Dr Ron Ehrlich: Hello and welcome to Unstress. My name is Dr. Ron Ehrlich. Today my guest is Dr. Chris Winter. He has been dubbed the Sleep Whisperer by Arianna Huffington from The Huffington Post.

Now this emerging field of sleep medicine, it cuts across every specialty because it affects every part of the body. Of course, I can't resist but ask why do we sleep. I mean it's something we take for granted. It's a question you'd think that there'd be a very simple answer. I love Chris' explanation for it, which basically looks at the way nerves work.

When you think the whole body's connected by nerves, it makes total sense. It's worth listening to. The keyword, I think we both ended up agreeing on, is consistently a good night's sleep. We talk a lot about that and how important it is.

Start there and we'd go into some sleep problems as well. There's a question right at the end of the first part of the interview which I love to ask, and that is what is the biggest challenge, in his opinion, people face on their health journey in our modern world? His answers are such great insights. I hope you enjoy my conversation with Dr. Chris Winter. Welcome to the show, Chris.

Dr W. Chris Winter: Thank you very much, Dr. Ron. How should I address you?

Dr Ron Ehrlich: Well, Ron's fine, but if we want to get formal, Dr. Ron's okay, too.

Dr W. Chris Winter: I like Dr. Ron. You did not the doctor, but Dr. Ron sounds great.

Dr Ron Ehrlich: Okay, okay. That'll do. But, listen, I've been working with sleep specialists for 15 years, and I don't know. They tend to be some people, but you're a neurologist. Is that typical of sleep physicians?

Dr W. Chris Winter: It's changed over the years. In the United States, the original sleep doctors were really in the psychiatric world, dream interpretation, trying to work out some of the early stages of sleep. Then in the '80s, with the advent of the treatment of sleep apnea and Sullivan's jacuzzi-turned-CPAP, it really took a pretty dramatic swing towards the pulmonary doctor or the pulmonologist.

But in the last decade or so, with as much focus as has been put on the brain, I think it's really becoming universally accepted that sleep is a neural process, but what I like about sleep is there's room for everybody at the table. There's neurologists and pediatricians and dentists and surgeons. It's such a great inclusive field, multidisciplinary, that ... Yeah, so I would say that there's a lot of neurology sleep here in the United States, but everybody's got something to give.

Dr Ron Ehrlich: Yeah. I think sleep is one of those things that a lot of people give very little thought to. Although when they don't sleep well, they know it. Can we just go back to a real basic question here, and that is why do we sleep? What's the purpose of sleep?

Dr W. Chris Winter: It's surprising how poorly we can answer that question in 2017. I mean I think that most people believe that sleep is doing something within the brain to reset it. I think as a leading theory now is really almost at the synaptic junction where two neurons come together that sleep really restores that connection between them, so that when people are not sleeping over long periods of time or sleeping poorly, there is a definite degradation of cognitive health. I think that it does a lot of things, but probably at its most basic, fundamental cellular level is providing some sort of restoration for neural circuitry, which is why it's so incredibly preserved across animals and species. I think somebody said once that **if sleep has no real purpose like that and is somewhat arbitrary, then it's the greatest mistake nature ever made**, which I thought was cool.

Dr Ron Ehrlich: Yeah. Well, I think that neuronal connection, it's nicely put, particularly by a neurologist. Yeah, I mean considering our whole body runs on nerves, when those things go out of whack, it can manifest itself in so many different ways. We're going to talk about the effect of poor sleep, but how do we define what a good night's sleep is? I would say actually a consistently good night's sleep because getting one good night's sleep is really not enough.

Dr W. Chris Winter: Yeah, I think that more and more, particularly in the last couple of years, that adjective you threw in, "consistent" night of sleep, is really important. Even somebody who's a shift worker who's working three nights then he's off then he's on two days and he's off, even if that individual's able to get an appropriate amount of sleep during those days and/or nights, depending on what his schedule is, it's that lack of consistency that we're really finding out to be problematic.

I think that a big part of the definition of a good night of sleep is consistency, it is the consistent rise and fall of our consciousness. It really sets the stage for our circadian rhythm. I like to say that there's really nothing in our bodies that are accidental, I mean from your red blood cell production to hormones to body temperature and digestion, all of these things tend to operate best when they're on a schedule.

I would say a good night's sleep is a consistent time period of sleep that we're getting that is adequate enough to make the individual feel not sleepy the next day. I don't like to attach numbers to it, so somebody can sleep six and a half or seven hours, another person needs nine to feel well-rested the next day. It's about getting what that individual needs and not trying to fit yourself into some sort of average. But, again, I think that consistency part is extremely important.

Dr Ron Ehrlich: Yeah. It's really how people are feeling with the sleep they're getting that is almost providing us with a diagnosis as to whether they've got a problem or not.

Dr W. Chris Winter: Absolutely. I wrote in the book that there are three different ways that I feel like people will tell me they're getting a good night's sleep. One criteria is how long it takes an individual to fall asleep. If it takes them an hour to fall asleep, then they're not getting good sleep. At least that's what they think. Another person will measure their quality of sleep based upon how many times they wake up.

But the most important thing to me and the way that I would invite people to evaluate their sleep is just what you said, how do you feel the following day? Do you feel well-rested? Are you seeking sleep? Are you inadvertently falling asleep during times where you want to be awake, like listening to a lecture or driving a car? If somebody says, "Look, it takes me 45 minutes to fall asleep and I wake up several times during the night, but I feel great during the day. I'm well-rested. I couldn't fall asleep during the day if you asked me to," then I would imagine that person's sleep is probably pretty good.

Dr Ron Ehrlich: How long do you think is ... Well, going back to that first one, how long do you think it should take before it's an issue to get to sleep?

Dr W. Chris Winter: Yeah. Now we start getting into definitions of insomnia, which I've never had a lot of use for, but I think that the book would say ... Not my book, just the book of sleep would say 10 to 15 minutes is a normal sleep latency. But if you said to me that you get in bed, and I know you've got a lot going on, you've got a book [you can download a free synopsis here] coming out yourself, you've got ... I mean I'm halfway through your webpage. There are so many cool things on it. You've got a lot going on.

Maybe you'd like to go to bed around 10:00, and it takes you an hour to fall asleep. But in that hour, you've utilized that time when you're lying in bed in the dark, your eyes are closed, you're thinking about your next podcast, you're thinking about something you wish you had added to your book coming up, a project you want to work out with a friend, like if you're [crosstalk 08:20].

Dr Ron Ehrlich: Chris, we've only just met, you've just read my mind.

Dr W. Chris Winter: I'm reading you with my mind.

Dr Ron Ehrlich: This is neurology. This is like I've never had it before.

Dr W. Chris Winter: That's exactly right. If you're saying these things to me, and I'm asking you, "Dr. Ron, how do you feel about that?" and you're like, "I love it. I love that hour in bed where I'm not beholden to anybody. Nobody's calling me. I'm not having to do media appearances. It's just me with my thoughts, winding down, summarizing my day, planning for the future, thinking about what to buy my wife for her anniversary," whatever you got going on, if it's taking you an hour to fall asleep, but you're utilizing that time and it doesn't bother you, then I don't consider that to be a problem. In fact, research would say that people who rest, not necessarily sleep but effectively rest, are probably doing 70% of what sleep does.

I think we have to look at that as saying 10 to 15 minutes is what we consider to be an average, but if you're taking 30 minutes to fall asleep and you're not concerned about it, I don't think you necessarily have a problem. In fact, I always tell people the definition of insomnia is not a person who can't sleep, it's really a person who can't sleep when they've decided they want to sleep.

The second part of the definition is you have to have a negative emotional response to it. The person who says, "Look, it takes me an hour to fall asleep, but I simply adore that quiet time before I conk out," I don't think they fit that definition.

Dr Ron Ehrlich: Look, your book, the book is called The Sleep Solution, and we're going to have links to it on our webpage, of course, but I just loved it. I know we talked about this before we started the interview, but not only is it full of so many practical tips and quizzes and things to do, but it's actually a great read and I actually got quite a few laughs. You said that I was setting the bar very low, but it was such an enjoyable book.

One of the things I loved about it was your saying about take control of what you can get control. What was the expression again? **Control what you can control.** I love that. I mean so much of what I'm about is taking control. Explained that in this sleep context.

Dr W. Chris Winter: Yeah, I think that when you start to look at people who are struggling with their sleep, you get a good sense that their situation, at least in terms of their sleep, maybe in other aspects of their life, there's a feeling that they're a bit out of control. Nobody likes to feel that. We want to feel in control of our job and the way we're climbing our ladder. We want to feel in control of our family, we want to feel in control of our personal finances. I mean that's a good feeling.

I think sleep, particularly when somebody's not particularly educated about it, it's very easy to feel out of control. With feelings of being out of control invariably come feelings of anxiety, which is something you do not want to pull into the mix when you're thinking about your sleep.

I really like looking at sports as an example. I work a lot with sports teams, I've got children who've played sports, I think most people do, and I just love the idea of a child maybe who swims. I would always ask my kids before some sort of event, like before a swim meet, "What is your goal today?" If their goal was, "I'm going to win first place," I usually made them pick another goal because that's not something you really have control over. What about you're going to do the best you can do to have a good entry on your ... I'm not a swimmer, when you dive into the pool? You're going to really work hard to breathe every second stroke like your instructor told you, not every stroke.

These are things that an individual can control, and I think sleep's no different. We can't control how well we sleep tonight, we can control our attitudes. I tell my patients all the time, "Look, you and I are going to go to bed at night in different beds. We're either going to fall asleep or we are not going to fall asleep particularly quickly. Either way, I don't really care about myself, and I need you to adopt that.

I need you to start thinking about your sleep like you think about brushing your teeth. You do it, you don't put a lot of thought into it, you're got worried at 4:00 in the afternoon, "Oh, my God. What if I forget to brush my teeth or what if while brushing my teeth I poke my eyeball out?" I mean nobody thinks that way. It's just like, "I don't know, I brush my teeth. I didn't really give it a whole lot of thought."

That's where we want to be with your sleep, but let's give thought to things like is your environment quiet? Are you going to bed at an appropriate time? Are you controlling the light before you fall asleep? How is your attitude when you fall asleep quickly versus how is it when it takes you an hour to fall asleep? Do you have a plan for if it takes you longer than what you would like to fall asleep, what you're going to do tonight? Those kinds of things allow an individual to feel educated and prepared and approach a night with confidence instead of worry, which is usually half the battle.

Dr Ron Ehrlich: Yeah. That, of course, is the whole idea of sleep hygiene. The other thing that I loved about your book, too, was this distinction between being fatigued and sleepiness, being sleepy. Tell us about that. Talk to us about that.

Dr W. Chris Winter: Sure. I think that your listeners who struggle with sleep can get so much out of it, so much so that it can really solve an issue on the spot. In the United States, we use the word "tired" very indiscriminately. If an individual comes up to me and says, "Wow, Chris! I'm really tired," that can mean one of several things. One is it means that person is having trouble staying awake. They are, in fact, sleepy. They are saying, "Look, Chris, I'm really tired. If I sit down and read, I'm going to fall asleep. I need to get up and do something because my drive to sleep right now at this moment is so overwhelming, I don't trust my ability to stay awake and do what I need to do." That's one way you can use tired.

The other way you can use tired is imagine somebody running a half marathon. You catch up with them at mile marker 11, about two miles towards the end of the race, and they're telling you, "Wow, Chris! I've never run this distance before. I'm really tired. I'm not sure I'm going to make it." They're not saying to you that they want to lay down in the middle of the road and fall asleep. What they're saying to you is that their body is fatigued, that their muscles are lacking an appropriate energy to carry them through the next two miles, or at least they're feeling that way.

It's very important when a patient says to me, "I'm tired," or to any doctor or any practitioner, that that be explored because what starts to happen ... I literally saw a patient yesterday who had a chronic fatigue syndrome lines picture and she's having a lot of trouble with her sleep. Her problem with her sleep was it took her two hours to fall asleep.

I said, "What time do you go to bed?" and she said, "I go to bed at 8:00." I said, "That's quite early." She said, "I know, but I'm just so tired. By the time I get home from work, I can't really do anything. By 8:00, I'm just done so I go to bed." "Then what happens?" "Well, it takes me two hours to fall asleep."

What we have is a great example of an individual who is trying to combat fatigue with a method to combat sleepiness, meaning that she is going to bed seeking sleep because she's tired, and that never works. What I told this woman is I said, "Look, I'm having a hard time believing that you are, in fact, sleepy at 8:00, because every time that you get this opportunity to sleep, it's taking you two hours to do it.

It's like somebody saying to me, "I am so hungry. I don't know what to do." I'll take my lunch out and hand it to them and say, "Well, here. I'm not that hungry. Here, eat my lunch if you're that hungry," and I hand it to them and they don't eat it. I check back with them an hour later, they still haven't eaten it. Well, I'm going to question their hunger. "Well, I haven't eaten my lunch. I gave you my sandwich, and you're not eating it. Why is that?" They're obviously not hungry because their behavior is showing that they're not. Her behavior is showing her and showing us that she's not sleepy.

I always tell patients, "Look, when you are fatigued, you need to rest. Put your laundry down, put your work down, lay back in your chair, close your eyes and meditate, read a book, watch a television show, listen to a Dr. Ron podcast. Do whatever you want to do-

Dr Ron Ehrlich: I'll put you to sleep.

Dr W. Chris Winter: ... but you can't go to sleep because you are, in fact, not sleepy." Now when you start to see signs of sleepiness, in addition to or outside of your fatigue, meaning having trouble staying awake during the podcast and having trouble staying awake during the television show, that is the cue to go to sleep. It's surprising how many people fail to pay attention to that, but when they do, it not only changes their behavior, but also it starts to change the way these individuals get worked up.

When you look at sleepiness, there's really only two things that cause an individual to be excessively sleepy. They're inadequate sleep or dysfunctional sleep. A person who has two jobs and only getting two or three hours of sleep every 24 hours, they're getting inadequate sleep, they're going to be sleepy, or the person who has sleep apnea. They're spending plenty of time in bed asleep, but their sleep is so dysfunctional, it's not doing the job of restoring that person to a place where they're not sleepy anymore, so they, too, in fact, will be sleepy.

Fatigue is a completely different list of things: tick-borne illnesses, vitamin D deficiency, thyroid. It really helps to narrow down the pathway of a patient who's struggling when they can identify what they are dealing with.

Dr Ron Ehrlich: Yeah. You've got a terrific short list within your book, and you've outlined some of those things. The idea of people getting fatigued, of getting themselves checked out first to eliminate all of those underlying maybe metabolic conditions is important.

The other thing I love about your book, too, is this focus on resting, because that's quite an important thing about attitude to sleeping. People can get very stressed about, "Gee, I'm not sleeping. I'm not sleeping. Oh, my God. I'm really in a bed," but I love your focus on resting. Talk to us about that.

Dr W. Chris Winter: Yeah. This is something that I've been aware of and interested in for a long time. I think that if you were to talk to somebody who really understood the art of meditation, the science behind mindfulness, they would probably look at my thoughts about the whole situation and think they're pretty elementary. But as a sleep doctor, it's very easy as you are being trained, and even as a neurologist, to think of sleep as being the absolute. You're either sleeping or you are not sleeping. Anything that's not sleep is a complete waste of time.

When you actually start looking at research, it's really interesting how helpful and restorative resting can be. A lot of times, as I travel, I will get back to my clinic and I'm seeing patients in my lunchtime, I'm feeling very sleepy because of inadequate rest because of travel or whatever's going on. I think most people find themselves in this kinds of situation. I have a little built-in nap time during my day that if I feel like I need it, I'll take it. If I don't feel like I need it, then I'll see other patients or answer some emails or do something like that.

Anyway, it's amazing to me how many times I'll be sitting and talking to a patient at 11:00 in the morning, really struggling to focus and stay awake. Then when I have this opportunity to take a nap, it doesn't happen. I'm sitting there baffled by the situation, like I can't believe I was so sleepy an hour ago, yet here I am in a perfect position to sleep and it's not happening. Just like you said, it does evoke a stressful response, like, "Oh, my gosh. I only have 20 more minutes left in my nap time. I can't believe I've squandered this time. Now I'm going to have to see patients having not had my nap. It's going to be a disaster."

It's easy to go down that mental pathway, but looking at resting and playing around with it, it became very clear that if I went into that "napping" situation with no expectation of sleep whatsoever, but my goal was to rest. I'm going to go into this quiet, dark environment, I'm going to recline fully, I'm going to put a little noise machine on so I can't hear the rest of the office, I'm going to close my eyes, I'm going to rest for the next 45 minutes or 30 minutes or whatever the time you have, and adopting the mental attitude of if I sleep, that's great, but that's not what I'm seeking and I'm not going to judge the success or failure of this resting period based upon whether or not I sleep.

A couple of things happen. Number one, during the off chance that I don't sleep, it is absolutely astounding to me how good I feel after that time period. That's what research would tell you, that that resting period, even if you're not sleeping, is absolutely not wasted time.

The second thing that's really interesting to me is that when you let go of the expectation of sleep, how much more quickly it calms, so much so, in fact, that I talked to a magazine writer/editor type and I said, "I've got this great idea for a story." I'm really interested in resting. I'm personally really shocked by how well resting helps myself, it helps other people. I want to simply rest all night. I'm going to lay in my bed for six or seven hours, I'm going to try to name as many state capitals that I can name and how many Prince and the Revolution songs can I name.

I was trying to keep myself quietly mentally active, but I'm not going to allow myself to sleep. Six hours later, I'll open my eyes, I'll start my day, and I'll write an article about how I

actually feel. Is this bullshit or is this actually true, like the resting really makes you feel pretty good? What's funny is I can't do it. I've been trying for about two years to do it every now and then. As soon as I get in bed and I start trying not to sleep, it's amazing how quickly you fall asleep versus you're a stressed out individual who is very much trying to sleep and really struggling to do so.

It all falls back to, again, control what you can control. I'm going to control my environment and the way I approach this. I can definitely control laying there with my eyes closed, thinking positive thoughts or thinking about my celebrity crush for 20 minutes I can do that. I can't necessarily control whether I sleep or not. We want to, again, focus on those things that we can control.

The other thing, too, is, as you start to notice, as the stress about the entire resting situation goes away, our perception of sleep becomes much stronger. In fact, there are many people out there who "can't sleep", that it's really not about them not sleeping, it's about them not feeling sleep, like a kid on Christmas Eve.

I never felt like I slept the night before Christmas because I was so nervous that if I didn't sleep, Santa Claus wouldn't come. It was always a mystery to me when I woke up in the morning and there were presents there, I'm like, "Well, I was up all night. How in the world did that happen?" It created the magic of Christmas, so to speak.

Dr Ron Ehrlich: Well, look, there are just so many pearls in your book, and I'm not going to go through this one now, but I love ... People are going to have to get the book for this one ... do nothing for a really long time exercise. I thought I'm going to practice that. I'm not going to tell our listeners what it is because they're just going to have to get the book to read it. Listen, we're talking about sleep problems. What's the statistics telling us? How big a problem is this, not sleeping, not getting a consistently good night's sleep?

Dr W. Chris Winter: I would say it's such a big problem that if I'm at a dinner party and introduce myself as a sleep doctor and the person I'm speaking to says, "Oh, that's interesting. I've never had a sleep problem in my life," I would fall out of my chair. I mean when you look at insomnia specifically, it's probably going to touch us all at some point in our life.

Now to me touching you and having insomnia are two different things, meaning I suppose the night before Christmas, I had insomnia. I don't consider myself an insomniac. If you're looking at somebody who has chronic insomnia, it's probably affecting someone in the order of 25% to 33% of people would describe themselves as, on a regular basis, having difficulty with their sleep.

If you're looking at things like sleep apnea, 25% of the adult male population probably has it, maybe more. When you look at all these individual sleep disturbances, patients who have restless leg syndrome, if you're looking at the adult population, it's been estimated to be anywhere from 5% to 15% of people have this kind of disturbance with their sleep.

Dr Ron Ehrlich: Wow!

Dr W. Chris Winter: They touch a lot of people, touching people enough that it's a problem, maybe, maybe not, but most sleep doctors are fairly busy. I mean there's a lot of ...with sleep issues.

Dr Ron Ehrlich: Yeah. I want to ask you one question, though, and this is a more general one. What do you, as a physician seeing people all the time, think some of the greatest challenges are for people on their health journey? In our modern world, what are some of those obstacles?

Dr W. Chris Winter: That's a great question, Dr. Ron. A really good question and a very unique one. I would say, from my perspective, I think one thing that is a challenge is we live in a day and age where I think when you watch a show like CSI, where these people are using these high tech gadgets to solve every crime, I think there's a similar feeling about healthcare providers that we know everything and we can pretty much solve everything.

I think the average individual would be pretty surprised that doctors don't know nearly as much as I think their patients think they do, meaning that, as a neurologist, there are a lot of people out there who struggle with vertigo or struggle with unusual sensations in their bodies that we just can't explain. I always try to be very open and my hands out with my patient, like, look, I'm not afraid to tell you I don't know.

Dr Ron Ehrlich: Yeah, what a liberating thing to say. As a physician, that's not often the case. I don't think many people visiting doctors hear that from their physician.

Dr W. Chris Winter: I think you're exactly right, and I'll tell my patient I don't like it. I will fight very hard not to have to say that, but I do think that ... Also, maybe there's a doctor who's better than I am. I mean my mentors in the field of sleep were just giants, and I have absolutely no problem whatsoever saying, "Look, I don't know the answer to this, but maybe this guy who taught me everything I know would." I think there is a limit to our knowledge, and I think sometimes that's a very difficult thing for a patient to hear who struggles with something. I think that's a big obstacle right now.

I think, in our country, the way healthcare is structured is another very big problem. I'm running into more and more people, for instance, who have sleep apnea who cannot afford the treatment of their sleep apnea after they've paid for their diagnosis of it. That never would have happened seven years ago. We're really at a point now where people that you and I know are really struggling with their healthcare finances, or maybe one sort of catastrophic thing away from really being in ruin.

Dr Ron Ehrlich: Interesting, interesting. How humbling to hear a physician actually say, "I don't know." I mean too often, you just don't get that. Often, rather than the physician or health practitioners say they don't know, the patient's problems are either just dismissed or it's all in your head or something like that. It's okay to admit that. I actually think it's, as a health practitioner, really liberating to admit that you don't know something and admit that to your patient. That's great.

Now Chris also mentioned there were a lot of sleep disorders. In this next part, we go into some of those more common problems. I hope you enjoy the second part of my conversation with Dr. W. Chris Winter. You had identified ... Is this figure correct? 88 different things that can go wrong with your sleep?

Dr W. Chris Winter: Yeah. I love that number. It's just such a great...

Dr Ron Ehrlich: It's just a nice round.

Dr W. Chris Winter: Come up with 89 if you are wrong. There's only 88.

Dr Ron Ehrlich: Is that true?

Dr W. Chris Winter: In the diagnostic manual for sleep disorders, there are 88 identifiable problems. What I like about that is we have now entered an age where we can do home diagnostics for some sleep disorders. It's very important for some people to understand that, hey, that home sleep study that you're doing might be really good at identifying a couple of these things, but it might not be able to identify all 88 things, or there might be some of those 88 that don't really even need sleep studies.

If you're dealing with a provider that's asking you to do an expensive sleep study for a problem that doesn't necessarily need one, insomnia is a good one that doesn't necessarily need a sleep study, or if you have restless leg syndrome, I think there's absolutely no need to do a sleep study, at least initially.

I think that the understanding that there's a whole gamut of things out there that could be wrong with your sleep, because the other thing we run into is an individual goes to have a sleep study, and the sleep study is really looking for sleep apnea and it does not find it. I think the message either directly or maybe what the patient is interpreting is that you don't have sleep apnea, therefore, you are normal.

What they really should be saying is, "You don't have sleep apnea. We've now crossed one of the 88 things off our list. If you are still struggling with your sleep or feeling sleepy the next day, let's move forward and look at ways we can identify one of these 87 remaining diagnoses we have left."

It's frustrating to me as a provider how many people who get the sleep study are told they don't have sleep apnea, and it's basically don't let the door hit you on the way out, like, we're done here. A lot of times that's a very frustrating expensive bill for a patient to get, and now they have no more answer as they did when they walked through the door except for the fact they don't need to wear a CPAP.

Dr Ron Ehrlich: Yeah. Well, we identified what was a good night's ... We used that adjective, a consistently ... Is it an adjective? My grammar isn't great, but whatever it is, a consistently good night's sleep, the importance of that. Gee, I'm surprised. There is a diagnostic statistics manual, the DSM, for sleep now.

Dr W. Chris Winter: Exactly. There's the International Classification of Sleep Disorders, but there is also a diagnostic and clinical manual for sleep. For the most part, they pretty much line up. For a condition like narcolepsy, the DSM-IV still says that if you have this condition called cataplexy where you suddenly become paralyzed, you've made the diagnosis, the ICSD still recommends doing a sleep. There's little differences there, but they're coming together.

Dr Ron Ehrlich: The only reason I mentioned it is because when the psychiatric classifications first came out about 20 years ago, there were 100 conditions. Now the version five of psychiatric problems runs into 1000 pages and 300 books. I can only imagine what the sleep one's going to be looking like in a few years' time.

Dr W. Chris Winter: Right...

Dr Ron Ehrlich: There'll be 200 sleep disorders. Back to a common one that people hear about, and that is insomnia. For people who answer, "Oh, I suffer from insomnia," and they may not, how do we define it? How do we define a chronic insomnia and all its different forms?

Dr W. Chris Winter: Again, if you want the standard textbook definition, it generally centers around an individual who is dissatisfied with the quality of their sleep. It's usually taking them some combination of time either to fall asleep, either to stay asleep, or some sort of early morning awakening. For instance, we talk about sleep onset insomnia, taking an individual more than 30 minutes to fall asleep, and it's been going on for at least a couple of months.

Sleep maintenance insomnia, an individual who maybe can fall sleep okay, but they seem to have trouble maintaining their sleep at night. Then there's early termination, a person who falls asleep okay, sleeps well, but they've got their alarm clock set for 7:00 and they keep waking up at 5:45, and they're frustrated by it.

To me, the standard definitions often surround time. If it takes you 29 minutes to fall asleep, you're out of luck, but if you're 30, you're okay. We can deal with you then. To me, it's more about a personal satisfaction. Do you like the way you sleep? Does it frustrate you? Do you spend a lot of time in bed not sleeping? If that's the case, start exploring things.

Do you consider somebody to have insomnia if they go to bed at 6:00 in the evening and they have their alarm clock set for 8:00 the next morning? If you do the math really quickly, you'd think, "Wow! They're anticipating a 14-hour night." I think the most reasonable ... People will say, "Wow! I'm not sure that grandma can sleep 14 hours, even though she's making a good will attempt to do so." Of course, grandma is saying, "Well, I go to bed at 6:00 and then I wake up around 2:00 in the morning, and I can't get back to sleep." Is that insomnia or is that somebody who's basically got a very bizarre sleep schedule that is contributing to the problem?

It's like saying, "Look, I have trouble with my appetite," and Dr. Ron says, "Well, Chris, tell me more about that." "Well, when I sit down to eat my lunch, I just don't want to eat much of

it." "Well, what's your lunch?" "It's three extra large pizzas with pepperoni." Your first thought's going to be, "Why in the world do you think somebody as small as you can eat three extra large pizzas with pepperoni?" You'd say, "Well, my favorite football player, that's what he eats for lunch, so I thought I'd give it a try." That's not really an appetite problem, that is a failure of expectation.

There's a lot of things that can contribute to insomnia, not to mention the fact that there are actually sleep disorders that can look a lot like insomnia. A lot of people who have restless leg syndrome will say, "I have insomnia," when, in fact, it's their legs and chemicals in their brain that are contributing to the lack of good sleep. To answer your question, it's really just about somebody who's dissatisfied and feels like they're spending more time in bed awake than they should.

Dr Ron Ehrlich: See, we talked about this last time we spoke. I know you identified the 25 to 30 ... I think you said 25% to 33% of the population have this condition, but I love the way that you personalize these things.

For example, I asked you last time how long should someone sleep, and I know there is the sleep foundation. What is it? The National Sleep Foundation have done their whole study on it, but yours is a more personal approach to that question, how long should they sleep, and here you are again with the insomnia. I mean is it a problem for you? People's attitude is a big defining factor there, isn't it, or their responses.

Dr W. Chris Winter: Absolutely. I mean I think that there is a place in our world for averages. When you launch your book and you're going to have this massive picnic for all your friends down in Australia to celebrate its release and whatnot, I'm sure if you look up on the internet, there's some algorithm for how many hot dogs or sausages or hamburgers you should buy for a picnic of about 100 people. Well, that doesn't mean that everybody who's coming to the Dr. Ron book launch picnic is going to eat two hot dogs and one hamburger. It's an average, it's allowing you to purchase within a reasonable estimation.

I think that in the media, it's so nice to be able to talk to you at length about sleep because the media that I'm often involved with is, "Hey, Chris. We're doing a quick article in this magazine. We need a quick sentence for you about insomnia." It's like, "Please explain to us national GDP and economics in a sentence or two." That's really hard to do, I think. I don't know anything about national economics and GDP, but...

Dr Ron Ehrlich: That was my next question, actually.

Dr W. Chris Winter: Yeah. Please don't do that to me. Sleep, it often just begs more of an explanation. What we're left with is the average individual needs eight hours of sleep. We can fit that in the article. We can't really get into the specifics of, well, what about this one reader whose father was a cardiothoracic surgeon, his mother was this big corporate attorney, neither one of them ever seem to sleep that much and do just fine. They have a kid. The kid's the patient. The patient says, "Look, I'm trying to get my eight hours of sleep at night, but I simply can't." Well, genetically, you are probably never destined to be able to do

that. It doesn't mean you have insomnia, it just means that you're trying to put a square peg in a round hole.

Dr Ron Ehrlich: Well, my next question is what can people do about it? I guess if it's a question of attitude, then changing one's attitude would be a really good first step. I love, in your book, the way you elevate the word "resting" even above the word "sleep", even though the result is implied. But that's must be a big part of this approach.

Dr W. Chris Winter: It is. I mean you mentioned sleep hygiene, I believe, the last time we talked. You start looking at the things you can control. You can control your attitude. That's tough. I mean I talked about it. If you look at some of the really upset, angry reviews of my book, these are people who are struggling with that. It's okay, they can use me as their punching bag...

Dr Ron Ehrlich: They're probably not sleeping well. They're probably not sleeping well.

Dr W. Chris Winter: That's right. Exactly. I forgive each and every one of them. God bless them. Changing an attitude is one thing you can do. That's easier said than done. It's like telling somebody to lose weight. Well, great. That's easy for you to say. How do I do that? Attitude is one thing. I think you mentioned sleep hygiene. Are you controlling all these variables around your sleep, including your attitude, before that time?

I think one thing that often gets lost, too, is that if you're somebody out there who your attitude about sleep's fine, like you don't really care if you wake up or not, and you're perfectly fine with resting. Your bedroom is a perfect model bedroom for sleep hygiene, and you're still struggling, still having trouble staying awake on your drive to work every day.

I think one thing that gets left out of the equation is you may have a medical problem that you're not going to fix without some help. I try to think of analogies in other fields of medicine. I mean you've got a little bit of toothache. You might put some ice on it or get some sort of rinse at the pharmacy, but my guess is if that toothache starts to get severe enough where you can't eat, you're going to very quickly call your dentist or your primary care provider. There's this feeling that, "Okay, we've now progressed to a place where I'm not capable of fixing this problem, but somebody out there is."

I don't know that we've come that far in terms of the lay person in understanding sleep that, number one, they feel educated enough about the disorders of sleep that are out there and, number two, that there's actually people who specialize in sleep that are actually real doctors. Believe it or not, I barely made it through medical school. I have an MD, if you'd like to see it. It's hanging up in my office.

There are people like me that specialize in sleep. We trained for it, we took certification exams, and we can help you if you feel like the books and the things that you've tried yourself are not working. Let yourself off the hook. This may not be something that new bed sheets and a bizarre contraption that you wear around your head that keeps your mouth from falling open can actually solve, or even my book.

Dr Ron Ehrlich: Yeah. Well, I loved your three-month or two-month trial of saying even if you're a bad sleeper, hey, I'm a great sleeper, I'm not talking ... There are some great stuff in your book. We've talked about an exercise last time that I wanted people to do, the do nothing for a while exercise.

Putting insomnia aside for a moment, well, let's talk about snoring, because a lot of people dismiss snoring as ... I know I did this with my wife. I mean I'm I'm 62 now and my wife ... When I was in my late 40s, I started snoring and I dismissed it as her problem, not mine until she threatened to kick me out of the bedroom. Suddenly it became my problem. A lot of people dismiss it, and I learned that that was a not a good thing to do for many reasons. Talk just a little bit about snoring 101, basics. What is going on in snoring?

Dr W. Chris Winter: Yeah. Snoring is basically your upper airway or some part of your airway, it could be your soft palate upper airway. There's a vibration that's being created that we're hearing. In its purest sense, snoring is a noise being created by a less than structurally sound upper airway.

Snoring can be harmless. Now your partner may not think so, but just because you snore does not mean that you have a true breathing disturbance or that you have sleep apnea. There is what we call primary snoring, which means I don't want to share a tent with you, but there's nothing going on with you that's creating an obstacle in terms of your health.

If we think about that airway vibrating, maybe vibrating a little bit more, is that airway becomes more and more soft, relaxed. It is prone to collapse. It's not difficult for an airway to collapse. If you look at a wide open airway versus an airway that's collapsed, that distance is not that great. As we gain weight, as we mature and get older, we smoke, there's a several factors that lend themselves to it, the way we're engineered, that airway can close off.

When it closes off, now your brain has an interesting conundrum. Your brain wants to sleep and feel great the next day. Your brain also loves oxygen. It does not want to die of suffocation. The person who has sleep apnea now is an individual whose brain is trying to do both, but it can't at the same time. It can either breathe or it can sleep, but it can't do both. That individual now, in addition to their snoring, is going to stop breathing. As the brain panics, it will wake itself up out of sleep to catch its breath, go back to sleep, and repeat the process.

The snoring now becomes a marker. The patient will tell you or the patient's partner will tell, "He snores so loudly and all of a sudden he stops for a while and makes this gurgling noise, which is blissful and that it's quiet, but, my God, he looks like he can't breathe. All of a sudden there is this roar of a snore, the snoring starts up again, and then it dies down and goes away."

Partners are usually pretty aware of the nightmare situation that's going on. The patient, kind of like you, is like, "What's the big deal? I don't hear myself snore. I feel fine the next day," when, in fact, often they really don't. Your snoring can be fine, but it's something you definitely want to talk about with others and with your doctor.

Dr Ron Ehrlich: Yeah. Before we leave that, I want to share one thing. I had a patient who had a pain problem, and it wasn't just a toothache. They were grinding a little bit in their sleep. I know you mentioned that in the book as well, but one of the ways we solved the problem ... Because she was constantly getting disturbed sleep. One of the ways we solved that problem was to deal with her husband's snoring problem. The problem actually, once we got him into an appliance that stopped him snoring, he didn't have sleep apnea, she actually slept better and her pain settled down.

I think you and I would both agree that sleep is probably the most important part of the day. If we're lucky enough to share our bed with somebody that we love, then we care about their health. Our snoring is actually affecting their health in a way. I'm just going to park that thought there for the moment.

Dr W. Chris Winter: Well, I have to say one thing because it's so important. If you are somebody who does struggle with pain, it is amazing how dysfunctional sleep can create or worsen that problem. It's very really amazing your thought of let's deal with the snoring of the partner and see how it affects the pain of the individual. I guarantee there's a lot of people out there listening to this that may be in that boat, so good for you.

Dr Ron Ehrlich: Oh, yeah. Oh, yeah. Absolutely. We deal with quite a bit of chronic pain as a musculoskeletal pain, headaches, neck and jaw pain in our practice. It's a chicken and egg thing, too, isn't it?

Dr W. Chris Winter: Absolutely.

Dr Ron Ehrlich: Because when you're not sleeping well, you're not modulating that pain. You're not inhibiting it, you're actually facilitating it, and it becomes worse. It's a chicken and egg thing, too. But on to obstructive sleep apnea because it's a term that people hear. What does it actually mean? How do we define that? I'm into definitions today, Chris.

Dr W. Chris Winter: Oh, I love it. Yeah, your listeners as well, too. Obstructive sleep apnea is a condition where that individual, as we were talking, their airway is collapsing. The way it's defined is that that collapse is creating difficulty breathing or an absence of breathing for at least 10 seconds. That is what an apnea is, is an A-P-N-E-A is. It's the cessation of breathing that we've defined as being 10 seconds or longer.

After you finish this podcast, go to a clock that has a second hand and hold your breath for 10 seconds, or imagine your partner not breathing for 10 seconds. It's a very long time. The 10-second breathing disturbance is the apnea.

What we're looking for in obstructive sleep apnea is somebody who's averaging more than five, 10, 15 of these things an hour. The definition right now, it says that zero to five apneas per hour is normal, six and above is sleep apnea. Now you can have six breathing problems per hour, six apneas per hour, and have sleep apnea. We'd consider that to be very mild. There are patients who have 60 an hour, there are patients who are approaching 160 an hour.

Dr Ron Ehrlich: Wow! What? That's incredible. There's only 60 minutes in an hour.

Dr W. Chris Winter: Exactly. The theoretical limit is 180. I think the most I've ever seen is like 148, because what happens is the apneas are getting longer and longer and occupying more of the minutes or the numbers after you start to go down, but it's incredible the breathing dysfunction that people out there can have, yet they can get up every morning, they can operate that forklift, they can work in their office and somehow manage to make it through their day, but it is a devastating situation not only in terms of their health but their productivity and their mortality.

There's so many ways sleep apnea works against that individual's life that fixing it is one of the best parts about my day. When you get one of those individuals who's having 80, 90, 100 breathing problems per hour and you do something to make it go away, it's nothing short of miraculous and it's so much fun to be part of.

Dr Ron Ehrlich: Well, it's actually life-saving. It can be life-saving.

Dr W. Chris Winter: It really is, absolutely.

Dr Ron Ehrlich: Apnea is when the airway is completely ... Well, you stop breathing, and you said anything over 10 seconds. What's the longest you've recorded in all of your sleep studies of the person stopping breathing?

Dr W. Chris Winter: I've recorded one that was 38 seconds, but I was just in a conference on Friday and they said that this person ... They were monitoring people at high altitudes, like Everest climbers. The longest one they had ever recorded was 44. Now I will say that the one I saw, it was 38, was an individual who had pretty significant sleep apnea, who was also on some pretty significant pain pills at night, which can really amplify and worsen the situation because it dulls the brain's response to that low oxygen, high carbon dioxide state.

Dr Ron Ehrlich: What are some of the things people could or should be doing if they are diagnosed with obstructive sleep apnea?

Dr W. Chris Winter: I would say if you've been diagnosed with it, I would consider treating it. Again, we have to be very careful because there's somebody out there listening who may say, "Yeah, I was diagnosed with it. I had seven breathing problems per hour." There may be another listener who says, "Yeah, I've been diagnosed with 107 breathing problems per hour."

That person who has 107, number one, when you treat it effectively, you're going to feel like a different person. The person with seven, it's more of a mixed bag. They're more difficult. I have a very different communication with that person with seven breathing problems per hour.

I usually tend to tell people, "Look, why don't we try to treat it and see what happens? If the treatment of it really makes you feel better, it changes your life, great. Continue down that path. If you say, 'Look, I feel great. The only reason I'm here is because I snore. My wife wanted me to see you. You've now diagnosed me with this very mild sleep apnea. I tried the treatment for it. I can't really see that makes me any better. I'd rather do something that just minimizes my snoring,' that might be reasonable, too."

In this country, one of the problems I see is that when you're a hammer, everything looks like a nail. In this country, when you have sleep apnea, everything points towards wear this vacuum cleaner on your face for the rest of your life and don't ask any questions. I think that, again, that one-size-fits-all kind of mentality just doesn't work. For a lot of people, when I asked them, "What was the conversation you had with the person who diagnosed your sleep apnea like?" They'll tell you, "There was no conversation. I went to the sleep study, they told me I had sleep apnea. I knew nothing about the severity of it. I got a CPAP in the mail, I was told to wear it."

Dr Ron Ehrlich: Yeah. Now the vacuum cleaner that you were referring to, people might be thinking, "What the hell? Why do we need a vacuum cleaner?" The vacuum cleaner's actually not. It's a CPAP machine."

Dr W. Chris Winter: Not at all, exactly.

Dr Ron Ehrlich: Just-

Dr W. Chris Winter: Not only is it not a vacuum cleaner, it's called a CPAP, a continuous positive airway. It's a device that is actually not sucking, it's blowing. My vacuum cleaner is very much a bad analogy, but I think a lot of people think of it that way.

What a CPAP device is simply a little device you wear at night on your nose, mouth, or a combination of your nose and mouth, that's using a little of the air that the little compressor is taking in from your room and it's blowing it into the back of your airway to simply prop it open. It's essentially an airway splint.

As terrible as it sounds, I can assure you it's not. I've actually worn one for a month to see what it was like. It's not that big a deal. It could be absolutely life-changing, if that's what's going on. The devices don't make any sound really these days. They keep the snoring from happening, so partners usually love them.

Dr Ron Ehrlich: Yeah. There are two other very quickly things that I want to ask, the difference between obstructive and central sleep apnea. Is the central sleep apnea a big problem. What kind of population statistics do we have on that?

Dr W. Chris Winter: Yeah. It's a much smaller percentage of the people who have apnea. Central apnea, as opposed to obstructive, is obstructive is an individual who can't breathe, but very much wants to. If I walk over to you and pinch your nose and put my hand over your mouth, you're going to work very hard to breathe despite the obstruction I've created.

Central apnea is an individual that, as you watch them, they will stop breathing, but there's nothing blocking the breathing from happening. Their brain has just made the decision to hold its breath for a while. You often see these individuals who have central sleep apnea in individuals who have heart failure, you can see it a lot in central nervous system disturbances like stroke or degenerative diseases, you can also see it in medication use, where people have long periods or pauses in their sleep. They're a bit more obscure, but they're certainly out there, and they need to be dealt with in a little bit of a different way.

Dr Ron Ehrlich: Okay. What about restless legs? You've mentioned it. Just, again, because you said last time we spoke, what, 5% to 10% of the population have restless legs.

Dr W. Chris Winter: Probably. Now just because you have it ... I meet people all the time. If they say, "Yeah, I get that, but I'm sleeping well and feel great," then I wouldn't treat it.

Restless leg is essentially an individual that usually in the evening, when they're sitting down watching the news or their favorite television show, will feel discomfort to the point where they don't want to sit still anymore. A lot of times the patients are not as aware of it as the partner. The partner will tell them, "Please sit still. You're moving around so much. Just calm down. You're annoying me because you're moving around so much."

These individuals often really struggle with long car rides at night or a transatlantic flight, the red-eye flight, when they're boxed in between two passengers next to them. They just don't like to sit still.

It often runs in families. About 70% of those people, when they go to bed, will have these tiny little periodic movements of their leg that are very benign and very small, but they're very upsetting to the quality of that person's sleep.

A lot of these people will not describe themselves as having restless leg. They'll describe themselves as having insomnia, but if you talk to them and ask them, "What's it like to sit still for a long movie, or if you're in a church service in the evening and it's crowded and somber?" They'll tell you, "Oh, it's just murder for me to sit still."

It's a very difficult thing for them describe, but when they recognize it, it's a real light bulb that goes off. There's FDA-approved medications for it. They can be, again, just absolutely life-changing.

Dr Ron Ehrlich: Now, Chris, we're just about to finish, and we've had two great ... It's been terrific talking to you. We're going to have links to your book. That's The Sleep Solution on our website. But if you had to leave our listener who's now accepted, like you and I both agree, sleep's the most important part of the day, what would be your three, four, five tips for them to get started?

Dr W. Chris Winter: I would say tip number one would be if you're struggling a bit with your sleep, the most important thing to me is to have a set wake time, meaning that

there's a lot of people out there that when they have a difficult night of sleep, they give themselves a little get out of waking up free certificate. If the night is bad, they sleep in until around 9:00 or 10:00. If the night is good, then they're up at 7:00 to go to the gym.

To me, it's really important to control that wake time. You want to have a conversation with your brain, and that conversation is, "Look, sleep well or don't sleep well. I don't really care. Either way, we're going to get up at 7:00." A set wake-up time is very important.

Number two, napping to me is reserved for people who sleep well, but need a little touch up at some point in the day. If somebody says to me, "Look, I sleep great, but every now and then I'm a little bit tired during the day, so I have to take a little 15, 20-minute nap at the office," great.

Napping is not for the person who says, "Look, I had a really bad night last night. I woke up at 2:00 in the morning, I couldn't get back to sleep. My sleeping pills didn't work. When I got home from work, I took a three-hour nap." It's really important, again, to not create that situation where when there's dysfunctional sleep at night, we introduce sleep during the day. I think that's very important.

Number three, I think from a holistic approach, let's not look at sleep as something that just happens eight hours every 24, but really the process of sleep is always happening in some way. We're either getting ourselves ready to sleep, we're experiencing the benefits of sleep. In addition to waking up at the same time every day, let's really try to exercise maybe in the morning at the same time every day, trying to get natural light.

Can we have meals that our brain can expect at about the same time every day with consistent sleep-promoting nutrients? It's really more than just the I-go-to-bed-I-wake-up kind of thing. An individual who always eats breakfast, lunch, dinner at the same time, gets lots of natural light during the day, exercises, controls their light, controls their exposure to electronics before they go to bed is going to be a much healthier and sound sleeper. Look at your entire 24 hours, not just when you go to bed.

I guess the last thing I would say is when the books fail or the podcast fails, find a true sleep physician near where you are and talk to them about it. Maybe consider a sleep study. There may be something going on with your sleep. It's just not going to be something you're able to control by yourself.

Dr Ron Ehrlich: Wow, Chris. Fantastic.

Dr W. Chris Winter: A sleep study is nothing to hear. Nothing to fear at all.

Dr Ron Ehrlich: Yeah. I love also the term that you used, and that is create a culture of sleep, which is basically the stuff that you just covered. It's been just fantastic talking to you. As I said to you last time we spoke, I love the book. Not only is it so practical and so full of exercises and so many aha moments, but it's also, dare I say, a very entertaining book. I got a lot of laughs out of it. I've so enjoyed talking to you today. Thank you so much for joining us, Chris.

Dr W. Chris Winter: A pleasure, Dr. Ron. I really value your time and really appreciate your listeners' time. Thank you very much. I'm glad you enjoyed the book. I'll sleep better tonight knowing that.

Dr Ron Ehrlich: Thanks. Great tips, interesting perspective. Keep a set wake time, think holistically about your sleep, not just night-by-night, but make it a part of your whole day. See sleep in a broader perspective, about what you're eating during the day. Are you exercising? Are you getting out in the sun?

Taking control of your relationship with electronics. Boy, is that ever a big topic, a big challenge? It's not just about the light and melatonin, but it's about your mind actually being wired. Is your mind connected to the world when you're going to sleep, but not connected with your pillow? I mean that's where it should be.

It was interesting also to hear him talk about napping. If you have to nap, yeah, 20 minutes is fine, but not if you continually need to do that. Seek professional help. As Chris mentioned, sleep studies are not something to be scared of. They can actually save your life.

Then again just because you don't have a diagnosable problem like sleep apnea, like obstructive sleep apnea, you don't just dismiss it and say, "Oh, well. That's just me. That's the way I sleep," it doesn't mean that you can't sleep better. You can. We've had a couple of consultations now with two sleep physicians, Dr. Anup Desai and Dr W Chris Winter. I just think it's interesting to get their different perspectives.

I also really like Chris. Now his book is fabulous, but his focus on resting rather than just referring to it as sleep is really important, because when you think sleep's really important and you're not sleeping, you can actually get really stressed out worrying about the fact that you're not sleeping. It perpetuates itself, making it more difficult to get to sleep. I love this idea of focusing on resting.

In his book, we'll have the links to it on our webpage. You've got to have a read of it because he's got some great tips about that, which, as I said, are not only informative but, gee, you'll get a good laugh out of it as well.

If you are serious about taking control of your health and you're wondering why I'm focusing so much on sleep, it's because I believe that sleep is actually the best place to start, to start getting a consistently good night's sleep and make it a priority, making it part of your life, because it's not only hormones that get out of balance, and I'm talking about thyroid hormone, which controls your entire metabolism, there's a hormone, as he's mentioned, ghrelin that controls how hungry you are. That goes up when you're not sleeping well, and you make some crazy decisions about what you're eating.

Leptin's another hormone we don't hear about, but it's actually involved in fat metabolism. Leptin goes down when you don't sleep well and you don't metabolize your fat as well and, hey, guess what? You get fatter. There's the whole insulin story and there's growth hormones, and every indicator is affected.

Take it seriously. Find out if you've got a problem. If you've covered all the bases about sleep hygiene and all that and you're still not sleeping well, don't ignore it.

Now I just wanted to finish with a word for the partners who have to put up with people snoring. Now stay with me on this, the logic of this. I think it's quite important. Now if sleep is the most important part of the day for the mental, physical, and emotional well-being of not just you but also of your partner, so if you've accepted that and you're lucky enough to share your bed with somebody who you love and presumably care about their health, too, then disturbing their sleep compromises their health. Don't dismiss it, take it seriously.

Overall, the message is create a culture of sleep in your life. Until next week, this is Dr. Ron Ehrlich. Be well.

You can visit Dr W. Chris Winter website here. Or buy his book The Sleep Solution here.