Fatal Conveniences™: Artificial Light: Turning Your Back on the Sun

[00:00:00] Fatal Convenience Intro

Darin: It's that time of the week for another fatal convenience. This is a bite-size segment that addresses some of society's fatal conveniences and the steps you can take to avoid becoming a victim of them. I define fatal conveniences as the things we may be doing because the world we live in makes us believe we have to. Tap water, shampoo, sunglasses, food... I dive into the hidden truths behind some of our everyday choices that could not only be harming us but even killing us, so let's dive in.

[00:00:41] Fatal Convenience - Artificial Light: Turning Your Back on the Sun

Darin: Welcome to the show, everybody. This is Darin Olien. This is another installment of The Fatal Convenience Podcast. Thanks for tuning in. Stoked you're here, grateful to find this information, discover more of this information, put it together, and make it convenient for you to understand that some of these things may be harming you, so that you can change them, correct them and make a better choice in your life. Keep in mind, all fatal conveniences that I talk about have a solution or many solutions. This next fatal convenience is artificial lights. Technically part one, artificial lights or light pollution. Have you heard about that? So listen, the sun sets, the sun rises, its natural light. It turns on our circadian rhythm. It shuts us down. It enlivens us. It awakens us. Artificial lights have changed humanity. So yes, thank you for the inventors and the creators of artificial lights because obviously, it changed all of humanity.

[00:02:00] How light has shaped society

You can do whatever you want from ceiling lights to lights from our phones, stay up and read. You can go to Vegas, and you forget what time it is because you're just in artificial scenarios all the time. This is an incredible convenience but in an endless lit-up world there are advantages, of course, but there's also negative consequences to this artificial light that is then causing you harm to your brain, your body, your moods. Listen, our natural light was the sun, the moon, and starlight. That was it. We lived by that, we slept by that, we awoke from that. We gained information. We gaze at the stars and that light coming to our eyes and moving across the sky informed people. It informed the Incas how to grow food, when to grow food. The Sun gave us life. By going down in the circadian rhythm of that, it allowed us to go to sleep and replenish us every day. Then, of course, we moved into candlelight, oil lights, and now artificial electric lights, AKA light bulbs. It completely transformed the landscape of course, and there are many artificial light forms. I'm not going to go into too many: flashlights, lamps, TVs, smartphones, headlights, street lights, you name it, everywhere you look. The first light bulb as you know, most of the credit, I guess goes to Thomas Edison, who ended up joining forces, however, with Joseph Swan from the UK, and bought the patent from Canadians, Henry Woodward, and Matthew Evans, where Edison succeeded and surpassed his competition was in developing a practical and inexpensive light bulb, according to the US Department of Energy.

[00:04:15] The three main types of artificial lights

There are three main types of artificial lights, incandescent bulbs and those are heating of a wire filament. The fluorescent is a gas using electric discharge of gas, which is usually mercury, leading to emission of high energy photons, usually UV, that impact of fluorescent coding of the bulbs creating light. Then there are light-emitting diodes, LED, which is a bit of a semiconductor to convert electricity into light. Now of course LAD has this whole thing of this is energy efficient, etc., but there are some negative consequences to that which we're going to cover in part two. So we're just gonna leave that one alone for a second. Fun Facts: Edison and his team of researchers and Edison Laboratory in Menlo Park, New Jersey tested more than 3,000 designs of bulbs between 1878 and 1890. November 1879, saw Edison file a patent for the electric lamp with a carbon filament which listed several materials that could be used including cotton, linen, wood. Edison spent the next year finding the perfect filament for the new light bulb. So we all know what makes this convenient. Artificial light has created a whole new world. It creates day from night, and it creates artificial environments. You come home, it's dark out, you turn on your lights, you can turn on your TV, do whatever you want instead of going, there is no light, I have to go to sleep. We've obviously flipped this whole thing into a completely different world. We can control our lives in a much different way, enhance social lives, extend our work hours, etc. Why should we care about this? Research has shown that artificial lights come with health consequences to their user. They also create light pollution.

[00:06:27] What is light pollution?

The brightening of the night sky caused by man-made sources and sky glow impacts the bodies, animals, and plant life. So that's to say that so much light from a city is now projecting itself onto the natural environment and into our bodies. Just walking through a city at night, you're getting hit with so much light, which is causing disturbance for not only you, the animals and actual plant life. Here are some key points in natural light in order to understand why the differences between natural and artificial light really matter. Now, keep in mind natural light is dynamic. This means that the intensity and the colors of the light, which make up the light have different wavelengths and frequency, and intensities, but they change with time of day, time of year, the weather, and locations on the earth. Natural light is full-spectrum, which means it contains all colors of the rainbow as well as wavelength colors that we cannot see. Those being infrared, ultraviolet. Ultraviolet is what drives vitamin D production. Daylight is bright and rich in blue, which stimulates us, it wakes us up. While at sunset. daylight softens and is dominated by orange and red, which naturally relaxes us. Humans, animals, plants depend upon these daily seasonal cycles of natural light for our health and wellness. It's intimately tied. Keep in mind, we are nature. Our mood, energy metabolism, sleep recovery depend upon the daily cycles of natural light since these changes synchronize our circadian rhythm and hormone cycles. Again, these are all from studies in the show notes that you can all check out.

[00:09:00] The difference between natural and artificial light

The intensity, and the mix of colors emitted by artificial lights do not change, so it's not dynamic, with the time of day severely limiting the ability of artificial lights to provide the necessary cues for synchronizing our biorhythms. Our metabolisms, our pineal gland, our

pituitary, our hormone levels, are you starting to get how important whole full spectrum light is? Artificial lights are neither full spectrum nor dynamic. This is what causes negative effects on our circadian rhythm, which has a whole slew of issues. Our circadian rhythm is on a 24-hour internal clock in our brain that regulates cycles of alertness and sleepiness by responding to the light, the changes in our environment. Listen, we are hardwired to stay awake when light is bright and feel sleepy as it gets darker. This is the tsunami of nature that is a part of us. When we change that, it has effects. Over the last decade, there has been a wealth of research linked to evening exposure to blue light, keep in mind, blue light is dominant during the day. So when we get blue light, artificial light from artificial lamps and lights, like TVs, smartphones, and other devices, it reduces our sleep quality. This type of electric light disrupts the natural rise in melatonin, which does not only have many other functions but obviously is deeply connected to our sleep and our brains that your circadian rhythm would otherwise regulate. So this artificial light changes that whole dynamic. Melatonin is a hormone produced by the pineal gland in the brain, roughly between 9 PM and 8 AM. The dominance of melatonin happens during that time, and that regulates a whole slew of health-promoting activities by the melatonin shutting down the body. But when this is disrupted, it causes a lot of physiological and mental dysfunction, which impacts your sleep, impacts you thinking clearly, impacts your hormones, impacts your blood pressure and glucose levels. Interfering with sleep rhythms can cause serious long-term health effects. Persistent poor sleep may elevate your risk of developing illnesses and disorders, such as depression, type two diabetes, high blood pressure, and cancer. There are many, many different types of artificial lights out obviously, the halogen lamps filled with halogen gas that emits a huge amount of UV light. It's a little more concentrated UV light, which can have prolonged exposure and potentially cause burns and even skin cancer. There are not a lot of halogen lights that people are using anymore. Fluorescent lighting, this is interesting. It's based on electrical discharge of gas, "mercury," leading to emissions of high energy photons, usually UV. That impacts fluorescent coding of the balls producing visible light. The type of radiation emitted by fluorescent tubes and compact fluorescent lamps, in addition to visible light, a small amount of UV radiation in the UV a range, 315 to 380 nanometers and even shorter wavelengths and higher energy.

[00:12:50] What is artificial light doing to your eyes?

A study published in the American Journal of Public Health found a 12% increase in eye disease caused by exposure to bright, cool fluorescent lights. This can include retinal degeneration, cataracts, which is an abnormal growth of tissue on the eye. According to the National Headache Foundation, didn't know that existed, fluorescent lighting is associated with migraines, and photophobia, a condition where headaches symptoms are exacerbated by overly bright or harsh lighting. A recent study by Science Direct had female participants from 2011 to 2020 discovered an increased risk of breast cancer due to light at night. Outdoor light at night was associated with 12% increased risk. Indoor light at night was associated with 13% increase risk. Many studies by Paolo Sassone-Corsi, Chairman of Pharmacological Department of the University of California have done extensive research on circadian clock. "Studies show that the circadian clock cycle controls 10% to 15% of our genes," that is a lot. Disruption of the circadian clock is linked to several medical disorders in humans, depression, insomnia, cardiovascular disease, and cancer. Again, this is a study in the show notes. Unfortunately, these negative impacts are not exclusive to humans. The

ecological effect of artificial lights, these are lights shining on trees and cities, etc., whatever else from the magnitude of cities blasting out in space even that you can see from global images have been well documented in that light pollution has been shown to affect both flora and fauna, creating a domino effect in the actual ecosystem. In the book, Ecological Consequences of Artificial Night Lighting, this chapter by Winslow Briggs, on plant responses notes that prolonged exposure to artificial light prevents many trees from adjusting to seasonal variations. This is crazy. There is so much effect. This could be a whole book on light, so I'm going to try to keep it short.

[00:15:42] How to make small changes to get more natural light

Small changes you could do to the artificial lights in your life. Turn off electronics, TVs, smartphones at least two hours before bedtime, so it doesn't stimulate you with all that blue light. You can adjust light and brightness settings on your phone. You can turn it to the "night shift." I'm a big fan of that. I've been doing that for years. This will automatically change for you and change the color and make it warmer and turn down that blue light and allow for more yellow and orange. Invest in blackout curtains. I'm a big fan of sleep masks, shut down that completely. Any little light can affect your sleep. Of course, there are blue blocks. You can definitely get blue-blocking glasses, wear those at night so it stimulates that. You can wear red light glasses, that's good because it can calm you down without stimulating you. Hands down though, the best thing you can do is incorporate more natural light at night. Once a month, I'll turn a light on because once the night happens, and I'm in a yurt, I don't turn on lights anymore. I just let the natural light happen. If I needed to turn on the light, it'd be a salt lamp. It's very diffused through the salt lamp as well as a candle. I love it, and it's just warming, you already know it. You can certainly dim lights. Find dimmers. You can turn down the intensity of those things. You can use also UV radiation blocking filters, ones made by [00:17:22] to prevent your overhead lighting from triggering eyestrain, migraines and other headaches, that's great. If you are able to invest into full-spectrum lighting in your home, that's a really, really good idea. We have some links in the show notes for those. Bottom line, people, takeaways are get out in the sun, live your life in a circadian rhythm that is natural within our biology, our physiology, our hormones, our metabolism, our moods, our cellular activity, that is all based in nature, all based in the light, the dynamic light that happens and shifts throughout the day. Live your life according to the light, #liveyourlife, according to the light. I just created that, that's multiple meanings. Live your life according to the light. The light could be divinity, the light could be literally light. Live your light, according to the light. I love you all. Thanks for tuning in, like and subscribe and tell other people about it because this is about life. This is about super life. This is about you living your greatest life. I love you.

[00:18:46] Podcast Outro

Darin: Thanks for tuning in everyone. I hope that left you feeling inspired to take a closer look at the everyday choices you're making and how they could be impacting your health and even the planet. If you want to learn more about life's fatal conveniences, head over to fatalconveniences.com. You can sign up for the exclusive access to Fatal Conveniences episodes, news, insights, and more. And all this great stuff gets sent each week straight to your inbox, making it really easy. Now, that's a convenience without the negative side effects. It only takes a few seconds to join. Just fill in the form and take that amazing step

towards making better choices. Remember, small changes can have big impact. So, keep diving my friends, keep diving. And if you haven't had a chance to check out the interview, I released earlier on the week, here's what you missed:

[00:19:53] Snippet - Training the Brain

Michael: We got to back into it and say, what are the capabilities I need to do this hard goal? I need to kind of push myself into the uncomfortable edge on a regular basis and when it is hard, that's my opportunity to see if do I have the psychology to say I do hard things. Here's the example. I was working with a cage fighter in the UFC. He's already won a couple of championships. He's highly skilled. I said, "What does it sound like in your head?" He's like, "There's nothing in there. It's just so fluid." I was like, "Okay, right. Flow state, the zone, right." He's like, "Yeah." I said, "Well, when you're right underneath of that, it's good to be in you. You're not in that kind of magical space. What's going on in your head?" And he says, "I'm a tough MF-er." I said, "Can you back it up?" He looks at me. His traps are coming out of his- you know.