some human research that's been done, people who research that's been done, people who got exposed to red near infrared got exposed to red near infrared therapy, for example, in their lungs had therapy, for example, in their lungs had better outcomes when they

were better outcomes when they were hospitalized with COVID. And during the hospitalized with COVID. And during the darker days of COVID, when we were darker days of COVID, when we were trying to get people over long COVID and trying to get people over long COVID and getting them out of the hospital and getting them out of the hospital and they'd be very sick, we did a lot of they'd be very sick, we did a lot of home therapy where they would just order home therapy where they would just order a red light mat online or two and they a red light mat online or two and they would do a therapeutic red near infrared would do a therapeutic red near infrared over wherever was bothering them. Might over wherever was bothering them. Might have been their pelvic organs, might have been their pelvic organs, might have been their chest, could be just have been their chest, could be just about anywhere where you do that. Now to about anywhere where you do that.

Dosing Guidelines & Safety Tips

Now to wrap this up, the final part is kind of wrap this up, the final part is kind of the dosing. And as we say at the the dosing. And as we say at the beginning of all of these, this is for beginning of all of these, this is for information only. I'm not your doctor, information only. I'm not your doctor, so you shouldn't take anything I say as so you shouldn't take anything I say as medical advice. Just explaining how medical advice. Just explaining how these things work. If you are going to these things work. If you are going to do photodnamic medical therapy, please do photodnamic medical therapy, please work with somebody who's licensed to do work with somebody who's licensed to do that. But the basics of dosing that. But the basics of dosing essentially are going to be lightwave essentially are going to be lightwave length, power, and then times. those length, power, and then times. those three aspects of dosing. But generally three aspects of dosing. But generally speaking, for example, when we would speaking, for example, when we would have our patients get home from the have our patients get home from the hospital from COVID and they were going hospital from COVID and they were going to do a red near infrared mat therapy, to do a red near infrared mat therapy, you know, over their chest, let's say you know, over their chest, let's say they had lingering pneuminitis or they had lingering pneuminitis or something like that, what we would do if something like that, what we would do if they could get two mats is have one on they could get two mats is have one on the back and one on the front because the back and one on the front because that mimics the research that was done.

that mimics the research that was done. And then we would have them run them And then we would have them run them with red near infrared both running. And with red near infrared both running. And then we would run them for somewhere then we would run them for somewhere between 15 to 30 minutes on both sides between 15 to 30 minutes on both sides of them two to three times a day. Now of them two to three times a day. Now again, if you're going to be doing a again, if you're going to be doing a more medicalized therapy or low-level more medicalized therapy or low-level laser therapy or something with a lot laser therapy or something with a lot more wattage, power, etc., you really more wattage, power, etc., you really need somebody who knows exactly how to need somebody who knows exactly how to dose those things. But with these home dose those things. But with these home units, that's what we were doing. So if units, that's what we were doing. So if they were acute, meaning they did just they were acute, meaning they did just recovered at home or they just got home recovered at home or they just got home from the hospital, we would have them do from the hospital, we would have them do that every day for maybe two weeks and that every day for maybe two weeks and then kind of titrate backwards to then kind of titrate backwards to whatever they needed. It might have been whatever they needed. It might have been 5 days a week after that for a little 5 days a week after that for a little bit or 3 days a week, etc. But bit or 3 days a week, etc. But generally, the more you can do on the generally, the more you can do on the front end, the better. Now, the one front end, the better. Now, the one thing that you do need to keep in mind thing that you do need to keep in mind is whether you're doing it over your is whether you're doing it over your shoulder or over your chest or your shoulder or over your chest or your pelvic organs or maybe the big muscles pelvic organs or maybe the big muscles in your legs, you need to remember that in your legs, you need to remember that you're going to be kicking up your you're going to be kicking up your mitochondrial activity, which kicks up mitochondrial activity, which kicks up the metabolism. So, if you're prone to the metabolism. So, if you're prone to things, you know, like feeling woozy things, you know, like feeling woozy when you don't eat for a while or when you don't eat for a while or something like that, metabolism going to something like that, metabolism going to speed up. Now, it does actually level speed up. Now, it does actually level your blood sugar out, but still if you your blood sugar out, but still if you if you haven't been eating in a long if you haven't been eating in a long time, you might feel very hungry time, you might feel very hungry afterwards. You might feel like you afterwards. You might feel like you don't want to go

to sleep. So, we don't want to go to sleep. So, we recommend people don't do it right recommend people don't do it right before bed unless they know it makes before bed unless they know it makes them tired. Some people it does, but them tired. Some people it does, but because of the mitochondrial increase in because of the mitochondrial increase in activity, some people would actually activity, some people would actually feel this increase in energy and then feel this increase in energy and then they'd be like, well, I was planning to they'd be like, well, I was planning to go to bed, but I now stay up for a while go to bed, but I now stay up for a while and kind of burn that energy off. That's and kind of burn that energy off. That's the one caveat that you want to think the one caveat that you want to think about with it. Generally speaking, the about with it. Generally speaking, the pads that you can get over the counter pads that you can get over the counter are going to be red, near infrared, or are going to be red, near infrared, or both. They're going to be at a wattage both. They're going to be at a wattage that's fairly moderate, but it's still that's fairly moderate, but it's still going to penetrate like we said, and going to penetrate like we said, and they're going to be extremely safe. So, they're going to be extremely safe. So, used as the manufacturer recommends, used as the manufacturer recommends, they're going to be extremely safe. If they're going to be extremely safe. If you're going to do anything else that you're going to do anything else that kicks it up a notch into laser therapies kicks it up a notch into laser therapies or other stuff, please work with a or other stuff, please work with a healthcare provider who does that type healthcare provider who does that type of therapy. So the first thing that we of therapy.

Red Light & Inflammation Modulation

So the first thing that we want to talk about really is how is it want to talk about really is how is it that the use of red light therapy as a that the use of red light therapy as a photodnamic therapy or photodnamic therapy or photobiomodulation as we like to call it photobiomodulation as we like to call it sometimes is able to help modulate the sometimes is able to help modulate the inflammatory process inside the body.

inflammatory process inside the body. So, we covered this a lot more deeply in So, we covered this a lot more deeply in a different episode that we will link at a different episode that we will link at the bottom where we went really, you the bottom where we went really, you know, a lot into penetration of light know, a lot into penetration of light and wavelength and all of that. But just and wavelength and all of that. But just to kind of remind us if you haven't seen to kind of remind us if you haven't seen that episode yet, the way that red and that episode yet, the way that red and near infrared works is first it's on a near infrared works is first it's on a spectrum, literally the visual spectrum spectrum, literally the visual spectrum and the visual spectrum ends at red and and the visual spectrum ends at red and then goes into infrared which is beyond then goes into infrared which is beyond what we would see with our naked eye. It what we would see with our naked eye. It is measured different ways but in is measured different ways but in nanometers usually you hear and you know nanometers usually you hear and you know red is somewhere 6 to 700 nanometers and red is somewhere 6 to 700 nanometers and each chart you look at will have it a each chart you look at will have it a little bit lower a little higher little bit lower a little higher something that's fine that's how all the something that's fine that's how all the charts are but red you know usually you charts are but red you know usually you get a red light generator it's going to get a red light generator it's going to be 610 650 something like that near be 610 650 something like that near infrared which is most commonly combined infrared which is most commonly combined with red nir is 700 to400 nmters and with red nir is 700 to400 nmters and usually the near infrared devices are usually the near infrared devices are going to be putting out 810 to 880 going to be putting out 810 to 880 nanometers. And that's just because nanometers. And that's just because that's the most common light device that's the most common light device emitters that are used in those sort of emitters that are used in those sort of things. Most of the time while you can things. Most of the time while you can get benefits from red visible light all get benefits from red visible light all on its own especially applied topically on its own especially applied topically what we recommend to people and what we what we recommend to people and what we use clinically in a medical setting use clinically in a medical setting would be a combination of red and near would be a combination of red and near infrared either working continuously infrared either working continuously together or maybe cycled so that you had together or maybe cycled so that you had some time with red some with near some time with red some with near infrared and they would cycle back and infrared and they would cycle back and forth because the penetration depth is forth because the penetration depth is different. Okay. So red will still different. Okay. So red will still help you, but red near infrared going to help you, but red near infrared going to be even more the deep penetration. It's be even more the deep penetration. It's going to help you more. So if you want going to help you more. So if you want all the background and all that, again, all the background and all that, again,

go to the other one that we're going to go to the other one that we're going to link and I get a lot deeper and geekier link and I get a lot deeper and geekier into that sort of stuff. But what we into that sort of stuff. But what we want to consider as we're looking at want to consider as we're looking at this is number one, red light and the this is number one, red light and the infrared spectrum, especially near infrared spectrum, especially near infrared under these circumstances, does infrared under these circumstances, does get through the skin and it either gets get through the skin and it either gets down to the subcutaneous fat or into the down to the subcutaneous fat or into the muscle. Near infrared gets a little bit muscle. Near infrared gets a little bit deeper and we're going to affect a deeper and we're going to affect a number of things. One is obviously all number of things. One is obviously all the layers of the skin, subcutaneous the layers of the skin, subcutaneous fat, but also around the subcutaneous fat, but also around the subcutaneous fat are billions of very small arterials fat are billions of very small arterials and capillary bed, miles of capillary and capillary bed, miles of capillary bed. And so we're affecting the bed. And so we're affecting the circulation, those circulating blood, circulation, those circulating blood, but also we're affecting tissue immune but also we're affecting tissue immune cells. When we affect tissue immune cells. When we affect tissue immune cells, those are a lot of the times our cells, those are a lot of the times our first responders, especially if you were first responders, especially if you were to like cut yourself or something like to like cut yourself or something like that. We know we bleed when we cut that. We know we bleed when we cut ourselves, but there's also tissue ourselves, but there's also tissue immune cells that are waiting and they immune cells that are waiting and they might be helping out in the immune might be helping out in the immune response. So, our immune system is response. So, our immune system is connected to our integment, the stuff connected to our integment, the stuff that holds us together. They're not that holds us together. They're not always in the blood or the bone marrow always in the blood or the bone marrow or the lymph nodes or something. So, or the lymph nodes or something. So, we're going to affect all that. Now, if we're going to affect all that. Now, if we do near infrared and we get down to we do near infrared and we get down to the muscle, we're not only affecting the muscle, we're not only affecting everything I just said, but now we're everything I just said, but now we're getting the muscle, which has highly getting the muscle, which has highly metabolic cells in it. Being muscle metabolic cells in it. Being muscle cells, they're highly metabolic, lots of cells, they're highly metabolic, lots of mitochondria there. And the muscle has mitochondria there. And the muscle has huge amounts of blood moving through it.

huge amounts of blood moving through it. So we're affecting circulating blood So we're affecting circulating blood which then has all the circulating which then has all the circulating immune cells and all that. We do that to immune cells and all that. We do that to a little degree up in the subcutaneous a little degree up in the subcutaneous and we do it to a huge degree down and we do it to a huge degree down inside of the muscle. So this is how inside of the muscle. So this is how mechanically we are doing it. And this mechanically we are doing it. And this is why in medical situations if we can is why in medical situations if we can we usually do both red and near infrared we usually do both red and near infrared light or cycle them so that we get a light or cycle them so that we get a deeper effect into the body. Now as I deeper effect into the body. Now as I mentioned in the other one there is also mentioned in the other one there is also far infrared which has different far infrared which has different characteristics and we're going to talk characteristics and we're going to talk about that completely separately because about that completely separately because it's best not to mix and match those it's best not to mix and match those topics. So the first thing is what's it topics. So the first thing is what's it going to do for me? Well, the way it's going to do for me? Well, the way it's going to affect the tissue cells, going to affect the tissue cells, whether they're part of your skin or whether they're part of your skin or your connective tissue or your your connective tissue or your subcutaneous fat, blood vessels, those subcutaneous fat, blood vessels, those immune cells I said that hang out inside immune cells I said that hang out inside the tissues in the integment or the the tissues in the integment or the direct muscle cell tissue and all of direct muscle cell tissue and all of that. It's going to affect it all that. It's going to affect it all through mitochondrial activity. Then to through mitochondrial activity. Then to just quickly recap our other video, how just quickly recap our other video, how it affects that is it increases it affects that is it increases mitochondrial activity which increases mitochondrial activity which increases cellular respiration and metabolism but cellular respiration and metabolism but it protects that increase in metabolism it protects that increase in metabolism by decreasing oxidative damage and then by decreasing oxidative damage and then through a couple of other means helps to through a couple of other means helps to improve cell healing. So we put all improve cell healing. So we put all those things together. If I'm an immune those things together. If I'm an immune cell, I'm going to do my job as an cell, I'm going to do my job as an immune cell better and faster, which is immune cell better and faster, which is what we kind of want with them. And it's what we kind of want with them. And it's not that it's going to make your immune not that it's going to make your immune cells go crazy. It's that it's

going to cells go crazy. It's that it's going to put it back up to its normal level.

put it back up to its normal level. Right? We often use these things with Right? We often use these things with people who've been sick a long time, so people who've been sick a long time, so they're not working at their normal they're not working at their normal level. If I'm a blood cell, I'm going to level. If I'm a blood cell, I'm going to improve my redux capacity and some other improve my redux capacity and some other cool things that go on. if I'm a muscle cool things that go on. if I'm a muscle cell or a fat cell or whatever, I'm cell or a fat cell or whatever, I'm going to improve my metabolism which is going to improve my metabolism which is going to make me a healthier type of going to make me a healthier type of cell. So that's kind of how it's going cell. So that's kind of how it's going to work and it's going to work on all to work and it's going to work on all those levels because once you affect the those levels because once you affect the mitochondria, it doesn't matter where mitochondria, it doesn't matter where you're going to improve it, but you're you're going to improve it, but you're also remember going to protect it from also remember going to protect it from the extra amount of cell respiration by the extra amount of cell respiration by cutting off the oxidative components of cutting off the oxidative components of what's going on. So that's a big, you what's going on. So that's a big, you know, kind of how to how it's working, know, kind of how to how it's working, all that stuff. Again, the other one a all that stuff. Again, the other one a lot more geeky. We went longer on that.

lot more geeky. We went longer on that. But this one I want to talk about. Okay. But this one I want to talk about. Okay. So why would that help me with So why would that help me with inflammation? And then how do we apply inflammation? And then how do we apply it? Where we're where we're going to use it? Where we're where we're going to use these things, right? So the first thing these things, right? So the first thing is going to be it's going to help with is going to be it's going to help with inflammation because it's going to help inflammation because it's going to help with cellular respiration, which just with cellular respiration, which just like our respiration where we breathe like our respiration where we breathe air in and breathe air out. It helps to air in and breathe air out. It helps to take good stuff in and we breathe bad take good stuff in and we breathe bad stuff out. And then the cycle goes on.

stuff out. And then the cycle goes on. But when your cells do that, the other But when your cells do that, the other thing that they do naturally is they thing that they do naturally is they take the trash out. And inflamed cells take the trash out. And inflamed cells tend to hold on to more trash. So red tend to hold on to more trash. So red near infrared light therapy is going to near infrared light therapy is going to help to improve the movement into the help to improve the movement into the cell of good stuff, improve the cell of good stuff, improve the oxidative capacity and the redux status oxidative capacity and the redux status and improve the actual energy and improve the actual energy production. But also then that is going production. But also then that is going to improve the exit of the garbage. Now to improve the exit of the garbage. Now one side note very important this is one side note very important this is supported extremely well by staying supported extremely well by staying hydrated because if you are dehydrated hydrated because if you are dehydrated that whole process of putting the good that whole process of putting the good stuff in and taking the trash out slows stuff in and taking the trash out slows down. So one of the primary things that down. So one of the primary things that you can do for yourself especially well you can do for yourself especially well just if you're living but if you're just if you're living but if you're doing red light or near infrared therapy doing red light or near infrared therapy stay really well hydrated. Okay that's stay really well hydrated. Okay that's going to be very good. The other thing going to be very good. The other thing you can do to support it if you're able you can do to support it if you're able is to physically move your body because is to physically move your body because that'll pump more blood through and and that'll pump more blood through and and turn more blood over. So that's how it's turn more blood over. So that's how it's going to help on the inflammatory side.

going to help on the inflammatory side. You're going to take more junk. You're going to take more junk. Inflammation is metabolic junk. You take Inflammation is metabolic junk. You take more junk out. So the forms you might more junk out. So the forms you might see, and again, there's a either slight see, and again, there's a either slight or great difference between the forms or great difference between the forms that you would see, you know, that you that you would see, you know, that you might be able to buy over the counter might be able to buy over the counter versus what you might see in a medical versus what you might see in a medical office. But generally speaking, some of office.

Types of Devices: Pads, Panels & Helmets

But generally speaking, some of the things are going to look the same. the things are going to look the same. So the first thing is panels or pads. So So the first thing is panels or pads. So you might see a red near infrared like a you might see a red near infrared like a mat. And it might be a small that might mat. And it might be a small that might fit over, you know, your neck or the fit over, you know, your neck or the back of your head or your shoulder or back of your head or your shoulder or something like that. Or you might see a something like that. Or you might see a large one that's made to fit over your large one that's made to fit over your entire torso. or in at least in some of entire torso. or in at least in some of the medical uses you might see one the medical uses you might see one that's you know as long as the average that's you know as long as the average human so it fits over their entire body.

human so it fits over their entire body. So pads or panels are one of the main So pads or panels are one of the main ways these are done. Now, one of the ways these are done. Now, one of the things, and we don't get into it too things, and we don't get into it too much because it it really gets more into much because it it really gets more into the medical prescribing, but if you are the medical prescribing, but if you are going to have a device that has a, you going to have a device that has a, you know, big separation between the device know, big separation between the device and and the human, you often need more and and the human, you often need more power, and that tends to be used in power, and that tends to be used in certain instances in medicalized sort of certain instances in medicalized sort of devices. But if you're trying to use it, devices. But if you're trying to use it, you know, an over- the-counter version you know, an over- the-counter version at home for your for your sore shoulder at home for your for your sore shoulder or, you know, we we use it a lot with or, you know, we we use it a lot with lungs and heart and pelvic organs and lungs and heart and pelvic organs and stuff after COVID or in long COVID. If stuff after COVID or in long COVID. If you can lay on it, it's better. Now, if you can lay on it, it's better. Now, if you can lay on it with either very light you can lay on it with either very light clothing like a t-shirt or or no clothing like a t-shirt or or no clothes, that's going to work even clothes, that's going to work even better because you have direct contact, better because you have direct contact, but it will go through light t-shirt but it will go through light t-shirt material, for example. There's also material, for example. There's also infrared saunas and many of them are far infrared saunas and many of them are far infrared and I want to talk about far infrared and I want to talk about far infrared separately but you may run into infrared separately but you may run into say a mid infrared or a near mid say a mid infrared or a near mid infrared sauna and the reason that those infrared sauna and the reason that those work is they do get down to the level of work is they do get down to the level of the muscle and depends on the wattage the muscle and depends on the wattage and all of that how they work. But one and all of that how they work. But one of the things to keep in mind is and of the things to keep in mind is and again we'll do a far infrared all on its again we'll do a far infrared all on its own. If you're using an infrared sauna, own. If you're using an infrared sauna, they're usually of the proper uh power they're usually of the proper uh power output to get whatever their band of output to get whatever their band of infrared is into your muscle and heat infrared is into your muscle and heat your muscle up, which is why your body your muscle up, which is why your body would then heat up. Now, of course, would then heat up. Now, of course, they're going to heat up your lungs, they're going to heat up your lungs, etc. As well, there are also different etc. As well, there are also different devices made for local use. So, you devices made for local use. So, you might see a red near infrared lamp, and might see a red near infrared lamp, and you would think, well, you know, I'm not you would think, well, you know, I'm not going to read under that, right? But a going to read under that, right? But a lot of those are made for what we call lot of those are made for what we call appendicular work where you might want appendicular work where you might want to, you know, just have a goose neck to, you know, just have a goose neck lamp that you could aim at your lamp that you could aim at your shoulder. So you could sit in a shoulder. So you could sit in a comfortable position and aim it at one comfortable position and aim it at one body part and that's used a lot for body part and that's used a lot for healing in orthopedic circumstances. The healing in orthopedic circumstances. The other is the world of either helmets or other is the world of either helmets or head devices that are used for central head devices that are used for central nervous system activity and there's a nervous system activity and there's a fair amount of research on fair amount of research on neuroinflammatory disease postconussive neuroinflammatory disease postconussive healing many other things such as memory healing many other things such as memory etc where their use of a helmet or etc where their use of a helmet or another type of a head device will another type of a head device will actually get the infrared rays into the actually get the infrared rays into the brain and the penetration is actually brain and the penetration is actually quite good nowadays with what We know quite good nowadays with what We know that we didn't used to think it did, but that we didn't used to think it did, but you may see something that either you may see

something that either literally looks like a helmet or might literally looks like a helmet or might look like, you know, kind of weird look like, you know, kind of weird headgear, might look like orthodontic headgear, might look like orthodontic headgear, but it's got these light dodes headgear, but it's got these light dodes on it that's got osculation and of on it that's got osculation and of wavelength and all of that stuff to be wavelength and all of that stuff to be able to do it. Now, I often get the able to do it. Now, I often get the question, well, which one is best? Well, question, well, which one is best? Well, it really depends what you're treating.

it really depends what you're treating. So if you have a postconcussive problem So if you have a postconcussive problem and we send you to the clinic that does and we send you to the clinic that does photodnamic therapy, they are going to photodnamic therapy, they are going to set you up with either a helmet or set you up with either a helmet or headgear type device because that's headgear type device because that's going to be the most specific to the going to be the most specific to the place where you had your problem during place where you had your problem during co especially with earlier variants co especially with earlier variants where people were having a lot of where people were having a lot of respiratory problems after and there was respiratory problems after and there was some really good research done on this some really good research done on this which I have done other videos on. We'll which I have done other videos on. We'll probably link those down below. But what probably link those down below. But what we would do with people, especially, you we would do with people, especially, you know, during CO where people were less know, during CO where people were less mobile, they might not be able to get in mobile, they might not be able to get in the office or, you know, maybe, you the office or, you know, maybe, you know, they were still, you know, not not know, they were still, you know, not not out of quarantine, we would have them out of quarantine, we would have them order a red near infrared light pad that order a red near infrared light pad that was hopefully big enough to cover their was hopefully big enough to cover their chest and two if they could and have chest and two if they could and have them lay on one and put the other just them lay on one and put the other just draped across their chest. or in the draped across their chest. or in the case of a lot of people that had like case of a lot of people that had like pelvic organ dysfunction, long COVID, pelvic organ dysfunction, long COVID, you put it top and bottom over the you put it top and bottom over the pelvis and then we would have them use pelvis and then we would have them use that. If you're doing a specific that. If you're doing a specific orthopedic type of recovery and repair, orthopedic type of recovery and repair, then we would have you do a pad. And now then we would have you do a pad. And now there's all these pads that, you know, there's all these pads that, you know, are made just for shoulders and knees, are made just for shoulders and knees, for example, or other parts of the body.

for example, or other parts of the body. But you can just take a plain old pad But you can just take a plain old pad that you might use for your back and you that you might use for your back and you you can wrap it around your shoulder or you can wrap it around your shoulder or your arm or your elbow or something like your arm or your elbow or something like that and it's going to work just fine.

that and it's going to work just fine. So really they all work if you get the So really they all work if you get the right wavelength. So something in the right wavelength. So something in the red, something in the near infrared, red, something in the near infrared, they're going to work just fine. And if they're going to work just fine. And if you're looking at over-the-counter use, you're looking at over-the-counter use, they're going to be very similar. Okay?

they're going to be very similar. Okay? You do want to do some due diligence on You do want to do some due diligence on whatever company you buy these from.

whatever company you buy these from. Make sure that they're legal to use Make sure that they're legal to use where you wherever you live. Make sure where you wherever you live. Make sure and then in North America they're and then in North America they're ULlisted so they're you know safe ULlisted so they're you know safe electrically speaking etc. And then the electrically speaking etc.

Treatment Frequency & Tapering

And then the way to cycle them is very broad. Now way to cycle them is very broad. Now this is just what our experience is. this is just what our experience is.

This is not medical advice for you. If This is not medical advice for you. If you're recovering with long COVID or you you're recovering with long COVID or you have other issues that you're dealing have other issues that you're dealing with orthopedic things postconussion, with orthopedic things postconussion, please talk to some healthc care please talk to some healthc care provider who you know knows about provider who you know knows about phototherapies. But generally speaking, phototherapies. But generally speaking, we would ramp people up to about 20 we would ramp people up to about 20 minutes to 30 minutes of use of the red minutes to 30 minutes of use of the red near infrared. And like when people get near infrared. And like when people get home from the hospital, we would do it home from the hospital, we would do it two or three times a day on the chest or two or three times a day on the chest or pelvic organs, etc. After the first pelvic organs, etc. After the first week, we would try and get them to do it week, we would try and get them to do it every day for a week or two, and then we every day for a week or two, and then we would start to spread the treatments out would start to spread the treatments out depending on how quickly they were depending on how quickly they were getting better. But usually one to two getting better. But usually one to two weeks of daily use, and then they might weeks of daily use, and then they might go to every other day or 5 days a week go to every other day or 5 days a week or something like that, and then taper or something like that, and then taper off. Because remember, the goal of this off. Because remember, the goal of this therapy is to get you so that your cells therapy is to get you so that your cells are working up to normal speed again, are working up to normal speed again, which they're not when you're sick or which they're not when you're sick or after surgery or after a trauma, and so after surgery or after a trauma, and so that they're recovering as they are that they're recovering as they are supposed to do. And so you should start supposed to do. And so you should start to then get better. But remember to do to then get better. But remember to do the other things. Stay hydrated, move the other things. Stay hydrated, move your body to the degree you can to keep your body to the degree you can to keep the blood moving. And the other thing the blood moving. And the other thing that we always caution people with, that we always caution people with, everyone has different ways they react.

everyone has different ways they react. Some people with red near infrared light Some people with red near infrared light get very tired and they sleep really get very tired and they sleep really great after they do it. Other people get great after they do it. Other people get buzzed up because the mitochondria are buzzed up because the mitochondria are actually working for the first time. And actually working for the first time. And so we always tell people the first time so we always tell people the first time you do it, try it like during the you do it, try it like during the morning or the daytime. And if you feel morning or the daytime. And if you feel buzzed up, don't do your last treatment, buzzed up, don't do your last treatment, you know, before you try and go to bed.

you know, before you try and go to bed. If you're like some people where they do If you're like some people where they do the treatment and then, you know, the treatment and then, you know, they're ready to go to sleep, great. You they're ready to go to sleep, great. You can do it before you go to bed. But can do it before you go to bed.

Red Light vs Near Infrared: Which to Use?

But that's just a little, you know, for your that's just a little, you know, for your Hey, Dr. A. I've got this home unit that Hey, Dr. A. I've got this home unit that does red light therapy and it has an does red light therapy and it has an option to turn on near infrared therapy.

option to turn on near infrared therapy. Do they do the same thing? Why would I Do they do the same thing? Why would I use one versus the other? Great use one versus the other? Great question. Let's break this down. So, the question. Let's break this down. So, the first thing that we want to think about first thing that we want to think about is why would we use therapies that are is why would we use therapies that are in the red end of the spectrum anyway?

in the red end of the spectrum anyway? And the important part about that is And the important part about that is that we use them because they absorb that we use them because they absorb through the skin. Now different through the skin. Now different wavelengths create the different light wavelengths create the different light names and colors. And so we have red at names and colors. And so we have red at the red end of the spectrum and then we the red end of the spectrum and then we have near infrared and then other have near infrared and then other infrareds that we have after that. The infrareds that we have after that. The entire spectrum from red into the entire spectrum from red into the infrared spectrum absorb very well infrared spectrum absorb very well through the skin.

When you get to the through the skin. When you get to the other end of the spectrum towards blues, other end of the spectrum towards blues, you don't absorb very deep with those.

you don't absorb very deep with those. Now there are exceptions. So sometimes Now there are exceptions. So sometimes you'll see these wrist laser devices and you'll see these wrist laser devices and you think, well, they have, you know, you think, well, they have, you know, yellow or blue or some other thing. It's yellow or blue or some other thing. It's because the lasers are put right here because the lasers are put right here over this really thin skin where your over this really thin skin where your blood supply is right next to the blood supply is right next to the surface. So let's say you only absorb 1 surface. So let's say you only absorb 1 to 2 millm, maybe up to 3 millime to 2 millm, maybe up to 3 millime depending on the color is still going to depending on the color is still going to absorb there. So that's one exception absorb there. So that's one exception sort of. But the big like pads you might sort of. But the big like pads you might use over your whole body or on your head use over your whole body or on your head or over a joint that's injured, those or over a joint that's injured, those are going to tend to be red or near are going to tend to be red or near infrared as far as spectrum that comes infrared as far as spectrum that comes up. The next thing is how deep do they up. The next thing is how deep do they absorb. So this is a difference between absorb. So this is a difference between red and near infrared. So if we look at red and near infrared. So if we look at red light and every chart has slight red light and every chart has slight differences, but red light is considered differences, but red light is considered 620 nm to between 7 and 800 nm. And 620 nm to between 7 and 800 nm. And that's going to absorb about 5 mm down that's going to absorb about 5 mm down to the subcutaneous area most parts of to the subcutaneous area most parts of your body anyway. Near infrared, so if your body anyway. Near infrared, so if there's a near infrared, that means there's a near infrared, that means there's other infrareds, which we'll there's other infrareds, which we'll talk about in a separate video. But near talk about in a separate video. But near infrared goes from 7 to 800 nm up to infrared goes from 7 to 800 nm up to about 2500 nm. And that absorbs down to about 2500 nm. And that absorbs down to about a centimeter, which depending on about a centimeter, which depending on again where it is, it's going to get again where it is, it's going to get into the deep subcutaneous or into the into the deep subcutaneous or into the muscle. And this is often why near muscle. And this is often why near infrared is used in orthopedic infrared is used in orthopedic applications to get into deeper areas, applications to get into deeper areas, maybe wrapped around a joint that's maybe wrapped around a joint that's sore, something like that. Now, what do sore, something like that. Now, what do they do once they get there? Well, red they do once they get there? Well, red light and near infrared light activate light and near infrared light activate different types of enzyatic systems and different types of enzyatic systems and a lot of the enzyatic activation is a lot of the enzyatic activation is aimed at turning on mitochondrial aimed at turning on mitochondrial activity so that the mitochondria which activity so that the mitochondria which create energy for the cell speed up create energy for the cell speed up essentially. Now what would that do for essentially. Now what would that do for me? So why did they have me put red me? So why did they have me put red light or near infrared on my joint that light or near infrared on my joint that was recovering from an injury? Well, was recovering from an injury? Well, when you're recovering from an injury, when you're recovering from an injury, when you've had surgery, when you've had when you've had surgery, when you've had maybe a global metabolic issue like a maybe a global metabolic issue like a long COVID or infection or inflammation long COVID or infection or inflammation or whatever, your mitochondria get a or whatever, your mitochondria get a little bit behind and they need to little bit behind and they need to recover. Red light therapy and near recover. Red light therapy and near infrared therapy can assist the infrared therapy can assist the mitochondria in this recovery process.

mitochondria in this recovery process. That's very important to keep in mind. That's very important to keep in mind. Quick plug here. if you're a healthcare Quick plug here. if you're a healthcare practitioner working with patients with practitioner working with patients with these issues. I have a CE website and I these issues. I have a CE website and I do webinars on this topic and others.

do webinars on this topic and others. So, we're going to put a link in the So, we're going to put a link in the description below to the CE website link description below to the CE website link and the particular webinar of interest.

and the particular webinar of interest. Thank you. So, if you had, as the Thank you. So, if you had, as the questioner was asking, a home unit or questioner was asking, a home unit or even you go into a clinic and they have even you go into a clinic and they have a unit, what would I do with those?

a unit, what would I do with those? Well, often in the clinical setting, Well, often in the clinical setting, you'll have a mat, let's say, or some you'll have a mat, let's say, or some other device that is either going to other device that is either going to modulate between those two. So, it's modulate between those two. So, it's going to have red on and then near going to have red on and then near infrared, or it might do both at the infrared, or it might do both at the same time, depending on how the light same time, depending on how the light dodes are set up or the lasers are set dodes are set up or the lasers are set up. If you have something at home like up. If you have something at home like the person in question and it has a red the person in question and it has a red near infrared cycle, then that's near infrared cycle, then that's probably the easiest thing to do is just probably the easiest thing to do is just cycle it. But let's say you're using it cycle it. But let's say you're using it and you are trying to get to a deeper and you are trying to get to a deeper organ right now. During COVID, there was organ right now. During COVID, there was some research around this with the some research around this with the pneumonitis that people would get with pneumonitis that people would get with the earlier versions of COVID. People the earlier versions of COVID. People still get it. And they did research still get it. And they did research where they made like a vest that had red where they made like a vest that had red light near infrared therapy and it light near infrared therapy and it actually improved the outcomes getting actually improved the outcomes getting people out of the hospital and stuff. So people out of the hospital and stuff. So during COVID, we were having people, during COVID, we were having people, especially when people are locked down, especially when people are locked down, get these red light pads that had red, get these red light pads that had red, near infrared. And then we would near infrared. And then we would normally have them, if it didn't cycle, normally have them, if it didn't cycle, we just have them do it on near infrared we just have them do it on near infrared because that's going to go deeper.

because that's going to go deeper. Remember the big difference in red, near Remember the big difference in red, near infrared, not so much the enzymes it infrared, not so much the enzymes it turns on, but how deep it goes. So red turns on, but how deep it goes. So red goes in. It's great for like a joint or goes in. It's great for like a joint or some other thing. But if you're trying some other thing. But if you're trying to get to your lungs or your abdomen or to get to your lungs or your abdomen or your reproductive organs or maybe you your reproductive organs or maybe you hurt a thigh muscle, you big heavy duty hurt a thigh muscle, you big heavy duty muscle, near infrared's going to get muscle, near infrared's going to get deeper. So that's the big thing is how deeper. So that's the big thing is how deep do we want to go? Now I've also had deep do we want to go? Now I've also had a different version of this question, a different version of this question, which is I have a home unit, but it only which is I have a home unit, but it only is in the red spectrum. Okay? And so is in the red spectrum. Okay? And so it's only in that lower nanometer red it's only in that lower nanometer red spectrum. Well, it's still going to get spectrum. Well, it's still going to get in even if you're using it over a bigger in even if you're using it over a bigger body area, but the way that it's going body area, but the way that it's going to work is through getting down to the to work is through getting down to the subcutaneous circulation. And so if you subcutaneous circulation. And so if you think about it, you have, you know, your think about it, you have, you know, your outer layer of skin there in the outer layer of skin there in the epidermis, which is largely, they call epidermis, which is largely, they call it keratinized and then you get down to it keratinized and then you get down to the dermis. And then you get down to the the dermis. And then you get down to the area below the dermis and the area below the dermis and the subcutaneous where you've got blood flow subcutaneous where you've got blood flow up through and including the lower up through and including the lower dermal layers, not into the keratinized dermal layers, not into the keratinized outer layer. So that means that even if outer layer. So that means that even if you have a red light, no near infrared, you have a red light, no near infrared, you're going to absorb through those you're going to absorb through those upper layers into the blood flow area upper layers into the blood flow area and then the blood flow in that area is and then the blood flow in that area is you're going to affect the plasma and you're going to affect the plasma and the form blood components and the the form blood components and the tissues locally around there. So, you're tissues locally around there. So, you're still going to get some benefit, but if still going to get some benefit, but if you try to get to deeper tissues, the you try to get to deeper tissues, the biggest difference if you do have one biggest difference if you do have one that picks between red and near that picks between red and near infrared, deeper tissues are going to be infrared, deeper tissues are going to be more affected by our friend near more affected by our friend near infrared if you have it. Well, I hope infrared if you have it. Well, I hope this answered that question about the this answered that question about the differences between red and near differences between red and near infrared. It's better to do red than infrared. It's better to do red than nothing at all, especially if you for nothing at all, especially if you for pain, mitochondrial recovery, energy, pain, mitochondrial recovery, energy, all that stuff. But if you have the all that stuff. But if you have the option of red, near infrared, and you option of red, near infrared, and

you can cycle between the two, that's really can cycle between the two, that's really great. And then if you're going for a great. And then if you're going for a deep area like your lungs, abdominal, deep area like your lungs, abdominal, pelvic organs, or big muscles, and you pelvic organs, or big muscles, and you can do near infrared, that's really can do near infrared, that's really preferable to get to the mitochondrial preferable to get to the mitochondrial beds in those cells. All right, I'm Dr.

beds in those cells. All right, I'm Dr. A. Thank you for subscribing. If you A. Thank you for subscribing. If you haven't, please do subscribe, like, haven't, please do subscribe, like, share, do notifications, all that. We're share, do notifications, all that. We're going to put some other videos up here going to put some other videos up here at the end, and I'll see you guys on the at the end, and I'll see you guys on the