Introduction and housekeeping

Want to welcome everybody? Are we recording? We are now. Great. We're recording. So we'll be able to send you a link later so that you can listen again or send it on to people that, you know.

I'm Dr. Susan Sklar, the founder and the medical director of the Sklaar Center for Restorative Medicine. And with me is Riley Richardson, who's our office manager and has been doing a fabulous job with us for the last about year and a half.

She's going to be helping me and admitting people to the waiting room and that sort of thing. There's a chat at the bottom. So if you want to ask a question, put your question in the chat and we'll get to them at end.

It looks like it's hot topic. We have a lot of attendees tonight. And sleep is a really important topic we are as a society sorely lacking in sleep and suffering the consequences of it.

in terms of our immune systems, in term of COVID, and terms cardiovascular disease and we'll get into all of that as we talk tonight. So I'm going to get my slideshow up.

All right and I am going pop off. Thanks a lot Riley. And I will screen share and hopefully everybody will be able to see this. Great. And Riley, can you see it okay?

Are we all right? We are good. Looks good, good and I will minimize so that you don't see all of us. Tonight we're talking about sleep, which is a really important topic.

Good. I want to read this to you, because this is from one of my favorite books called why we sleep, I probably read it three times altogether I keep going back and rereading it by Dr.

Matthew Walker who's a PhD scientist who studies sleep. And the beginning of his book, he said, we have an amazing breakthrough. Scientists have discovered a revolutionary new treatment that makes you live longer.

It enhances your memory. Makes you more creative. And makes your look more attractive. Keeps you slim and lowers food cravings. Protects from cancer and dementia.

Why sleep matters for health

Wores off colds and the flu. You'll even feel happier, less depressed and less anxious. Are you interested? Of course, all of that is true for sleep. So this is called Healthy Sleep, Healthy Life.

And you'll find out why I gave the talk this name because of the tremendous implications that sleep and lack of sleep have on our health and our wellbeing and emotions.

So actually, it was fairly recently, probably in the last 25 years, that scientists really started understanding why we actually sleep. Because it seems like it would be a really big evolutionary disadvantage to go semi-conscious for eight hours a day, which is a third of the time that we're alive, and be able to be preyed on by predators and eaten and crept up on.

and not be very aware. And so the real question is like, why do we have this eight hour like thing happening during our days and nights where we're not really aware of things?

Like, how could that be a good thing? And of course we've evolved and here in the middle arrow is homo sapiens, the start of our human race. And our genes really have not evolved very much at all since then, but our lifestyles certainly have evolved.

and we have involved and evolved until pretty much we evolved into sitting down in front of a screen. It's not good for our health. it's what we were meant to do.

And so we need to do things to counteract some of the ill effects of how we have been evolving. I wanna give you some facts about sleep in America because we a sleep crisis going on.

Some people say it's the number one health related problem in American and that as many as a third of Americans have trouble sleeping every night. And there are a number of surveys, and I'll pop some statistics in here from various surveys.

But one survey showed that almost half the respondents said that daytime sleeping has interfered with their normal daytime activities. That's a lot of people.

When they looked at adults between age 30 and 70, a quarter of them had sleep apnea, which is a risk factor for all kinds of problems, diabetes, cardiovascular disease, heart attacks, strokes, cancer.

Half of all Americans said they were sleepy during the day, anywhere from three to seven days a week. For some people, every day they was sleepy, during that day.

And in adults over age 60, insomnia symptoms happen to half of them. So lots of sleeplessness, particularly in older age groups. There are some other groups that have more insomnia.

Women have insomnia than men. And so a survey that was done shows that 51% of adults said they had problems sleeping at least a few nights a week. but two thirds of women, 67% said they had problems sleeping at least a few days a week.

And sleep problems occur more in African-Americans and Latinx people. Not exactly sure why, but this has been observed. So I wanna ask you to think about whether you're sleep deprived or not.

I've got some questions here that you can answer for yourself. Do you think you got enough sleep this past week? Do you remember the last time you woke up spontaneously without an alarm clock, feeling great and refreshed and didn't need caffeine to get going.

Do tend to want to fall asleep after you eat. are able to keep going as long as they don't sit down. As long they're up and moving around, doing housework, working, driving to do errands, picking kids up, all of that, they are okay.

Sleep deprivation signs and consequences

But as soon as the sit-down for a moment to watch TV or read, the conk out. That's a sign of somebody who's sleep deprived. Low libido, low sex drive can be a result of being sleep-deprived.

If you end up having to hit the snooze button every morning, you never feel like getting up when the alarm goes off. You may be sleep deprived. You go along, go long, and then sometimes crash and just go absolutely out for hours and hours.

That can be a sign that you're sleep deprived. The other thing that can also be sign of sleep deprivation and over exhaustion are people who say, yeah, the minute my head hits the pillow, boom, I'm out.

you should not be boom out like that. You should take a few minutes, 10, 15 minutes 20 minutes to kind of unwind, get comfortable and fall asleep. If you fall sleep the minute your head hits the pillow, it may be a sign that you're overly exhausted and lacking sufficient sleep.

And then the things that we go to when we haven't had enough sleep and need to keep our energy going, caffeine and sugar. So if you rely on caffeine and sugar to get you through the day, there's a good chance that you are asleep deprived.

And what happens if you don't get enough sleep? And these are from studies that were done. Dr. Walker had a number in his book. A lot of them were on college students.

So they weren't elderly people, they were people that we're sick with a chronic illness. They were young and healthy. And even when their sleep was shortened by two hours from eight hours to six hours, there were significantly more sleepy on the day after.

there was delayed response time, like when you're driving and you need to put your foot on the brake quickly to stop your car. When your sleep is restricted to five or six hours a night, which for a lot of people is their normal, you do not respond quickly.

And how horrible to think that you might end up really injuring somebody because you didn't get enough sleep the night before. Things like performance on memory tasks definitely show decreased short-term memory and poor performance, on complex memory, and mental tasks for people who didn't get enough sleep the night before, even by two hours or three hours.

And the other thing that happens is our moods Decrease our positive moods decrease and we get negative when we don't get enough sleep. So mood and your interactions with people around you can really be affected by the adequacy of your sleep And I wanna talk some about sleep phases because I want you to understand what happens different times during the night and why it's so important not to think that you're achieving something in life by staying up hours later than you should and maybe sleeping later or going to bed at a reasonable time, but getting up two, three hours earlier to quote, get things done.

which I'm very guilty of. I mean, all through my residency training and when my kids were small, I just kept getting up earlier and earlier to try to get everything done before I had to leave for the hospital and they had get ready and go to school.

And in the long run, it's not a good thing. So there are two main sleep phases. The first sleep phase has a number of different names, so it gets a little confusing, but it's either called non-REM or non rapid eye movement sleep.

It's also called deep sleep, it is also stage three to four sleep or slow wave sleep and then the other phase of sleep is REM or rapid-eye movement and we'll go into each of these a bit.

So this is a chart showing your sleep phases. And here you are on the left side awake and then you start going down deeper and deeper into sleep. This is someone who went to sleep 11 o'clock at night and at their deepest stage of sleep, stage three to four, they used to have four different stages and they combined three and four.

You're deeply asleep, difficult to wake you up during this very deep phase of asleep. And there are four to five sleep cycles during the night, each lasting about an hour and a half.

So this first sleep cycle, you go down, down down deep asleep, your deepest sleep for quite a while. And then your deep, deepness of your sleep start, start coming back out of sleep into a short period of REM sleep.

You then in your second sleep cycle, you go back down into deep sleep, but for a shorter amount of time. And you come up into REM sleep for short time by cycle three.

there's a lot less deep sleep and significantly more REM sleep. And for the second half of the night between say 3 a.m. and 7 a, m., most of your time is spent in REM Sleep, which is the sleep with the red line across it all the way across here.

So not much the first half for that night, but quite a bit the 2nd half the of night. What happens during that deep-sleep? A number of things. For one thing, All the things that happened the day before, the memories from everything that happen the date before gets filed away in your brain, like filed in a filing cabinet where you can retrieve it later on.

And this deep period of sleep, Like I said, takes up about 75 to 80% of your total sleep. It's difficult to arouse people when they're in stage three to four sleep and that's when your memories get filed the way like I've said.

it's also a time of tissue repair and tissue regeneration. So memories are getting filed away, that's our brain function, but there's tissue, repair, and regeneration in our bodies.

It's the time night when we release human growth hormone.

Sleep stages and deep sleep

And no matter how old we are, we never lose the ability to make human-growth hormone, If you short yourself on sleep, and some of this happens naturally with aging, our growth hormone levels go down, but you are going to lower your growth hormones levels even further.

I showed a picture of a man exercising at the gym. You know, when we exercise, we think we're building up our muscles and all of that. And in fact, what we are doing is we actually creating little micro tears in our muscle.

The real healing and building-up happens during the rest period after exercise including during deep sleep. Something else really fascinating happens the glial cells, so there are a lot of different cells in the brain.

There are the neurons that carry messages, there're cells called glia cells that are of the immune cells of brain, they're the astrocytes that support and nourishing cells to the neuron in brain and we have a cleaning system in our brains that cleans out trash.

So this picture of a trash truck. And we don't have trash trucks riding around in your brains, but something similar is going on. What actually happens is some of those supporting cells, like the astrocytes, shrink significantly during the night.

I'm talking 40% volume. so that there is more room left for cerebrospinal fluid to circulate and clear out debris. Part of that debris is amyloid plaques, which buildup of amlyloids plaque have been associated with Alzheimer's disease.

We don't know if it's the cause of Alzheimer or just happens to be happening along with it, but amyloid is some of the you know, byproducts of normal brain functioning, the waste products that build up and you wanna get it cleared out during the night.

So we call it the glymphatic system because it's not a lymphatic like what occurs in the rest of our bodies where we have lymph nodes and little tubes running between lymph node and lymph fluid that goes from lymph nose through the tubes And then the lymph fluid gets put into our general circulation.

The glymphatic system is really made up of cerebrospinal fluid that circulates around the brain and spine and does not have tubules to travel through and doesn't have lymph nodes to travels through.

And so it was given the name the glyph phatic systems for glial cells and lymphatic. But in fact, it's not a series of tubes and nose. It is the free flow of cerebral spinal fluid around the brain to cleanse it.

And so now we're gonna talk about the second half of the night, which I mentioned this 3 AM to 7 AM, where we have more REM sleep and what goes on during REM or rapid eye movement sleep.

This is the time when we are dreaming and our eyes actually can wiggle back and forth while we were dreaming. But in fact, our muscles are completely relaxed, like paralyzed, Which is kind of freaky to think about.

you're really at risk of predation if you are totally paralyzed. And so, but that's what happens during this phase of sleep. And it's really interesting because it is a time of a sleep of, a lot of creativity, working out some of the emotional things that we stumbled across during the day prior to sleep and consolidating and integrating our

memories into kind of our worldview and ourselves, our personalities, you know, perspective on the world.

And rapid eye movement sleep is vital to new learning. And this, along with deep sleep, decreases as we age. So it is important that we get, especially as get older, that get adequate sleep because the sleep we got is not the best quality.

So I'm going to talk about insomnia, how to know if you have insomniac and what the definition is. The scientific definition, is dissatisfaction with the quantity or the quality of your sleep.

If you're having problems during the daytime with impairment, because you haven't slept enough. And if it's happening three times a week or more, for three months or so.

So what is dissatisfied with the quality of sleep need? Well, that you have trouble falling asleep. You may wake up in the middle of the night, you might get right back to sleep, or you may have difficulty falling back asleep after you wake.

If you maybe somebody who pops awake at four in morning and can't get back sleep and you didn't want to be up that early. And if you don't feel refreshed, if go all day and never really feel refresh, like When you first wake up in the morning, you should feel great, ready to take on the day, and then you get more fatigued as the days goes on until it's bedtime, then should be pretty tired and ready go to sleep.

If you go along all day and don't ever feel refreshed and are ready tackle everything, You may have insomnia and sleep deprivation. There are a lot of things that cause insomnia.

Some of them are external things. some are illnesses, some our medications. So Parkinson's can cause problems with insomniac because of the disease process going on in the dopaminergic center in Medications like people with asthma take what's basically adrenaline to open up their lungs when they're having an asthma attack.

And you know what adrenaline does. It pumps your heart going, it raises your blood pressure, makes you shaky and hyper alert. That certainly does not go along with getting ready to go to sleep.

Having ambient light interferes with the depth of your sleep. Having your room at the wrong temperature. So when our bodies cool down, it's a signal to our brains that it is time to sleep If the room is too warm, your brain doesn't get that signal.

It's really important signal And then there are things that we do ourselves like caffeine, alcohol, not so much tobacco these days that interfere. We're like our own worst enemies, right?

And alcohol it's hard for people to understand because alcohol is sedating. Like when you drink, if you'd drink a lot, you kind of get sleepy. But what happens is yes, you get initial sedation or sleepiness, but alcohol completely disrupts your normal sleep architecture.

And when we're talking about sleep, architecture, it's that diagram I showed you of going into deep sleep coming out of deep, sleep into REM sleep going back into sleep.

Alcohol fragments your sleep you actually have many awakenings that you're not aware of because you sedated from the alcohol, And alcohol also suppresses your REM sleep.

So it affects your ability to be creative, to learn new things, To work out your emotions. And not only the alcohol itself, but the metabolites of alcohol.

You know, we break alcohol down and you know what happens if you drink too much alcohol, you get a hangover, right? That hangovers are caused by the aldehydes and ketones that are produced by, the metabolism of the, alcohol And so not only does the alcohol itself interfere with your REM sleep, these breakdown products also block your rem sleep.

REM sleep and insomnia basics

So alcohol on a number of levels interferes with sleep and people always say well how much can I drink and you know how long before I go to bed will I have metabolized all of it so it won't affect my sleep?

And it's really just about impossible question to answer but Certainly how you metabolize alcohol depends on your gender, how much body fat you have, big you are, whether you've eaten food or not with it, and what your individual metabolic rate is for metabolizing alcohol and having more body, fat and female gender.

causes initial higher levels of alcohol after you drink, higher blood levels, so the effects last longer. And we know that women by and large are not able to drink the amounts that men drink and that has to do with how we metabolize it, our enzymes and what our initial alcohol levels are like after we drink.

Then there's the issue of anxiety, which is kind of an internal cause of insomnia and one famous sleep doctor said, there's no insomniac. There's only anxiety.

I have to say anxiety keeps a lot of people from sleeping. And what happens when you get anxious? Well, what I talked about before, you activate that fight or flight response.

You release cortisol and adrenaline. Instead of your core temperature going down as the signals asleep, your temperature goes up. Your heart's pumping faster.

your blood circulating faster, Your blood pressure is higher. And there's an emotional center in the brain called the amygdala. And it's our fear and emotional Center.

and when we worry, well, our brain doesn't really know if really an animal is about to pounce on us and kill us or whether we're just worried about the next day and getting a bad report from our boss or whatever.

The same physiologic responses get set off and they're serious responses. And so what happens with anxiety and worry is your deep sleep. Remember that pattern.

It doesn't go as sleep as deep and your rapid eye movement sleep is broken up. And, so that affects your growth hormone release, your body's healing abilities, Your cognition, you're moved because you are not resolving some of the emotional things that happened the day before.

So big problems from worrying anxiety and I'll give you some tips on what to do. So what affects our sleep? Well, aging, like I mentioned, affects sleep.

And I was honestly really freaked out when I saw this first statistic, it's over 70 and read that 80 to 90% of my deep stage four sleep is gone. I'm always working on getting more sleep and better sleep, and wearing my Fitbit to bed, trying to see how much deep sleep I've got.

And some of it is due to the deterioration of the front part of Right-hand side of the diagram is called the prefrontal cortex, and it's where our cognition, judging, organizational abilities called executive functions take place.

And with age, that deteriorates somewhat. So we think that's part of reason why we're losing some of this deep sleep. Then there are bathroom interruptions for men and women, a lot for man with having to get up to use the restroom to urinate multiple times a night.

Other things that happen with aging is sleep efficiency is reduced considerably. And I'm going to go into in the next slide what sleep deficiency is. Your circadian rhythm changes.

So you know the early bird special for the old folks? Yeah, it's because we tend to sleep earlier because our melatonin release happens earlier in evening than younger people.

Then we also wake up earlier the morning. The total time you're asleep divided by the total you have spent in bed. So if you were in bad for eight hours and you only actually slept for six of those hours, that's 75% sleep efficiency.

Six over eight is 75%. And so what we wanna do is increase our sleep efficiency. Sleep efficiency is greatest in the youngest age groups. And this graph isn't exactly accurate, but 10 is actually 199, 98, 97, and so forth down to 90. So people in 15 to 20 year old age range and 20 to 30 year-old age ranges, it's like 98% sleep deficiency.

Of the time they're in bed, 90% is spent sleeping Whereas by the time you get to over 60, and it gets even worse, over 70, 8% of the times you're in bed, you are not sleeping.

That's almost a tenth of time that you in your bed. Other things that impact sleep, menopause. So sleep problems, double. for women in menopause, and there are a variety of reasons for it.

Increased nighttime arousals caused by hot flashes. And I know people joke about hot flash and women fanning themselves and the har har you know we're hot and red and perspiring and people think it's a big joke.

It's not a big joke, it's a significant problem. It not only interferes with our daytime functioning, It interfered with sleep. And that's when it gets really significant.

So hot flashes are something that need to be addressed. Hot flashes aren't indication of brain inflammation. They come from brain. Inflammation in the temperature regulatory center of the brain, so if you have hot.

You have brain information going on. That's not good, and so you want to do what you can to reduce brain inflation.

Causes of insomnia and sleep disruption

And before I got into functional medicine, I used to have women tell me things like, well, if I don't eat sugar and refined carbs, my hot flashes are better.

And I was like well that doesn't make any sense at all. I mean what does that got to do with hormones? Not understanding that those are inflammatory foods and you can affect your body's state of inflammation for sure with your diet.

So eliminating inflammatory foods helps some people just by itself, just the sugar and the white flour products help some women lower their hot flashes.

What else happens with menopause? Well, we lose estrogen, which helps to modulate that temperature center in the brain. We also lose progesterone. And we in functional and anti-aging medicine call progesterone nature's valium because progeterrone is so brain calming and it actually attaches to the same receptors in brain as Valium does, and any of the benzodiazepines which include a lot of sleep medications, which we'll talk about later.

And when we lose progesterone, we loose those very important brain calming effects of projesterones. Progesteron helps our sleep, it decreases anxiety, It improves mental focus, And it was really interesting because a number of years ago, One of our patients said, you've got to meet my dentist.

He's like a holistic dentist and kind of the equivalent in dentistry of what you do. So I called him up and you know he was a little taken aback. But anyhow, he ended up being a great mentor and taught me a lot about breathing problems and oxygenation problems during sleep.

And it turned out that a lot of the symptoms of poor oxygenation during sleep overlap with menopausal symptoms. So hot flashes, cold hands and feet. fatigue, mood changes.

And I thought, well, if there's so much overlap, I really need to get well-versed in sleep problems so I can help sort out which of our patients are having hormone problems and which patients aren't having sleep problem.

It turns out it's not so clear cut because hormones actually help to support the airway and keep it open. So I realized I didn't have to decide whether it was hormones or sleep problems.

I certainly evaluate many, many people for sleep problem because it's so important to have adequate oxygenation. But I've come to learn, and there are a number of scientific papers that show that progesterone and estrogen help to support and keep open the upper airway to allow oxygen to get in more easily.

Other medications that disrupt sleep. The antidepressants, serotonin, selective seratonin reuptake inhibitors, SSRIs, they disrupts sleep in the elderly and actually increase dementia risk.

Statins like Lipitor, Crestor, and Zocor can disrupt asleep. Blood pressure medicines can. Flomax, which is an inhaled nasal steroid. Even the non-sedating antihistamines like Claritin and Zyrtec and Clarinex can interfere with sleep and disrupt it.

And corticosteroids, I don't know if any of you have ever been on prednisone. I was on Prednisome for a couple of months, many, may years ago, and I didn't sleep.

I felt like somebody on speed, I never got tired. I could never relax and let down and fall asleep. And that went on for two months, it was horrible. So, steroid medications can do that in some people.

The other thing is we have this, we do it to ourselves, this tremendous drive for productivity, like you've got all the stuff you got to get done. You've gotta fit it all in, you gotta stay up late and do, it you're gonna get up early and doing it.

And people are going 100 miles an hour, 90 miles and hour and then think, boom, they're supposed to come to a full stop. after they've been going 90 miles an hour all day.

And it's difficult to fall asleep when you've on the go like that. So people need a lead in time, a decompression time to allow your body to get ready for sleep.

There are problems with oxygenation that a number of people have. The general term is sleep disordered breathing. it damages the brain, it causes a number of other problems.

And it includes sleep apnea where people actually stop breathing for 30 seconds and then resume breathing again. There's something called upper airway resistance syndrome that is a different form of poor oxygenation.

It occurs more in women and it occurs in woman that look like me with long, narrow faces and long skinny necks. In the course of development, People who have that did not have the healthiest jaw and tracheal development and ended up with a narrow windpipe which when you lie down on your back can narrow even further.

And in some people and they've done studies on it, it narrows to like two millimeters which is about an eighth of an inch or less and literally airflow is decreased.

When you have these problems like sleep apnea or upper airway resistance syndrome, many parts of the brain get damaged. Your emotional center, the memory center your cognition center in the front I told you about and the blood sugar regulation control regions in your brain all become damaged We evaluate people for low oxygenation.

You can get a sleep study done. We do this high resolution pulse oximeter at my center where you go to sleep with this wristband and a little meter on your finger.

Your finger meter measures your oxygenations and your pulse. And we can see if your oxidation decreases at night. we Can see, if you're pulse increases in response to it, which would be a healthy response.

If your oxygenation goes down and your pulse does not go up, that means that part of the brain that's supposed to respond to low oxygen has become damaged and it's a more serious sleep problem.

You can do your own little quiz if you've ever been told that you snore. Especially men 70% of people, especially men more than women that snore have sleep apnea.

So, I would say if you're tired during the day, and you snor. If you haven't had a sleep study, you should probably get one done. indicative of sleep apnea, if somebody tells you that you sound periodically during the night like you're coughing or choking, because what'll happen with an apneic episode is you are breath holding, breath, holding breath.

Holding and then kind of a gasp or chocking sound as air rushes in, as you become more awake and, you know, awake enough to allow air to rush in what had previously been cut, blocked off.

Using devices at bedtime takes you longer to go to sleep, decreases your sleep quality. Your sleep efficiency is decreased. Screens are not good if you're having sleep problems.

They're probably not go anyway. But if your having problems, you need to cut out the screens at night. And there have been some studies done on the health consequences of improper sleep.

And this was a large Japanese study that looked at older men and women and studied them for actually for 10 years and found that people who got five hours or less sleep or people, who've got nine hours, or more sleep had higher mortality.

If you correct these sleep problems and people get seven to eight hours per night, which is the more optimal, their mortality risks are corrected back to a healthier mortality risk.

Like I said, it was over 17,000 men and women. One of the really important things that came out of this study is they asked people if they were on sleep medications and hypnotic sleep, medications mean things, that make you sedated or hypnotized and go to sleep.

And the people who were using them had a 66% increase in their dementia risk. We know that the study was a really nice specific case in point. And I know this is a busy slide, but the main thing I want you to look at is here is all causes of dementia.

Here's Alzheimer's disease, here's vascular dementia, and here as all cause death.

Aging, menopause, and sleep changes

And you can see the people that got less than five hours sleep and the the got more than 10 hours' sleep had much higher dementia risk than people in a more normal sleep range.

As far as mortality goes, people who get less that five hour sleep have double the mortality of people who get somewhere between seven and nine hours sleep.

And then again, over 10 hours' sleep, your mortality goes up again. So there's a sweet spot. If you have cardiovascular disease, it's really important that you get adequate sleep because if you less than six hours of sleep on a regular basis, you've increased your chance of a heart attack or death by 30%. You already know you had heart disease.

Pay attention to your sleep. If you're pre-diabetic, and usually people are diagnosed as pre diabetic by having high fasting blood sugar or high hemoglobin A1C, which is a test looking at a three to four month view of how your blood sugars have been.

if you fall in the pre diabetics range and you regularly get less than six hours sleep, your chance of getting diabetes is increased by almost 70%. If you're pre-diabetic, you wanna work on your diet, You wanna on exercise and you are reducing insulin resistance, reducing fat mass, but definitely getting adequate sleep.

And then there are changes in the brain with obesity that make it almost self-perpetuating, unfortunately. The brain's control center in frontal lobe that I mentioned before, is weaker, the emotional center the amygdala which is in the middle is stronger, there's worse impulse control.

And there are also changes in microbiome which are the bacteria in your colon. with obesity. So you have a perpetuation of the bacteria that tend to actually extract more calories from your food.

You don't want to extract calories because those calories go into your body and put weight on. If you're sleep deprived, and this is anybody of any weight, these were more studies done on college students, measuring your hunger hormones, your hungry hormones are increased.

your satiety hormones are decreased and your impulse control is decreased. And you definitely have an increased appetite for highly caloric foods, meaning refined carbs.

With interesting, they did studies where they had students and they limited their sleep. They woke them up during the night or they woke him up early and had a buffet and could eat whatever they wanted.

So they actually measured the people's food intake After a full night's sleep and a couple of hours short on sleep, and their caloric intake went up by like two to 500 calories if they didn't get as much sleep for all of these reasons.

And then what happens to your mood if you're sleep deprived. It's not good. Your fear center is activated. You're scared, you're irritable, and you are anxious.

And the frontal lobe, the prefrontal cortex, which is your executive control center, is weaker. So you lash out at people, yell at your kids, have a fit at work, get embarrassed by it, whatever.

But you have less control and sleep will play into that. Sleep disturbances cause premature aging. The telomeres, and this has been measured, the telomeres are the little tips.

People think of them as like the plastic tips on your shoelaces. If you lose your plastic tip, you know, your shoe laces start fraying. And telomeres, the longer your telomeres are at the end of your chromosomes, The longer you're life and sleep disturbances decrease the length of you telameres actually cause damage to the DNA in your cells, increase your risk of cancer.

Increase NF-kappa B, which is a pro-inflammatory chemical, increases other pro inflammatory chemicals called cytokines, No one knew what they were a couple of years ago when I first developed this talk, but of course, since COVID, everybody knows what cytokines are.

They are damaging inflammatory chemicals. C-reactive protein is a very common lab test that's done. It's usually used as an indicator of cardiovascular inflammation.

And it is actually an indicator of one of our cytokine levels, IL-6. So increased C-reactive protein can happen, meaning your body is more inflamed if you don't get enough sleep.

There's increased cellular senescence. So what does that mean? Well, optimally you have healthy, functioning, happy, energetic cells. When they're not happy and functioning anymore, they should go through an orderly process of decomposition and recycling of their components to be used in another new cell.

And that's an anti-inflammatory process. If you don't get enough sleep, instead of cells going through that very normal, orderly anti-inflammatory process of recycling, cells become what we call senescent.

And senesecent cells don' work right, and they pour out a ton of, you know, inflammatory chemicals, And they don''t really do that for themselves. They like to recruit cells around them.

So they like t have other senesen cells coming along with them, nd when you get enou your body does not function

so well. So you do not want to be short on sleep and increasing your cellular senescence.

Your body is all about cellular efficiency. The more efficient, the more energy you have, The better you function. And all of these things happen more so in women.

So, all total the health risks of sleep deprivation with Alzheimer's there is a 50% increased risk of Alzheimer with sleep depravation, heart disease, high blood pressure, cancer, It's well known that women that do shift work where they don't work nine to five, they work three to midnight or midnight to seven, have an increased risk of breast cancer.

Their circadian rhythm is off, their state of inflammation is on. Some of the Scandinavian countries actually give benefits to women who work shiftwork because they know that they're at increased risks of health problems.

Addictions, weight gain, I mentioned diabetes and pre-diabetes. If you're in chronic pain, sometimes it makes it hard to sleep, but if you can sleep it's really important for controlling your pain.

We talked about mood disorders and what happens when that frontal cortex has less control and your fear center has more control. And we talked the problems of lack of sleep and increased mortality.

These were two people who were very proud of the fact that they only slept four to five hours a night. They were heads of state, they were busy people, Margaret Thatcher and Ronald Reagan, who both ended up with Alzheimer's disease.

I'm not saying that's the only cause, but I am saying, don't be proud to sleeping four or five hour in night, you may not realize that you are setting yourself up for serious problems later in life.

So what are some safe sleep solutions? First of all, you need to plan for sleep. You cannot just let everything pile up all day think you're going to get it all done and stay up later and later.

And later, You need You need consistency. If you're short on sleep, Monday to Friday, because you busy and working, and then you think you can make up for it on the weekend by sleeping till 10 or 11, that will not give you your optimal sleep efficiency.

So it's important to stay on a regular sleep schedule, even on weekends. What to do if you are worried and have anxiety? This is a great tool. keep a bedside journal.

I have a little three ring notebook that I keep by my bed side because it's all victim to all the same things. You know, three in the morning I roll over and go, oh my goodness, did I order that, you know prescribed that medication for that person yesterday before I like closed up shop.

And if I had to think about it the rest of the night and try to remember it in morning when I wake up, I'm not going to sleep well. So I a loop pad right next to my You know, it's in the dark, chicken scratch, but I can make it out in morning and I write it down.

I know I don't have to think about it anymore. So you want to write down your worries before bed if that helps you. You want write your down worries and things to remember if you wake up during the night and then say to yourself, I've written it and and can let this go until tomorrow.

And tell yourself that and your brain will let it go and help you get back to sleep.

Sleep apnea and oxygenation problems

I don't know why people insist on watching the evening news. It's never good. Good news doesn't sell. All that's out there is bad news, and it gets you all upset, plus you're watching a screen, And it's going to make it hard for you to get to bed.

What to do if you want to reset your circadian clock? Like what if, you've been like going to sleep at one or two in the morning, it's not so good for you and you wanna start resetting and going sleep earlier, but you're just not tired earlier.

Some of the things you can do are to optimize daylight sunshine in morning. So exercising outside in a morning we're so fortunate, we live in California and there's lots of bright sunshine most of mornings.

exercising for 30 or 60 minutes early in the morning, minimizing your artificial light at night. If you've got dimmers, turn them down, turned off any unnecessary lighting, keep things kind of romantic and low lighting and be sure you sleep in complete darkness.

And if you can't darken your room shades, there are always eye shades and that can make things completely dark for you. If you have to use screens at night, blue blocking glasses can be helpful.

And these block out the blue rays of light that come off of screens that suppress our melatonin production. So wearing these yellow tinted glasses, can help if you really do have, to you screens.

One of you asked about prescription sleeping medications, one in particular Sonata, And here's what I think about prescription sleeping pills. It's not just what, I thing it's, what the science shows.

First of all, it is a huge industry, $1.6 billion a year. You fall asleep a little bit faster, you sleep a bit longer, but at what cost? They are addicting.

If you use them regularly, most people are going to find they need to use higher and higher doses. Ambien is particularly known for sleepwalking, sleep eating.

I had a patient whose son did sleep-eating and choked and died. People end up driving in their sleep. Boy, is that dangerous. These prescription sleeping pills, the benzodiazepines, increase your risk of cancer, depression, They impact your immune system, so you can't fight infections as well, and they lead to an increased risk of dementia.

They act on the GABA receptors. So GABAA is short-term for gamma aminobutyric acid. GABBAS is a neurotransmitter in our brain, And our has calming neurottransmitters and excitatory neurotrasmiters.

And GABE, we need both of them. Excitatory ones help us lay down new memories and, you know, are important for our energy and the GABA receptors are calming and slow everything down.

Most of the benzodiazepines, not most of them, all of benzodiazepine work on the Gaba receptors. There are 400,000 deaths a year linked to prescription sleeping pills, more than due to smoking, cancer and heart disease altogether.

So responsible for a lot of deaths every year. I'm gonna give you some things that you can do to keep your GABA receptors full in a safe way in a non-addicting way and in way that'll help you get to sleep.

But before we get there, I just want to talk to you about your sleep environment. It's really important that your sleeping area is cool. One of the things you can do is take a hot bath before bedtime.

Uh, it heats you up. it actually heats up your extremities, your blood flows to your Between that and evaporation from your extremities, you end up lowering your core body temperature, and that's a signal to your body that it's time to sleep.

And then there's this fancy device called the chili pad, which you can't see very well because it's kind of white on white in the picture. But it is like a mattress pad.

It's a cooling pad and they make fancy ones where one side of the bed can be one temperature and the other side can do the temperature. People say that they sleep really well on it because they cool them down.

Exercise will help your sleep. So if you wanna go to sleep earlier, you want to exercise early in the day. If you're an early bird and you don't wanna be falling asleep at seven or eight o'clock at night, if like to stamp a little later and socialize more, or at least before the pandemic we did, then you'll wanna exercise later in day and that will help you stay up later, and have a later wake up time.

Doing resistance training. So lifting weights or working with bands or body weight exercises will help you raise your growth hormone, your human growth, hormone levels during deep sleep.

There's something called cognitive behavioral therapy for insomnia. And this is a link to the sleep foundation, which has some information about it. It has a couple of recommendations that if you're not sleeping, you don't just lie there and kind of fume about it and stew about because that doesn't make things worse to get out of bed and move around a little bit and then get back in bed.

It recommends stopping naps. so that you maintain what's called your sleep pressure. So there is a chemical called adenosine that gets released all through the day and its levels build up higher and higher, and it controls what is called our sleep-pressure or the desire to sleep.

If you drink coffee, coffee will get on those adenosine receptors. It's what makes you feel more awake. but your body is still making the adenosine, coffee doesn't make the Adenosines go away.

Health risks of poor sleep

And when the effects of the caffeine are worn off, then you crash because now your adenosine is continued to rise in spite of caffeine that kept you going for a brief time.

So napping, falling asleep early during the night, all of that will release sleep pressure and make it so that it's more difficult for that identity level to rise like it should so they're ready to go to sleep at the correct time.

You want to eliminate caffeine and alcohol, limit your screen time, be in a cool dark room. That's all part of cognitive behavioral therapy for insomnia.

The other thing that works equally well is mindfulness based meditation or Tai Chi, which is a moving meditation. And there are tons and tons of scientific articles showing the benefits of meditation for sleep.

So you may not need to take any sleep supplements or any sleeping medications. Doing meditation has to be on a regular basis. It's gotta be every day.

And it doesn't just work like magic. You need a practice and you need have it go on for a while. Um, some people have a really hard time meditating. There are lots of phone apps that help you with meditation.

One of my favorite is called calm and there are all kinds of meditations in there. It was like a body scan of relaxing different parts of your body. They're a stories called sleep stories, which are really wordy and kind of boring.

And if I wake up during the night and I'm having trouble getting back to sleep, I listened to a sleep story and it kind bores you to. Back to asleep. Other things that are important, especially for menopausal women, is to address their hormone issues and get relief from these disruptive hot flashes.

And like I said, estrogen not only relieves hot flash and the interrupted sleep from hot flashing, it actually supports the upper airway and helps to relieve some parts of sleep apnea.

Same thing for progesterone that we mentioned before. Progesteron is a powerful respiratory stimulant and improves your REM sleep, improves you deep sleep.

And there are on EEG these sleep spindles that show up during the night, these spikes that are correlated with learning. With progesterone, we see an increased number of sleep spendals, meaning people are having better

and higher degrees of learning Gestron also helps to increase your growth hormone levels.

And as I said, helps improve the space in your upper airways by supporting the musculature there. Melatonin is what synchronizes your circadian rhythms.

We have a natural release of melatonins, which affects the onset of our sleep and how long we sleep. different doses of melatonin. Some people, there's this theory going around if you use melotonin, it's going to suppress your own production.

I honestly have never seen that. Sometimes people are on meletonin and then stop using it and You know, they seem to sleep okay after that. I don't feel like it's permanently suppressed.

There are different doses you can use. there are some very low doses that can be helpful. And there's also high dose melatonin and we use high-dose melotonin in people that are really having a lot of awakenings and using a sustained release melotonin so that it works for six to eight hours rather than the usual four hours or so for regular release, meletonin.

Some of the newer things that we've been working with at the SCAR Center are called peptides. These are two peptide that are helpful for sleep. CJC epimerelin is one and delta sleep inducing peptid is the other.

And peptids are signaling molecules. So they tell ourselves what to do. I was talking about cellular efficiency and cellular senescence. Peptides help ourselves be more efficient.

And the great thing about them is our bodies recognize them because they actually come from our body's so peptides almost all the peptide's we use are derived from.

Our own natural substances they've been synthesized in the lab, but the chemical structure is very similar to what we produce ourselves. DJC epimerelin causes the release of growth hormone if we need it and in a healthy way as opposed to giving people growth hormones and does a number of things.

So it does all the things that growth hormonal will do in terms of improving muscle building, improving immunity, improve cellular efficiency, but it also improves sleep and especially deep sleep.

and it helps with memory. And it may be through this deep sleep effect or it maybe through other effects. The DCIP or Delta Sleep Inducing Peptide helps With deep Sleep.

It also is a pain reliever. So especially for people who have pain problems that are keeping them from sleep, this can be really helpful. This is also helpful for resetting someone's circadian rhythm.

and helping with jet lag. And then I'm going to tell you about some nutritional supplements that are very safe, and a lot of them have to do with those GABA receptors.

So magnesium is a mineral. It's incredibly brain calming. and can be used pretty freely. The only kind of warning I give people with magnesium is that if you take too much, it may be too for your bowels and make your bows loose.

So you want to titrate it according to how your bowel movements are going. Taurine conditions the GABA receptors.

Sleep solutions and supplements

We use this for people who say have been on a benzodiazepine, and are now trying to withdraw from them because their GABA receptors are so used to being attached by this strong addictive medication.

Taurine can help to recondition those GABRA receptors. Glycine is something that we usually give it as a powder in a little bit of water. It lowers your body temperature.

So it helps with that triggering your brain with your temperature being lower as the sign it's time to sleep. And it increases REM sleep, L-theanine, you know, I told you there were calming neurotransmitters and excitatory neurottransmitter, and L theanin blocks the excititory neurotrasmiters.

So helps with anxiety and excitation. 5-hydroxy tryptophan is a precursor to serotonin, which then converts into melatonin. And then phosphatidylserine Our cellular walls are made of phosphatidylserine and phosphotidlylcholine.

And if you're somebody who's very stressed and you are making a lot of cortisol, that is not good for your brain. Cortisol actually shrinks your brains.

Phosphatidylserine can be an antidote to those effects of the damaging and harmful effects on high cortisol. And the last thing is using GABA itself. And GAba comes as a supplement.

There's also medications called GAbapentin. I think they have a lot more side effects than our GAB supplement and so GABa attaches to the GABC receptors in the brain and calms the and helps sleep.

and there are a number of herbs that help sleep like valerian and chamomile. I, we're going to send you a link. I put my recommendations for sleep supplements in our supplement distribution online warehouse called Fullscript.

And if you click on this link, it will take you to the protocol that I made up with different sleep, supplements that, I've specifically picked out by brand and quality.

Lavender oil can help sleep and lavender oil actually helps to stimulate your glymphatic system. So one of the things we sometimes will recommend is an Epsom salt bath.

Epson salts are magnesium sulfate and you actually absorb some of that magnesium through your skin when you're in the bath and then put some lavender in because you are breathing that in and it's helping to get your lymphatic systems ready to go.

can be helpful to track your sleep. There are a lot of debates about how really true the different sleep phases are because they use algorithms and these sleep trackers that may not really accurately reflect your asleep.

But I feel like you can get an idea from night to night. Was tonight a better night? Did I have more deep sleep? Didn't I as much deep asleep? So I like using it because it gives me an ideas I like to compare how I feel and how i function all day to what it said my sleep was like the night before kind of fun.

So I wish you all sleep dreams and hoping you can sleep as deeply and beautifully as this little kitty. And I'm going to take questions now, but I will leave this up.

If you're interested in getting a copy of our slideshow, if you would like to get a of copy our handout, Getting Ideal Sleep, If You'd Like to Get on our email list, and if would you like a consult, you can contact us.

So you wanna text this number with your name, phone number and email and tell us which of those things you'd like. Let's see. So I am, let's say Riley, I'm going to depend on you for the questions.

Cause I, we're starting to get some in. Great. All right. The first question and you kind of, this was asked before you went into some recommendations of supplements.

It says melatonin used to work for us, but no longer does. Do you have any suggestions? It sounds like yes. Yeah, so I would try some of those other things and I'm not exactly sure why it doesn't work anymore.

I haven't really, my experience with people who have a lot of problems with insomnia is a lotta times something seems to work for a while and then it stops.

So you end up kind of rotating through and it may be that you could try the magnesium or the L-theanine or the taurine and glycine, and get some benefits from them.

And then at some point in the future, be able to rotate back into your melatonin. We've got another question. It says, where can I find the Chill Pad?

So it's called Chili Pad. I'm trying to think where we can do it. Maybe have it in a handout that we send you if you're interested. I think it's chili pad, c-h-i-l-e-pad-p-a-d.com.

But we can try to send it to you. Okay. So I can see who sent that question. Great. When we figure that out, I'll message them. Thank you! And then, all right, another one.

Emerita protest and how much? I don't know what that is. I'll look it up on my phone. Sorry, it's a Emerida protest. Is that a progesterone? Yes. Yeah, I would do it under a doctor's care.

Yeah, it's a progesterone cream. One of the things about pro gesterones creams, actually, I'm glad you asked that. Progesteron creams get absorbed through your skin and don't go through you digestive tract.

So they have a different metabolism than taking progesterone by mouth as a capsule. And when you take pro gesteron by mouse, one of them metabolites that happens as it goes through liver and digestive track is called allopregnanolone.

It doesn't get produced when you use topical progesterone skin creams and gels. And it's allopregnenolone that is one of the more brain calming, sleep inducing aspects of progesterone.

So if somebody is having sleep problems, anxiety problems focus problems I really try to have them use oral progesterone because of the manufacture of allopregnanolone.

Q&A and closing remarks

That does not happen with a topical progesterone preparation. Are there any other questions? Give it a moment in case anyone's got anything else. Big chance, everybody.

All right. Okay. Well, I'm not seeing any other questions. Good. I'll stop the screen share. All Right. We do have another event coming up next month, April 22. So we'll start sending out notifications about that.

It's gonna be with Dr. Nicole and it's going to be about autoimmunity. So it is reverse auto immunity and four simple steps and she's go into that. It will be 6 p.m.

on April 22nd. Yeah, she knows a lot about autoimmunity. I'm sorry, I cut you off. Oh, no, that's fine. Just a reminder, last time we had some issues with our recording, but this time I made sure it fully recorded.

So I will be posting this on YouTube, our YouTube channel as well, for you guys to to be able to view. And then of course, if you guys ever need the link, you can contact us and we'll send it to you directly.

Thank you. It was great. Really appreciate it. Thanks. Hello, Janine. I was so happy to see you there. I wasn't sure if I could switch over to the texting thing quickly, but I just want you to know how much I appreciate all your information and you look wonderful.

Thanks. Good to hear from you. Thank you, you got me on a good path, Dr. Sklar, I appreciated it. Oh, my pleasure, Jenny. Yes, and thanks to all