



THE SPECTRUM OF HEALTH

— P O D C A S T —

Podcast Session #30

How Light Can Help or Hurt Your Brain

with Milena Simeonova

Milena Simeonova chats with Dr. Schaffner about the importance of indoor lighting in maintaining a healthy brain. She discusses ways that you can start to transform your indoor lighting to keep you healthy and happy.

To learn more about Milena,
please visit <http://www.liteheal.com>

0:00:06 Dr. Christine Schaffner: Welcome to the Spectrum of Health Podcast. I'm Dr. Christine Schaffner and today I'm speaking with Milena Simeonova. Milena is a licensed architect with a Master's degree in lighting and we talk a lot today about how our indoor lighting environment can affect our brain health. Milena integrates far out disciplines such as Psychology and neuro and cognitive responses, quantum physics and propagation waves in consciousness. Her belief is that holistic or whole lighting will provide the optimal environmental conditions for people to flourish and reach their full potential. I learned a lot today about how to improve your indoor lighting environment, and I hope you do as well.

0:00:46 CS: Welcome, Milena. I'm so excited to have you on the podcast today.

0:00:50 Milena Simeonova: Well, thank you very much, Christine. I am excited to be here as well.

0:00:55 CS: I'm really excited to jump into this topic. It's a unique topic that we want to share with our audience today and it's all about how light can heal us, and also how we can use light in our internal environment to create more natural rhythms within the body and how that can lead to health and healing. I'm really excited to learn from you today. This is a big topic and I'm in no way an expert, so I'm going to enjoy learning from you.

0:01:30 MS: Fantastic. So you are ready for a nice discussion. Interesting.

0:01:35 CS: Absolutely. Well, Milena, tell me, how did you get started? This is obviously a unique profession and a unique niche to know as much as you do about lighting and the circadian rhythm and so forth. How did you get started and become passionate about this topic?

0:01:53 MS: Well, I am an architect, so I was trained as an architect. But when I touched lighting, it became clear to me that I had to defect from architecture and educate myself, to be more educated and train if you will, in the sciences of lighting.

And this is when I applied to become a full-time student in a mid life career change at the Lighting Research Center where, for the first time in my life, I was exposed not only to the design of lighting, but also lighting and human health. I discovered, to my astonishment, that that is a passion of mine and I started devouring any papers and any research there was on light and the human body or the human mind or the nervous system or the cognitive system and so forth. The circadian system, of course, the visual.

0:03:02 MS: Little by little, just because it's a passion, because you do something that even if you are not paid for it, you are happy to do it, I started to see deeper and deeper in lighting and I hope that today, we are actually going to reach to these deeper dimensions of lighting because there are a lot of things that are on the visual and physical dimension about lighting and the health of the body. There are, as well, a lot of intangible or hidden from the eye, dimensions of lighting that are directly communicating with resonance and the human body, directly influencing the peacefulness of mind, our consciousness.

0:03:49 MS: You will discover that this is an interesting journey. It was an interesting journey starting with the passion for lighting and human health, developing through a lot of research studies, practicing of course, lighting design. At the end, it became a spiritual path or a path of developing consciousness, if you will. I think I'm very happy and very lucky for finding lighting.

0:04:22 CS: Absolutely. And it's amazing the depth of knowledge you've acquired through this journey, it sounds. Milena, many people have started to catch on that we might not be exposed to the best lighting in our home environment, our office environment, our work environments...can you just break that down from your perspective? What should we be concerned about in an environment that does not take any of this into account? What type of lighting should we start being cautious of?

0:04:57 MS: Well, I will start with the big picture. And I will say that in particular, lately, we have been reading about opioid crisis. But I can say that we have infused our

spaces with unnecessary or too many lights and we have an overdose with lighting. And when you think about how it is in nature that you have one sun, one source of light, and everything follows this order, like a Domino effect. You have the sun in a certain position in the sky and all the shadows following a certain way, everything is very orderly and very clear when you look at natural scenery. But when we enter our spaces, we have shredded the sun and we have many, many points of light. And we will talk later about the hidden effects of this and the turbulence that it creates in the space. But the basic point that I want to make is, we have an overdose with lighting and that keeps our nervous system in constant excitation.

0:06:12 MS: The reason for this is, there are ganglion cells that reside on the retina of the eye, and each time they detect a luminous edge or the edge of a fixture, of a bright fixture against an adjacent dimmer surface, it detects or decodes it as luminous edge which sends electrical signal to the brain. So, we have a constant, continuous excitation when we are in such spaces. But also, let's talk and focus on smaller areas of why the lighting is not so good and not so healthy, particularly today with the infusion of LEDs. Let's talk to LEDs, about the blue light hazards. As you mentioned, Christine, many of our listeners know what blue light is and how hazardous it is. In lighting it's at about a wavelength frequency that is below the 450 nanometers of a very high vibrational excitation and a very small mass of the blue photon, which by the $E=mc^2$, Einstein's equation means that you have a huge amount of energy that is being released on the retina of the eye when these photons enter the eye and hit the retina.

0:07:38 MS: Therefore we have photo oxidation, irreversible photo degradation of the retina, that who knows, might be leading to macular degeneration. Now the bad news is that younger generations like the millennials, they absorb two times more of the blue wavelength that it's potentially damaging their retina. Why is that? Because the older population, we have the cataract. We have to go to surgery because our eye lens has thickened and has yellowed... But this is actually protecting us. I'm talking about the baby boomers, it's protecting us because it's scattering and not allowing all the blue photons to reach our retina, but this is not so for millennials. So the combination of

young millennials with LED lights as toys in their surroundings, it's a bad combination. So, that's one thing.

0:08:46 MS: Then you have as well a stroboscopic effect, hidden from the eye. However, our brains can detect it and it continuously acts and excites the brain, which is not a good thing. And so there are flickers, and sometimes LEDs are good when they're at 100% light output, full intensity, but if you start dimming them they can hit the so-called flicker zone, and start this flicker or stroboscopic effect that is unhealthy. So there are many other features about LEDs that are not good, like photons density. Let's talk a little bit about horticulture, okay? For many, many years, scientists were aware and they were monitoring how the density of photons are hitting or falling on the leaves of plants. And they knew that if you have a high photonic density, the plants will die, they will be killed. But guess what? No one talks about people as plants and we do have quite a bit of a surface.

0:10:12 MS: The skin, the leaf, and our skin, and there are no regulations yet about photons density. Sometimes when you enter in some spaces you see these very intense LED lights, I call them photonic bombs, and they are not only bad for the eyes that they are basically killing the retina or photo degrading the retina, but they are also bad for our nervous system. So, also with LEDs, because the nature of LEDs is that it works with many microchips, it's like a small ecosystem of many microchips. And the optics are so collimated that each chip produces its own beam that is very focused. When you have spaces lighted with LEDs like, let's say, in a gym of a school for instance, and the kids are playing basketball and you can see the ball when it bounces from the floor, instead of having one ball and one shadow of a ball, you have several shadows of the ball. The brain has to sift through this redundant information that is not seen in nature, to make sense of cognitive nonsense, basically.

0:11:47 MS: Basically, we are living in spaces with LEDs with the shredded sun and many, many lights with the multiple shadows produced from a single object thrown in all

directions. We are basically living in a constant sympathetic excitation of the nervous system and that is not good.

0:12:15 CS: Many of our patients come to us and they're in a chronic sympathetic state, as you mentioned, so, that fight or flight state and that state of chronic stress that leads to chronic illness. A lot of my listeners have heard of electromagnetic frequencies and fields and how those affect our health. But it's interesting, that's a separate issue, right, separate from lighting. When you put those together, it can potentiate the negative affects of both of them. What I'm talking about is WiFi and cell phones and all of that. So, we have the EMF plus the poor lighting and that's a recipe for disaster for our nervous systems, it sounds like.

0:13:12 MS: Yes, this is correct. And don't forget that LEDs have a lot of electronics on board. But also, we're talking about smart lights. Now, if you go to a Home Depot and look at the shelves, about maybe 70% of the light bulbs of LED lamps will have embedded some smart chip or bluetooth or something to be controlled remotely through your phone or through some downloadable WiFi wireless app, and so forth. And, yes, this can be a great issue again about this chronic excitation that you refer to as in tonic/chronic excitation. Because, let's face it, when you are writing music, in order to hear harmonious, beautiful music you have to have silence between the notes. Otherwise, if every note plays at the same time, that's not going to be very harmonious and pleasing...it's becoming a noise. And the same thing is true with lighting, that we have to be surrounded by lighting, like in nature, that nurtures us and allows us to restore. And for restoring, you need peacefulness, a peaceful moment when the parasympathetic system of pause and restoration kicks in, so to speak, and balances the sympathetic excitation, so this is very important.

0:15:00 MS: But you are correct. The new lighting LED, which is the smart digital lighting, is becoming wireless and this is a big concern of mine because even doctors are not prepared for the root cause that is hidden in the eye. And these are the wireless frequencies and vibrations, the different channels that the different devices are

communicating. There is a lot of resistance in talks against the fracking of the ground and soil for gas, but we are basically fracking the air with wireless waves and because they are hidden from the eye, they don't smell, you don't hear them, you don't see them, of course, we are completely unprepared for this.

0:16:00 MS: But nevertheless, there is a lot of research already about wireless frequency, RF, EMRF, and radio frequencies and how this excitation can bring all sorts of damage to the body and to the nervous system, chronic neural diseases and so forth. So, that's not looking good and that's why I thought of saving it for the end, but instead I will say it now and then repeat it again. Keeping it simple is better. No dimming, yes, no dimming, no smart lighting, and WiFi, bluetooth embedded chips in LED lamps or fixtures would be probably a better choice for healthier patients or for a healthier person. We don't have to be patients, we don't have to wait to fail in our health to start taking care. We can do preventative work and be cautious so we don't slide into an unhealthy status from being healthy, yes?

0:17:17 CS: Absolutely. Prevention is absolutely important as well. I definitely want to jump into what healthy lighting looks like and how you assess a space. But, before we go on to that, I just want to recap for our audience. So, we have the LED lights that have become more popular and more energy efficient. However, they come at a big cost to our nervous system and we can talk about alternatives to that. And then, we have the excessive blue light from our electronic devices. Can you talk a little bit about fluorescent lights and how fluorescent lighting can be problematic for people as well?

0:18:01 MS: Yes. Well, I can talk about fluorescent lighting and remind myself about the old times where actually I was the culprit, perhaps, for opening the market to buy dynamic lighting or lighting that is really exciting the nervous system and it's not a peaceful lighting, it's a barrier to our consciousness and peacefulness of our minds. So, in those times, I was saying about fluorescent lighting that it's like a decapitated system because it's static all the time, when we know that the human body, as a living system, changes continuously throughout the 24 hour cycle, that they are no cycles of night and

day, day and night change in hormonal production, endocrinal, the cortisol stress hormone, let's say it's in the morning it's boosted, or body temperature and alertness versus melatonin in the evening and so forth.

0:19:17 MS: So all these processes, if you will, are happening in the human body while the fluorescent lighting was just keeping everything very static. Back then, I was a culprit in thinking that, "Oh, we need lighting that is going to overlay our circadian system, etcetera, etcetera." Since then, as I developed more consciousness and more appreciation for peacefulness of mind, and how healing is happening from inside out, finding your internal light of consciousness and connectedness to the infinity which cannot be defined or contained in our physical reality, I discovered that actually the most important feature of lighting is peacefulness.

0:20:13 MS: But back to fluorescent lighting. First of all, it doesn't have a full spectrum. And this is something that I also want to talk about a little bit for the spectrum of LEDs. They have their tri-phosphorus, so they will have three spikes in different Wavelength frequencies, vibrations. So imagine three spikes and nothing in between, we call those spectral gaps. And so the body under fluorescent light is starving for missing wavelength frequencies, because we have biophilia, not as much biophilia as biomimicry, we're talking about the evolution of living organisms for 250,000 years under natural light conditions. And natural light conditions are completely different from fluorescent or LEDs. They are full spectrum.

0:21:10 MS: And so, that's one issue, that fluorescent lights starve our body for the missing wavelength frequencies. Number two, they have flicker, sometimes it's hidden from the eye, but certain ages are more sensitive to the flicker. And also, many times, we were using a bad Color Rendering Index, or bad CRI. And actually in most of the living facilities for, unfortunately, adult people who have restricted peripheral field of their retinas and have tendency because their mobility is decreased and so forth, staying indoors, being exposed to non-stop TV, to be more depression-prone.

0:22:02 MS: And so when you are in a facility that is lighted with fluorescent lights, it's a very dead light, very flat light, that has low Color Rendering Index, let's say below 80 CRI like 70 CRI, this is the worst environment, the worst physical environment for people, because you will depress. And perhaps many of the folks who are listening know what I'm referring to when they go to a hospital. You can really depress under bad fluorescent lighting. But at least the fluorescent lighting was slower to damage our health than LEDs. LEDs are a very aggressive source of fast-moving, intense photons, jet propulsion because the LED is basically a digital light in that it's 01, 01 like a computer, on and off, on and off. So it sends these packages of photons. And the spectrum of LEDs--people are unaware that white LEDs are nothing else but blue LED in the bad wavelength frequency, the one that we talked that is a blue light hazard in the 450 nanometers, a blue LED with one phosphorus.

0:23:44 MS: I have done much testing of different LEDs of different Kelvin temperature. Now we are coming into the Kelvin temperature, but listeners, it's good for them to know, CRI is important or the Color Rendering Index, which is usually on the packages and the wrapping of any lamps and lights. They have to look for something that is high CRI. But also, the other information that is important for folks who care about their health is Kelvin temperature. Is it a warm or is it a cool light? Why is it that many folks, including you, can buy things that purport or advertise that they will heal your SAD, seasonal affective disorder and they come in very, very bluish, very cool white LED light. This is completely completely unhealthy because it's the blue light hazard right there.

0:24:55 MS: So while you are thinking that you are healing your seasonal affective disorder, you're getting high excitation of your nervous system because of the high vibrational energy of the blue LED and you are getting also your retina being photo-degraded and photo-oxidated. So LEDs have this blue light hazard with the one phosphorus. When I took this hundred of pictures with the spectrometer, changing the Kelvin temperature from warm LED to cool LED, I found somewhere from 1600 Kelvin which is orange amber is recommendable light for night light. If you wake up at night

and want to go to the bathroom, you don't want to suppress your melatonin. So, when you've come back in bed, you can continue sleeping. So amber is a very recommendable light color for during the night, it's a very calm, low, lazy... I call them lazy wavelength vibrations, frequencies vibrations.

0:26:12 MS: So when I took with the spectrometer these pictures, the warm LEDs had predominantly in the warm wavelength frequencies energy. But we're releasing a very small energy into the hazardous blue LED blue wavelength frequency which is good. And so as I kept taking pictures with the spectrometer of cooler and cooler LEDs, I discovered that anything that is above the 3500 Kelvin, notice, not 4000 Kelvin, not 5000 Kelvin... Anything that is above the 3500 Kelvin shifts dramatically, or at least significantly, the proportion of the blue to the warm wavelength frequencies and the blue light becomes predominant spike.

0:27:13 MS: So, we spoke already about the hazard, but also when you have a lamp that has one predominant spike of the blue high vibrational frequency with warm tail, so to speak, of warm phosphorus frequency, you create also a very turbulent... We will talk about this, the turbulence. So I will come back to this. So basically, this is another advice added to the CRI, to the Color Rendering Index, when you buy LED light. Look for high CRI, 80+ CRI, and also look for something that is up to 3500 Kelvin, which is going to help you stay surrounded by healthy lighting. But, I wanted to quickly if I may, talk about the spectrum of LEDs and the spectral front compared to the natural one. When I talk about front, we have to understand that lighting propagates like sound propagates... The sound propagates with acoustical wavelengths, and light propagates with light waves which are completely invisible to the eye. Nevertheless, they penetrate the body. They enter in resonance or communication, if you will, with ourselves and with our minds. So it's very important to understand how lighting waves are propagating. Is it a calm wave or is it a turbulent wave?

0:28:58 MS: And here is where the spectrometer did help me to realize that many of the LEDs are very turbulent lights. When you look at the spectrum, you can see in natural

light, in nature, lighting has a full spectrum which means all wavelength frequencies are present, and they're all connected and form one unified spectral front. What does this mean? Let me give you an example. You're at the beach on the ocean, let's say, on a cove, and you are with your feet on the sand, firm on the sand and then there is a very gentle wave from calm waters of the ocean, which comes and just touches your ankles. This is a gentle wave. Daylight has a gentle wave. LEDs, it's a turbulent wave.

0:29:56 MS: Imagine the same cove and now you have winds and you also have a rock that stands on the way of the wave that it's now much more robust because of the wind. And then the wave splits in two, so you have the blue wavelength frequency spike on one side of the rock and on the other side, you have the one phosphorus on the other side. And as they pass the rock and they shoot at each other or just collapse into each other, they create this turbulence, the turbulence that is behind the rock. So our spaces are very turbulent because LEDs don't have the unified single front and this is a very important term about healthy lighting, to have a unified single front of light propagation in the spectrum. It's unfortunate that lighting manufacturers don't show this information. You cannot find this information anywhere unless you buy something like a light passport from Canada, there is an application that you can turn your cellphone into a spectrometer.

0:31:23 MS: Or, you borrow one from somewhere because this equipment is quite expensive, and you start measuring the front and the spectral front of the fixtures. And by the way, to help ordinary people like myself, what do you do? I remember I went to Kenya to visit and I entered in a space that the light was awful, horrendous, very depressing, a very bad quality of light and unhealthy. And that was supposed to be the area where the little son, a three-year-old boy, was playing. I looked at the father, and I said, "This is bad light." And he said, "How come? I just went and bought a three times more expensive LED light. I bought it from the market especially for my son."

0:32:25 MS: I realized that many times, we don't know what we are doing, we believe that someone else knows better than us. But in order for us to take control of our health,

we have to know little practical tricks. For instance, you can go and shop for LED lights at Home Depot or any store, but you need to turn on the light, you need to turn on the light and turn the lamp, the LED lamp nearby, let's say, an incandescent lamp. You can do this at home and then return if it's not a quality LED light. And what do you do? How do you test if the LED light is good? It's not just by looking into the light. No, you take a scarf or a blouse or a shirt that represents cool colors like the greens and the blues, and has warm colors like the yellows and the orange and the reds. And what you are looking for, is that all colors are fresh, looking fresh. There are no colors that are being muted. This is going immediately to tell you, "Okay, this is pretty much a good light if all colors are looking fresh." You will know that this is a full spectrum lighting and pretty much it's a good light, a safe light to use.

0:33:57 CS: This is really fascinating. Milena, I know maybe it's a little late to go over this topic but I want to just take a step back, I'm just thinking that maybe some of our audience might even be new or not as familiar with this visible spectrum of light, and with electromagnetic radiation. On one side we have the purples and the blues, and on the far side we have red and infrared. And what's happening in our environment is that we're just being exposed to these one single spectrums and not this full spectrum of visible light that we should be exposed to in health. Can you just maybe touch on that concept as we move into how we can set ourselves up for healthy environments? What do you look for in a space that is healthy?

0:34:57 MS: Thank you, because this is another subject, a passion of mine, which is Natural Lighting. When you are in nature, as I researched, all studies on natural light throughout all background, age, cultural, whatever background is, gender and so forth. Everyone, they like nature, including Alzheimer's or patients with dementia who mentioned in their few books, maybe 10 or so of early-stage dementia folks who wrote in their books they're very, very happy, feel happy in nature, looking at the sky, at the clouds, etcetera etcetera. So it became clear for me that nature, if I am to help people with lighting, that it has some common denominator that people will like it, it's pleasurable. So it's easy to accept it and it's easy to understand.

0:36:12 MS: All of these helped me to focus on nature. I found that nature light or natural lighting has all the features of healthy lighting, one of which is the full spectrum. So all these colors that you described, indeed, when we are in nature or outdoors and we just had rain and then the rain suddenly stopped and then the sun comes and you look at the sky and you see this beautiful rainbow... Well, the rainbow, the seven colors of the rainbows that you see, each color... This is because we have the little droplets that are still in the air. They're acting as a prism and they are refracting the full spectrum of visible daylight. Every color represents a different wavelength frequency. So everything is vibrational in our world, right? You see your body as a solid thing, but everything is vibrating and so these are vibrations, the colors. So the colors are just how our eyes perceive or interpret, if you will, the sense of different wavelength frequencies, right?

0:37:34 MS: Like the membrane, the ear membrane, how it interprets different vibrations, sound vibrations, into different pitches of sound. And the same thing is with the eye. The model of this is natural light, and not only because it has a full spectrum, so it is very important for us to be exposed to daylight on a daily basis. It is really important. Now, if you cannot walk outside, you can be by a window, and sit by a window. Turn off the electrical light, and just expose... Stay, read or just watch through the window or just receive during breakfast or at any time of day, especially in the morning is very helpful to get a big dosage of daylight. It will regulate the cells. And by the way, I want to speculate here, there is Erwin Schrodinger who is a quantum physicist, and also he ventured in biology and wrote back in 1947 a book about, What is life? And he says that the restoration of our body cells comes through extraction of order from our surroundings.

0:39:12 MS: So would you rather be surrounded by natural light, to extract order from a very orderly and very peaceful and very nurturing lighting or would you rather extract it when you are exposed to an overdose of intense LEDs? The answer is clear. So it is important to be under daylight. Then what is the next best thing that we can do? Let's

say, we have to work. We are in an office, we have fluorescent lights, or we have a LED lights. Or we are at home and we are at night, there is no daylight but we are working on something and we still want to be healthy, we want to have healthy lighting, what do we do? Well, here is where I use the term, "We will create our own artificial atmosphere." Because sunlight per se, if you are near sunlight it's not that healthy. What makes it healthy for us and acceptable for our health, is the atmosphere. The 20 plus kilometers of atmosphere. Because, the atmosphere has many, many particles, and as the sun rays or sun light tries to get through the atmosphere to reach earth, and people, and all living things, and all inanimate things, we are all together into one.

0:40:50 MS: As it tries, it bounces, and scatters, and diffuses, and mixes from all these particles in the atmosphere. So there is no intensity, like the intensity we have from LED lights, this propulsion, that is also a part of sunlight. It propels quanta of energy. But by the time it's mixed, scattered, and finally filters through the atmosphere to reach us people, it's a very gentle mist, like a sprinkle of photons rather than this jet propulsion. So this is basically our salvation in spaces that are lighted with LEDs, to always remember to create an artificial atmosphere. And you will ask, "Well how do you do that?" It's very simple because all you have to do is turn lights towards a surface, okay? Turn lights towards the surface, it may be a ceiling or it may be a wall. Of course, the surface shouldn't be painted in black, or be completely filled with stuff. Because the last thing... We will talk a little bit, we haven't spoken yet about visual clutter, and decluttering what we see in our visual field and simplicity and peacefulness, how they are important for our healing.

0:42:31 MS: Back to artificial atmosphere--you turn the LED fixtures not towards people, not as a direct down light that shoots its photons directly to people. You turn light fixtures and you use wall washers, upright the ceiling. And why is that? Because the surface will have imperfections, and these imperfections are some protruding particles or something on the finish of the surface. And this will act to scatter, mix, and slow down, if you will, to make the light more gentle than the light coming directly from the LED lamp or fixture. This is an important approach to do. I want to talk a little bit

about peacefulness, simplicity, and start from visual clutter. Visual clutter...remember we were talking about overdosing with lighting. Visual clutter is when you come in a space and you see the shreds of sun dispersed everywhere, and then sometimes you have down lights and then you have wall sconces on the columns. And then that's not enough. Now, I have spotlights to highlight this or that information, or some pinboards with information and so forth. This is visual clutter, which is directly transformed into neuro excitation, okay?

0:44:27 MS: Let me just back off a little bit and talk about the artificial atmosphere. It's not just that we have gentler light that comes to us, so we are more protected from LED photons, but it's also about shadows--because in nature, you have this sky dome and we have a very well-determined, very simple and orderly, one-to-one relationship between light and shadow. You have one tree and will see one shadow from the trunk of the tree. I have one stem of light and I have one shadow of this grass. And so this is very important because it allows our brain to rest. Now in our interior spaces, you have the several pictures and you overdose with LED lights and you have many, many shadows. We spoke about this earlier. This is also creating visual clutter.

0:45:43 MS: The visual clutter is not just objects necessarily, and I know that there are experts who are working in this field, decluttering basically, having a simpler lifestyle, but here we are talking about simplicity in lighting, removing unnecessary redundant shadows that put our analytical brain in constant interpretation, sifting through and discarding information. "Oh, this applies. Oh this doesn't apply. I can disregard it" and so forth. We want to be able to let the right brain, which is the one of fun, enjoyment of life, to start functioning again. Right now it has been suppressed by all the analytics that are happening in the left brain.

0:46:42 CS: You've gone over a lot of really interesting information today and I guess where I want to start wrapping up our conversation is, how can we continue to make this practical for our audience today? You talked about how to turn the lights, and then obviously we want to avoid LED unless they fit the criteria. Could you review for us just

to make sure if we have to have LED, that we know what the safer forms of LED are? What is the safest light bulb to have in the home? You mentioned also if we wanted to create a night time environment, there are I believe, more red-amber lighting can be good for your bedroom. Could you share some more practical tips to use if someone wants to improve their lighting in their home, how can they get started? Especially when we think about improving our melatonin protection at night and sleep. A lot of my patients have a lot of insomnia, and a lot of sleep issues and I would love your thoughts on that.

0:47:51 MS: Okay, fantastic. Yes, I will provide the bullet-points of what can be done and these are simple steps. We don't need any special education or training to do them and to stay healthy with lighting. I also wanted to make a point here, that the most important healing actually happens within oneself. And yes, this means that it starts in the mind--if the mind is peaceful, if the mind has forgiven one self, if it has forgiven the things that we felt ashamed for, the things that we felt guilty about. We forgive anything in our life, any person and any circumstance that triggers some unpleasant feelings or emotions in anything that we attempt to judge. So, this peacefulness of mind. I believe that with this final bullet point that I will provide for lighting, this is going to help us through the tangible means of lighting and what we see. If we see something that is really peaceful and simple to understand, to feel protected, to feel safe, to feel loved, this will help us as well for our mind to start resonating on these wavelength frequencies of peacefulness, of simplicity in life.

0:49:52 MS: And why is that again? Because I am so persistent and tenacious in pursuing the secret of light or lighting. I think that now I'm discovering that there is a continuum, an uninterrupted continuum between our physical surrounding, our physical lighting, what we see, and how we feel. And most of this, when we are peaceful, we are opening a portal to internal light that has been always there but has been masked, blocked and obstructed with all the excitement and all the distractions and all the overdose and overdoing of lighting. Once we calm our lighting, the lighting in our physical surroundings, once our surroundings become peaceful, my belief is because of

this continuum, we will calm our minds. We will find peacefulness within us and with this the internal light will come to shine. Which is ultimately, the best healing. This is healing from the roots, from the source, right? Healing from the source. Okay, so with this said, what can we do to contribute and to cultivate these peaceful minds that are going to heal us?

0:51:33 MS: First, I mentioned to go and be in nature as much as you can. It has to become a habit to be in nature. It could be a walk in the morning in a green part of the city, or it could be that you will take yourself or the family outside in nature. And there are many, many books... Richard Louv, is one of those who talks about the N or Nature Deficit Disorder. There are many researchers and many authors on this subject, so I'm not going to dwell on this one. So first is nature, and then when you come indoors, try to follow nature, try to be in love with nature and how nature is going to light my space, my living room, my bedroom, my work study space, this is always on your mind. So observe nature, be in love with nature, receive all the nurturing and the healing that it's freely given to you, and then come back, and with LED light or with incandescent light, whatever it is, do natural lighting.

0:52:54 MS: How do you do it? Number one, if you use LEDs, because these are the light sources that can damage your health if you don't use them properly or with attention to your health, number one, as I said, don't use direct LEDs, aim and turn lights towards a surface, a wall surface, a ceiling surface, so you can diffuse and soften the effect of lighting photons coming from intense LED lights, that's number one. Number two, we spoke already about the CRI, the Color Rendering Index, that you want to have lights that are high CRI, like 80+, 90 for LED is actually the best. Lamps, LED lamps or fixtures that are 90 CRI, 90 Color Rendering Index is the best. Then we spoke about nighttime. If you have a space, and let's say you consider the height of the space, maybe it's 10', maybe it's 12, maybe it's 15, I don't know. Whatever is the height of your space, if you take the space, and at about 5 to 6', you make a horizontal cut through the space, and you split it in two halves, you have the upper volume and the lower volume. Your lower volume is your night light, and we will talk what this means. The upper

volume is going to be your circadian lighting for during the day when you want to be alert and to perform at work and so forth.

0:54:49 MS: What does this mean exactly? During the day, you want the upper surfaces, the upper surfaces of the wall... Of walls, the ceiling, to be lighted in big splashes of light, big splashes of light. During the winter season, or gloomy, rainy weather, you need to have a lot of light, particularly in the morning, the mornings are very important, before going to work or before starting your day to get exposure to big, diffuse light. And again, don't go above the 3500K temperature for LEDs so you are safe from the blue hazardous wavelength frequency of vibrations. Now, what do you do for during the evening? You take the bottom volume of your space, and now you start thinking like a caveman or cave-woman, sorry to say, but this is at night, you have to suit your body for sleep, you have to not interfere with the production of melatonin or the sleep hormone. So you have to keep it very calm, which means you are going to have, like in a cave, a fire and then little reflections here and there catching off the fire.

0:56:17 MS: So this is what you are going to do, you are going to have night lights, table lights, things like that, that keep the light in small contained pools at lower level than the horizon. And have dim areas in between, so allow for a lot of dim and shadows between the lights. The lights should be very soft, very warm, possibly 2700 Kelvin. And the best is to be hidden from view, definitely hidden from view, they can be behind shades, behind some milky, frosted shielding and so forth. But have these very small pools of light, of very warm light, at a low level below the sight level or horizon, and this is going to be your night light before you go to sleep. And as we mentioned, for night lights from bed... Yes, red will work, but red has a psychological connotation of danger, blood, stop signs and so forth. So amber would be the best light to be used, the peach amber, orange warm color.

0:57:48 MS: That's about it, but I wanted to also caution that when you decide to light a space, keep in mind that light travels through space. Let's say if you decide to light one surface, all the adjacent surfaces including the ceiling...a wall, a vertical wall, the

adjacent ceiling, and the floor, and other surfaces in the space will reflect this light. You will be able to see them, and it's very important to keep order, like in nature or like in any of the Dutch painter Vermeer's master paintings. Because in nature, we have to preserve the spirit of natural light in our indoors which is hierarchy, directionality, order, attenuation, and gradation. Which means, like in a Vermeer painting for instance, people who are near the window, that are near the window and the window is the source of light. In this case, it could be your surface or wall that you have decided, "I'm going to light this one surface in my space. This one surface or wall is going to become my sun." Then please allow this light to travel peacefully and do its work.

0:59:23 MS: What is near the surface that is illuminated will have more light. Like in Vermeer painting the people who are near the window have more light on their face, and as light travels further away from its source it will attenuate gradually, which is psychologically very comfortable because remember we were talking about syntonetic excitation, sympathetic excitation, not sympathetic which is close to the illuminated surface, there is a lot of excitation there, a lot of photons that are being re-bounced from the surface, versus attenuated, gradually attenuated light further away from this surface. And guess what? The painters like Vermeer they knew, they were like natural philosophers. Their purpose was, "I want to do it exactly as nature does lighting." When the back of people opposite to the window is in darkness, they didn't say, "Oh, I'm going to put the light here so I can see their back and the rope when the ripples and so forth."

1:00:41 MS: No, they just let it go, let it be a domino effect for the light to attenuate. So this is going to be very important for you. It's a shift in thinking, it's a new thought system, where simple is better and I'm going to choose one surface in my space and I will allow lighting to travel its natural course, and to attenuate, and you will find after a minute or so, with eye adaptation use it, or lose it. We are losing our eye adaptation power because we are bleaching our retinas in over-lighted spaces. You will find in a space where you have one clear designated wall as my sun and everything else unfolds from there, the story of light unfolds from there, you will find how peaceful this space is. Yes, and so that's the best I can explain. And finally, the mantras for lighting, in indoor

lighting, artificial lighting are, "Simple is better and less is more." And this is what you have to remember, and again I am not the inspiration for you. I am just trying to bring pointers. The true inspiration, the true source for your health through lighting, physical lighting in your spaces is nature. Nature is your guide. So learn, learn to love nature, learn to observe nature and apply it in your homes. Does it feel as nature? That's the only question that you have to ask.

1:02:34 CS: That's beautiful. I really appreciate all the information you've shared today. And again, this is a new topic for a lot of our listeners and you gave us a lot of not only practical, but really deep information, which I really appreciate. I'm thinking about all my environments that I spend time in. I think spaces have the potential to be so healing for us. I think, when we think of our health, we absolutely have to think of our environment, and our space, and that should feel beautiful and feel natural.

1:03:21 MS: Yes, and feel more peaceful, with less excitement. Many times you are better off to turn off the lights in an office and open the blinds of the window rather than having the window streaming with daylight and having the electrical lights on, right? So just keep it simple, keep it simple and peaceful. Keep in mind that daylight and everything that is truthfully of essence to our health is something that is humble. It's not something that calls for our attention because it keeps us at peace. And this is important, you need light that is humble, and receding in the background, that is unifying lighting and loving, ultimately loving lighting.

1:04:13 CS: Well, thank you so much, Milena. Where can people find more about you and your work and all this information?

1:04:23 MS: Well, all this information is not going to be yet on my website, but I will be happy to hear from folks if they're interested in lighting, if they want to follow up with questions. They're welcome to look at my website, which is, www.liteheal.us. Everyone is welcome to look at this website and connect with me. My email of course is

liteheal.us@gmail.com. And I am in the process of finishing my manuscript for a book, and I hope that it will be published this year.

1:05:25 CS: Great, well, thank you so much for spending the time to educate us all on the healing power of light. I really enjoyed our conversation today. Thank you so much.

1:05:36 MS: Thank you, Christine. I'm happy to help with light.

1:05:42 CS: Thank you for listening to The Spectrum of Health Podcast. If you want to learn more about Milena and her work, her website is LITEHEAL.com, and if you've been enjoying this podcast, we'd love to hear from you. I really appreciate any reviews that you leave on iTunes. If you have any feedback or guest suggestions, please email us at info@drchristineschaffner.com. I also wanted to let you know that we have a new website, sophiaeducation.org, and we have some free videos that we've done with different speakers such as Dr. Marco Ruggiero, and Dr. Klinghardt, and myself. We're going to continue to put more and more free education on that site. Thank you for supporting our work and we look forward to hearing from you.