

**Dr. Ron Ehrlich:** Hello and welcome to Unstress. I'm Dr Ron Ehrlich. A theme you are going to always hear on this podcast, one that needs a constant reminder is sleep. Sleep is without a doubt, the most important part of the day. Over the last 15 years or so it's become an important part of our healthcare program in [our practice](#). In fact, I would imagine any health practitioner of whatever persuasion, be they Medical Practitioner, Naturopaths, Chiro's, Osteo's, whatever - If sleep is not part of the questions that you are asking your patients, or it's not something you're focusing on then it's more than likely you're not focusing on it in your own life, because that's how I came to it.

I mean, when I realized 15 years ago how important sleep was, something which I'd taken for granted for a hell of a long time, I realized the difference it could make. But anyway the questions are, "What is a good night's sleep?" And "What actually defines a good night's sleep?" And "What are some of the steps you can take for it to really happen?" And the key word here is consistently good night's sleep. Just getting one good night's sleep here and there is really not what it's about. I think getting a consistently good night's sleep will help you build the mental, physical and emotional resilience that you need to face the stresses of our modern world.

Now, Anup Desai is the Sleep Physician that I have been working with for many years and you'll be surprised to hear the amount of training that goes into a Sleep Specialist. I mean, many of you may not have heard of this as a specialty, but Sleep Physicians are a specialty and the amount of training that Anup has gone through is kind of mind-boggling, really. It also is going to be insightful just - We're going to cover some problems later on in the podcast - We're going to take a break in the middle of it and I'm going to ask you three key questions. But I hope you enjoy this interview that I had with Dr. Anup Desai.

Welcome to the show, Anup.

**Dr Anup Desai:** Thanks, Ron.

**Dr Ron Ehrlich:** Now Anup, you and I would both agree that arguably sleep's the most important part of the day, but not everybody sees it that way. Perhaps we could tell people why sleep's important.

**Dr. Anup Desai:** Yeah, Ron. Sleep is clearly an extremely important part of the day and it's often a neglected part of the day. At least in the sense that people don't think of it and realize the importance. We all sleep. We often sleep too little or without good quality. We don't recognize that that actually is a key to how we function during the day and to our overall health.

**Dr. Ron Ehrlich:** Now, what actually defines a good night's sleep? I mean, people think putting their head on the pillow's enough.

**Dr Anup Desai:** Yeah.



**Dr Ron Ehrlich:** What defines a good night's sleep?

**Dr Anup Desai:** Yeah, no that's a good question. So a good night's sleep has a whole lot of different aspects to it. So firstly, you need to progress through the different sleep stages. There's a whole lot of defined sleep stages from non-REM sleep to REM sleep, different abbreviations to describe different aspects of sleep. So we want to see people progress through the non-REM and then the REM stage several times overnight. Then we want to see enough time for sleep, adequate duration for sleep. As a society, we're increasingly sleep restricted for lots of reasons that many of us can imagine and a lot of people don't get enough time for sleep and therefore that's inadequate.

And then the final aspect of good sleep is not having any sleep fragmenting condition, having a sleep disorder that's disturbing that quality. So there's architecture, quantity, and quality.

**Dr. Ron Ehrlich:** Okay. Now you mention REM and our audience is a non-medical audience, so just go back to some basics here, REM and non-Rem.

**Dr. Anup Desai:** So REM is our most vigorous dreaming stage of sleep. It's rapid eye movement sleep. During that stage of sleep we're dreaming, we're paralyzed, our eyes are moving and that's why we call it REM and we're breathing just with our diaphragm. So all of our muscles have turned off, there's very active dreaming and the eyes are moving. It's important for memory consolidation, in particular. Some hormone secretion perhaps is happening in REM, but most importantly it's for memory consolidation and if you don't get adequate REM you may find your memory the next day, or even the long-term memory is impaired.

**Dr. Ron Ehrlich:** Do you have to go through ... Now you've said the non-REM, that's the initial stages of sleep. Is that right? Are they the early stages of sleep? The non-REM?

**Dr. Anup Desai:** Correct. Usually, a person will cycle between ... starting with non-REM, Stages 1 and 2 of non-REM and then move into Stage 3, and then they go to REM and that whole cycle takes about 90 minutes or so.

**Dr Ron Ehrlich:** Right.

**Dr. Anup Desai:** And then that will happen four or five times overnight. So the correct sequencing is non-REM, REM, non-REM, REM, non-REM, REM, non-REM, REM, non-REM, REM. As we age the proportions of non-REM and REM change. Kids, in particular, get a lot more slow wave sleep or one of the non-REM stages but as you get older you get less of that with time.

**Dr. Ron Ehrlich:** So everybody has ... I mean according to age, everybody has a different requirement. What is that range? I mean, young kids might ... I've now got a granddaughter who's two years old. Children ... how much should they be sleeping?

**Dr. Anup Desai:** Yes, so sleep duration changes with time and kids in particular need a lot of sleep and a lot more sleep than they often get. And then adults need a little bit less. So as an adult, we need about 7-9 hours sleep per night -

**Dr. Ron Ehrlich:** And that's over 18 years old, would you call an adult or -

**Dr. Anup Desai:** Yep.

**Dr. Ron Ehrlich:** Okay.

**Dr Anup Desai:** So what they've done is, they've done studies where they've asked adults to stay in sleep laboratories for weeks at a time and they've let them sleep as much or as little as they like and what they've found is for the first few days, maybe a week, they were sleeping about 10 hours a night. They were catching up on all the so-called sleep dep. Then they averaged about 8.14 hours was ... So we thinking people need about 8 in general, however, there is some individual variability and that's why I've said 7-9 is roughly the amount of sleep an adult needs.

Kids need more. So like a 12-year-old will need about 10-11 hours sleep.

**Dr Ron Ehrlich:** Right.

**Dr. Anup Desai:** And as they get younger they need even a little bit more, so durations do change with time. The amount of sleep is really quite important and that's the bit that gets restricted in general at a society level.

**Dr. Ron Ehrlich:** And you also mention the sleep architecture. Now duration's one thing and getting enough of that is important. When you say architecture, what did you mean by that?

**Dr. Anup Desai:** So the architecture is that progression between non-REM and REM, non-REM and REM, and some medications will disrupt that or reduce, for instance, REM sleep. And others might increase slow wave sleep. So the exact effect of change in all those different stages of sleep is not well understood, but we do recognize that people with good sleep quality do progress quite nicely between these different sleep stages.

**Dr. Ron Ehrlich:** And is it important to get uninterrupted sleep? Like, you know, we're meant to get 7-9 hours sleep a night -

**Dr. Anup Desai:** Yeah.

**Dr. Ron Ehrlich:** To go from point A to point B uninterrupted. Is that a-

**Dr. Anup Desai:** Not absolutely uninterrupted. It's normal to wake up overnight. So many times, in fact, your brain wakes up and has these sort of micro-arousals that you're not aware of. But what you may be aware of is a so-called macro-arousal where you wake up completely with alertness. Maybe at that point, you might go to the bathroom or maybe you'll

just be aware of restlessness in bed. It's normal to wake up one, two or even three times overnight, but the real issue is whether you fall asleep again quickly. So if you wake up transiently and maybe go to the bathroom and then just drift back off to sleep, then that's not a problem. But if you wake up and can't get back to sleep, that is suggestive of a condition called insomnia which is its own sleep disorder in itself.

**Dr. Ron Ehrlich:** Yes. What defines insomnia? I mean, everybody has sometimes when they go through stages of having trouble getting to sleep, but how do we define when it becomes a problem?

**Dr. Anup Desai:** So insomnia is very common. As you mention, we've all experienced it and it can be acute, it can be transient, it can be chronic. So the main insomnia issue that is clinically important is probably chronic insomnia, which is essentially defined as difficulty falling asleep or difficulty maintaining sleep. So difficulty falling asleep is when someone may take more than 15, 20 minutes, 30 minutes to fall asleep. Difficulty maintaining sleep is when they wake up and can't get back to sleep, which is what I was just talking about. Or they may have frequent arousals overnight where they're just waking and it's happening too many times and it's disturbing to them or they have what we call early morning awakening where they sleep from say 10 pm to 4 am but then can't fall asleep after that. So that's early morning awakening. So they're all different types of insomnia if you like.

The other important thing about insomnia is it's associated with daytime distress. So if a person is waking up overnight and they're not bothered by it during the day, it's not really an issue. But if it's happening overnight and the next day they're fatigued, they're tired, they're obviously disturbed that they're not getting a quality sleep, then that's what we call insomnia. We define chronic insomnia as when it's occurring several nights per week over a period of time, say 1 month, 2 months or 3 months.

**Dr. Ron Ehrlich:** And how common a problem is it?

**Dr. Anup Desai:** It's very common. I mean we've all had it acutely. In terms of chronic insomnia, it will depend on the population. It's a bit more common in the elderly but it could be anywhere from 10-25% of the population. Again, it just depends on how we define it and the degree of daytime disturbance that we associate with the definition, but essentially it would be easier to call it you know, 10, 20% of the population.

**Dr. Ron Ehrlich:** And what kind of percentage of the population do you think are getting enough sleep? Going back to just our basic sleep. How big is a problem not sleeping well?

**Dr Anup Desai:** Yeah. No, that's a good question. So in terms of duration, I think only a handful of people are getting adequate duration. So probably at a guess, 20-30% are getting enough hours that they need and they're not getting enough because of the obvious things. 24-hour operation of industry and services, work commitments, family commitments, social commitments, all these gadgets we now have, if we use them in bed, their phones, their iPads, their laptops. So always there's a way of reducing the time available for sleep and that, of course, leads to sleep restriction and not enough duration.

Kids have many activities, they're staying up later for various things. So I think that's really quite a common problem that's unrecognized and easily addressed when we start to educate people. In addition, there's a whole group of sleep disorders, of course. Now obstructive sleep apnoea can be as many as 25% of middle-aged men.

**Dr Ron Ehrlich:** Wow.

**Dr Anup Desai:** 10-15% of middle-aged women and that's based on older prevalence data and now the populations have changed with more obesity and it actually could be a lot higher. Insomnia we talked about could be 20%. To be honest, I mean from a sleep perspective it's hard to imagine that there are many people who are ticking all the boxes.

**Dr Ron Ehrlich:** Right. And you also mention that when you have a deficit ... If you haven't been sleeping well, you've got a lot of sleep to make up. It's like putting money back in the bank.

**Dr Anup Desai:** Yeah. In fact, it's ... A lot of people think they can manage with small amounts of sleep but the reality is they can't. So what studies have shown is that if you say, sleep for 5 hours per night for a week, your performance say on tasks that we might measure - reaction time, task memory, verbal tasks keeps deteriorating throughout the week and goes up and then even if you have 1 or 2 nights of catch up sleep, say on a weekend, because a lot of people will sleep restrict during the week and try and sleep in on the weekend. That's not enough to catch up those 7-10 hours of lost sleep during the weekday. So their performance does not improve to baseline levels. So a catch up of 1 or 2 nights is not enough.

That sleep in on the weekend is not enough and if anything I think that creates more problems because what it does is it shifts your sleep rhythm to later in the day because you start to go to bed maybe later, wake up later and that's what we call a delayed sleep phase and by the time you get to Monday when you need to wake up at 6 or 7 in the morning again, your whole sleep rhythms moved further to later in the day and it's even harder to wake up in the morning. And I think that's one of the reasons why people get used to the Mondayitis where Monday's just a bit of a disaster in the morning. They feel really groggy.

**Dr Ron Ehrlich:** You know, I've heard of a study where people who sleep 3-4 hours a night. They know they're not getting enough sleep, but it's the group that sleep says, well as you said, 5 or 6 hours, or 6 hours a night which is kind of borderline ... People think they're getting enough, but in fact, they perform quite poorly as well.

**Dr Anup Desai:** They do. And they might have poorer memory, ability to express themselves, they may have poorer reaction time on simple tasks ... Things like driving may not quite be as accurate. Some of the changes can be subtle. It's not that they're falling asleep all the time, but they're just generally not functioning well. They might feel they're a bit foggy. They might find their attention lapses easily, so they may not pick up on the signs of decreased alertness or tiredness and often when these people improve their sleep,

whether it's a medical condition or adequate duration, they suddenly realize, "Wow. I can be so much better."

Because they get used to, of course, the poorer quality. So a lot of people think they're getting away with it but they're not really. The changes can be subtle but important.

**Dr Ron Ehrlich:** And I do want to talk about some of the sleep problems, but poor sleep can lead to a whole lot of health issues. What are some of those things that people should be concerned about?

**Dr Anup Desai:** So we've talked about some of the cognitive impairments you get. Conditions like sleep apnoea are associated with hypertension. They will cause hypertension if they're untreated and undiagnosed. They'll increase your risk of heart attacks and strokes. They can contribute to Insulin resistance and even diabetes. There's a higher mortality in some of the sleep apnoea groups and even in some of the short and long sleepers. So in studies that have looked at sleep duration, people that sleep too little or too long have a higher mortality. Now there may be various reasons for that and there may be some confounders in the study, but that's statistically been shown in several studies. So there's a whole lot of manifestations of these sleep disorders for mortality, to vascular, to metabolic problems to sort of more mental and concentration problems and even, of course, things like driving.

**Dr Ron Ehrlich:** Well that's a topic I know you're very ... You've done a lot of work on, but the other one that often surprises me is when I'm taking a history and people have been on antidepressants for so long and yet no one has ever looked at their quality of sleep. Which I mean, if I don't sleep well for a week I start to feel a little less ... I feel a bit down. So that must be a huge problem as well.

**Dr Anup Desai:** Absolutely. So there's a big relationship between sleep disorders and mental health. Increased risk of anxiety and depression and people are more refractory to managing their anxiety and depression if their sleep is not controlled. So it's exactly like you say. If you're not sleeping well, you could be more irritated, more anxious, your ability to tolerate stress and to manage your mood is impaired and of course, you can have low energy and sleepiness and that overlaps with the symptoms of depression, too.

**Dr Ron Ehrlich:** Now I was reading another study recently about the link between poor sleep and dementia because of this new system we've found because they never used to think that the brain had a lymphatic system. You know, that drained out all the waste products, but in fact, they have found that it has, and sleep's a pretty important part of it.

**Dr Anup Desai:** Yeah, so there are studies coming through now to say that untreated sleep disorders are associated with a higher risk of dementia. So it's early days. It's often association studies, but you can easily see the relationship between sleep and we've talked about this daytime function in terms of how people think and therefore dementia. And certainly, already we're starting to get lots of patients from Neurologists or Geriatricians to screen and assess for sleep disorders because they're demented or dementing or they've got early dementia. And you can imagine when you're in that situation, these patients that are

otherwise quite functioning ... They're scared about their mental cognition. They'll do anything to get better and to stave off that dementia or to reduce the likelihood of it happening, so it's a real concern for patients when they think they're facing dementia because their Doctor said, "Listen. You're starting to perform badly on these tests or there's a strong family history." They're really looking at their sleep as one way to improve how they can perform during the day.

**Dr Ron Ehrlich:** Yep. Now you're a Sleep Physician. And a lot of people aren't familiar with a Sleep Physician. What was the professional journey that got you to this point?

**Dr Anup Desai:** Yeah, so Sleep Physicians are medical Doctors, so obviously I did Medicine. That's the basic medical degree and then I did what's called Physician training. So that's a Specialty training where you end up as a General Consultant Physician. You learn all aspects of medicine from Cardiology, to Respiratory, to Gastroenterology. But then I sub-specialized in Sleep and Respiratory Disorders, so two sub-specialties but they're closely related because some of the sleep disorders are breathing disorders. And then I did a Ph.D. in Sleep Medicine and then a Post Doc overseas, so it's been a long journey to get where I am.

**Dr Ron Ehrlich:** Yeah.

**Dr Anup Desai:** And as I tell my poor son who complains about studying for Year 7. I said, "You know what? When I finished Year 12, I did 17 more years of study and then I was at the bottom."

**Dr Ron Ehrlich:** Yeah, yeah. That was the beginning of your career. That's where you started from.

**Dr Anup Desai:** 17 years post-school. So a lot of time thinking about sleep, yes.

**Dr Ron Ehrlich:** Yeah, yeah.

**Dr Anup Desai:** So I'm glad I enjoy it.

**Dr Ron Ehrlich:** But now you did your Ph.D. in the connection between accidents and ... Wasn't that right?

**Dr Anup Desai:** Correct.

**Dr Ron Ehrlich:** Tell us a bit about that.

**Dr Anup Desai:** So the Ph.D. was in the prevalence and the effects of obstructive sleep apnoea in commercial drivers ... truck drivers.

**Dr. Ron Ehrlich:** Right, right, right.

**Dr Anup Desai:** And it was based on the Australian transport industry which is obviously a big area in terms of driver fatigue. Transport drivers and truck drivers in

particular, they tend to be middle-aged, overweight male. I'm speaking statistically from the studies and that's got an association with a much higher prevalence of obstructive sleep apnoea, hence they're more likely to have driver fatigue and fall asleep ... Road accidents.

**Dr. Ron Ehrlich:** Yep.

**Dr Anup Desai:** Just from the sleep apnoea perspective.

**Dr Ron Ehrlich:** Right.

**Dr Anup Desai:** So the study looked at how common that was and what the implications were and with a view to try and treat these people with that.

**Dr. Ron Ehrlich:** Yep. Now we're going to talk again about some of these sleep disorders, but for people who are wanting to get a good night's sleep, what would be your top ... I don't know, how many? Six, eight, or five or three top tips about getting a better night's sleep.

**Dr. Anup Desai:** Yeah, look it's tricky but I think that the first thing is just to recognize sleep is an issue. Start to understand the importance of sleep. It's just the awareness that we need to make time and respect sleep. So respect your bedtime. Respect your sleep time. So the number one tip would be, allow enough time for sleep and don't let other things intrude on that time, including technology, for instance.

The second issue ... I guess the bigger issue is if you are having a lot of troubles with sleep ... Difficulties falling asleep or you feel like you get adequate hours but you're still tired and sleepy during the day, go and seek help because there may well be a genuine sleep disorder in there that needs to be addressed.

So both of those tips if you like, around awareness and understanding that there can be issues. But from a simpler perspective, you need to create an environment that's conducive to sleep. You need to have your bedroom free of distractions. It's not a general work activity area where you've got your ... You know, computers and you listen to music for long periods and you're listening to podcasts the whole night in bed, as good as they are. It needs to be a place of rest where your mind learns to associate the bed with sleep and it's more likely to fall asleep.

You need to make sure that it's private. That you've got light and outside noise controlled. Generally, you want a lower temperature in your room. You don't want it too hot in order to help you drift off to sleep. You want to think about things like exercise. We generally think morning exercise is most conducive to good sleep at night time. Some people can get away with exercise late in the evenings and it doesn't interfere with sleep, but many others will find that if they exercise too late it raises their metabolic rate, it raises their temperature and it's harder to wind down and fall asleep.

I think people need to allow themselves a bit of a wind-down routine or wind down time at least where they've stopped doing other more alert learning activities. Whether it's work-

related or another family related and they've just got half an hour or an hour where it's starting to set the scene for sleep. So there's probably a whole lot of little things in there that people need to consider. It's all about respecting and understanding that sleep is important.

**Dr Ron Ehrlich:** Great. Look, we're going to get you back and talk about some of these sleep disordered breathing conditions that you mentioned, but it's given our listeners a good appreciation of what I think we started this with, and that is that we think sleep is the most important part of the day. So thank you.

**Dr. Anup Desai:** No problems. Thanks, Ron.

**Dr Ron Ehrlich:** So I think we've covered some really interesting stories about the basics of sleep. What a consistently good night's sleep is and in our practice and I think this is a question ... Three questions that are obviously very important to be asking on a regular basis. We do that. You know, in our practice we're not only checking whether people are brushing or flossing. We are a dental practice, but we also ask them these 3 questions. And they are:

Is it easy for you to fall asleep at night? Yes or no? Do you wake up through the night? Yes or no, and often people will tell us that they wake up to go to the bathroom. There is a surprising link here between getting up at night to go to the bathroom and how well you breathe while you're asleep. And finally, and most importantly, we ask the question, Do you wake up feeling refreshed? So they're the key questions and I think, as I said to you at the beginning of the podcast, my own story ... I mean I'd been snoring for years. Snoring in my 40's and I'd always dismissed it as my wife's problems, not my own and it became a bit of joke until she said to me that it had got so bad that I actually had to move out of the bedroom.

And so her problem suddenly became my problem and I really never considered myself as sleeping badly at all, I just snored. So I actually did something about it and what I did about it was got a mandibular advancement splint. It's a plate that fits in the mouth and there are all sorts of ways of treating snoring. This is one of them and so I got this splint and some amazing things happened.

Firstly, I stopped snoring which was great because I regained my place in the bedroom which was a great relief to me. But more importantly, well just as importantly, I guess, I suddenly realized what a good night's sleep was. For years I just assumed this was the way it was and this was how I slept, but after I stopped snoring, meaning my airway wasn't being blocked by my jaw and tongue dropping back to the back of the mouth, I thought, "Wow. I actually have had a great night's sleep and I have got so much more energy." And there's no doubt I've got enough energy to do all the things I'm doing. So that was the really big break from moment for me.

But of course, if you accept that sleeping is the most important part of the day for a person's health and if you are fortunate enough to be sharing a bed with somebody who you love and care for and you care for their health, then your snoring is not something to be dismissed. And what happened apart from the fact that I stopped snoring and I felt better, was my wife

had unbroken sleep and she felt better and she was just a lot healthier and happier for that. So that's something that I wanted to share with you as a story.

Now the other thing is, we're going to talk a little bit about sleep studies, but in this next section we're going to go into some of the problems that can occur when you're not sleeping well.

Welcome back, Anup.

**Dr. Anup Desai:** Thank you.

**Dr. Ron Ehrlich:** We spoke last time about sleep being the most important part of the day and covered some basics. We mentioned also some sleep disordered breathing conditions and I know one of them is snoring, which a lot of people just dismiss as, "Oh, that's a bit of a joke. It's her problem, not mine." Can you tell us what the significance of that and other sleep disordered breathing conditions are?

**Dr. Anup Desai:** Sure, thanks, Ron. Look, there are many sleep disorders and often the focus is just on conditions like snoring and even breathing disorders, but it is important to realize there's a whole range of conditions and we may talk about some of them today.

But essentially snoring is obviously a noise issue and it affects relationships and it affects partner dynamics. But it's also an important clue that there may be a serious narrowing of the airway that's causing your problem. So snoring is a symptom of obstructive sleep apnoea. With snoring, there's partial narrowing of the airway to create turbulent airflow and vibration and the noise of snoring, but with obstructive sleep apnoea the airway closes off completely in sleep. So there's a fine line between a narrow airway that's snoring and a completely blocked airway, which is sleep apnoea and if you have this completely blocked airway or sleep apnoea, your brain has to wake you up to re-breathe. So people end up with disturbed sleep quality.

They end up with tiredness and sleepiness, and they can end up with a whole lot of long-term ill health outcomes like blood pressure, increased risk of heart attacks and strokes, increased risk of arrhythmias, diabetes, and even high mortality. So snoring is a clue that you could actually be having obstructive sleep apnoea. Not everyone that snores has sleep apnoea but it's certainly one of the cardinal symptoms and it's a clue that patients may well need further investigation to rule out [inaudible 00:25:12] sleep apnoea in order to improve how they feel during the day and also their long-term health.

**Dr. Ron Ehrlich:** REM, rapid eye movement, and non-rapid eye movement. When people snore or have obstructive sleep apnoea, do they go into those deeper levels of sleep?

**Dr. Anup Desai:** They generally do, but in the severe cases they may lose REM sleep or find that they've got less of it or a lot more broken REM sleep. And that's because in REM sleep the muscles are most relaxed and you're most likely to block your airway. So it's

really severe breathing disordered cases ... People just lose REM or the REM's delayed and then when you put them on treatment you see what's called a REM rebound, so if we do a sleep study on treatment, we see suddenly all their REM sleep reappears.

**Dr. Ron Ehrlich:** Right. Now just to remind our listeners that the REM was when we almost become paralyzed. We're only breathing from the diaphragm. All our other muscles go slack.

**Dr Anup Desai:** Correct, yes.

**Dr. Ron Ehrlich:** So...

**Dr. Anup Desai:** It's one of the deeper, more important stages of sleep, particularly for things like memory.

**Dr. Ron Ehrlich:** Now you mention there are other sleep disordered breathing conditions. We know about ... We talk a lot about snoring and obstructive sleep apnoea or OSA. Just touch on some of the other things. I mean, how big a problem is this?

**Dr. Anup Desai:** Sure. So we've got central sleep apnoea, which is a condition where people also stop breathing in their sleep, but it's not because their throat blocks off. It's because there's no drive for breathing. They just don't make the effort to breathe. So with obstructive sleep apnoea, the airway blocks off behind the tongue and they're still trying to breathe but with central sleep apnoea, they're not even trying to breathe. Now people with heart failure, people with strokes, people on certain medications, high altitude ... There are various conditions that cause central sleep apnoea and that in itself can cause poor quality sleep, poor brain arousals and tiredness and sleepiness.

It's an important differential of obstructive sleep apnoea and needs to be considered in the way we treat sleep apnoea. So that's another big breathing disorder. The other one that's worth talking about is hypoventilation. So hypo-

**Dr. Ron Ehrlich:** That's less.

**Dr Anup Desai:** Less ventilation, yes.

**Dr. Ron Ehrlich:** Hypoventilation. Yeah, go on.

**Dr. Anup Desai:** So some people when they're asleep just don't breathe enough. So they're not blocking their airway. They're still trying to breathe, so they've got that drive, but they're just under ventilating or under breathing and it might happen because someone's very overweight. It might happen because of medication. It might happen because they've got some kind of chest wall or structural deformity that limits the mechanics of breathing. So there's a whole lot of different conditions. It can also cause ... That in itself is disturbing. It can cause poor quality sleep, tiredness. But it can also lead to heart failure. What we call right heart failure. You start to put a strain on the heart because of the underventilation and that then leads to fluid retention and all sorts of long-term health outcomes. So there's a range of

different sleep disorders and there are a few others that we won't go into, but essentially it is important to know what type of breathing disorder is going on and to treat it appropriately.

**Dr. Ron Ehrlich:** And it's not necessarily ... I mean the archetypal, as you mentioned the last time we spoke ... The archetypal obstructive sleep apnoea person is an overweight middle-aged man, but it doesn't have to be that way, does it? I've seen young ... And I'm sure you've seen much more than I have, young women who are not overweight or even children?

**Dr. Anup Desai:** Absolutely, yes. So it is classically thought of as middle age overweight male but you're absolutely right. There are other patient groups. So there's also the post-menopausal woman, in particular, is a classic sleep or peri-menopausal/post-menopausal woman is a classic sleep apnoea scenario and that relates to the way the sex hormones change around that time. The body fat distribution changes and they just have this increased tendency for obstructive sleep apnoea.

But the other big group is the craniofacial abnormalities that predispose to obstructive sleep apnoea. So we see this particularly in certain families or in South East Asians where they have a narrower airway due to the way their jaw and their mandible, in particular, is located and positioned. And that leads to a narrower airway through bony structure and an increased tendency to block off. So we see higher levels of obstructive sleep apnoea in the South East Asian group in particular, at lower levels of obesity and I'm sure that's a group that you would see a lot too. And that can be a really hard group to treat because they're often younger, presenting with symptoms, signs and a diagnosis of sleep apnoea and it's largely due to bony structure. It's not a weight dependent thing for which they could work on.

**Dr. Ron Ehrlich:** Well, you know, in our practice one of the things that I've observed for years is that 95% of the population don't have enough room for all of the 32 teeth we've evolved to have. Which means we've got a lot of people out there with very narrow or crowded teeth or narrow jaws, and that means they've got a narrow upper airway.

**Dr. Anup Desai:** Yes.

**Dr. Ron Ehrlich:** So they're kind of predisposed to it, particularly when you factor in the modern lifestyle we lead.

**Dr. Anup Desai:** Correct, yes.

**Dr. Ron Ehrlich:** So it's an issue, isn't it? That's part of it.

**Dr. Anup Desai:** It's an issue and it's very common...

**Dr. Ron Ehrlich:** Now when you refer to a Sleep Physician you often will be referred for a sleep study. Can you tell us what a sleep study is and what it measures?

**Dr. Anup Desai:** Okay, so a sleep study is basically measuring the quality of a person's sleep with particular reference often to breathing. So we put in what we call EEG

leads or electroencephalogram leads on the brain so we can actually see the brainwaves and determine whether their asleep or not and the stages of sleep that we talked about before.

**Dr. Ron Ehrlich:** Because in the deep levels of sleep their brainwaves reflect that deeper level of sleep.

**Dr. Anup Desai:** Correct. There's a different pattern to it and us actually at the same time measure their eye movements. So we can see very easily if it's rapid eye movement sleep versus non-rapid eye movement sleep and also how much sleep is going on. So that's a really key aspect of a sleep study, those brainwaves, and the eye movements. We also measure breathing measured by a little cannula in the nose. Also by bands across the chest, so we can see the distinction between airflow and effort. We look at oxygen levels. We look at body position. We do a heart rate monitor. We often do a leg sensor for leg movements. There's a whole lot of physiological different recording leads that we put on a patient to measure how much sleep, what the quality of sleep is and whether there are breathing disturbances, in particular, affecting that.

We can literally measure every single breath and we can see if it gets blocked and then the exact effect of that on the brain. Does your brain wake up for instance?

**Dr. Ron Ehrlich:** Yep.

**Dr. Anup Desai:** We can see what position it is. We can see what happens to the oxygen levels. So it's an incredible amount of data, an incredible detail of data in fact.

**Dr. Ron Ehrlich:** And from that we ... I mean if it's obstructive sleep apnoea, it's often categorized as either mild, moderate or severe. We talked about a patient who gets too much sleep and I know I had a patient recently when I asked her, "How do you sleep at night?" She said, "Oh Ron. Not a problem. I can sleep anywhere, anytime. I sleep 12 hours a day. Sleep is not a problem. I'm just chronically tired." This was [crosstalk 00:32:01] So actually not getting enough sleep is one thing, but getting too much sleep and still being tired is another. Isn't it?

**Dr. Anup Desai:** Absolutely. Yeah. So that's an interesting description because she obviously just doesn't get the fact that she's sleeping too much and that in itself is a problem.

**Dr. Ron Ehrlich:** Yep.

**Dr. Anup Desai:** If a person sleeps 12-16 hours a day they may think they're fine but clearly that is a disorder if you like. We have names for these conditions too, so a lot of people find that very disruptive of course because they can't do anything else. So they will come and we will diagnose various sleep conditions in that situation. But to sleep that amount and still be tired, of course, does raise the possibility that there's a condition that's disturbing the quality of her sleep as well. So no matter how much sleep they get, the quality is still poor and hence they're tired the next day.



**Dr. Ron Ehrlich:** Which is the airway?

**Dr. Anup Desai:** Which could easily be the airway, yeah. But I think that case really just demonstrates how little people understand about sleep. If they think that is just okay.

**Dr. Ron Ehrlich:** Yes. Well I mean, you know, I get patients come to me for chronic fatigue thinking they need their amalgams out and some of them may well need that out, but when I ask that question ... And I remember actually ... Now you may not remember this Anup because Anup and I have worked together for several years so we have shared some patients. And I did send her to you and she ended up with an AHI index which was about ... Well, explain the AHI index.

**Dr. Anup Desai:** That's your measure of sleep apnoea, so that's basically the number of blocked airway events per hour of sleep.

**Dr. Ron Ehrlich:** Yeah. So either restricted or completely blocked?

**Dr. Anup Desai:** Yes.

**Dr. Ron Ehrlich:** Okay.

**Dr. Anup Desai:** Yeah. So it doesn't have to completely block for us to think it's important because even just the almost closures cause brain arousal and drops in oxygen levels.

**Dr. Ron Ehrlich:** Yeah. Well, she had ... And I mean just to put it in perspective, what is the measure ... If you have 5-15 of those episodes an hour, then that's mild. And if you have 15-30 episodes of obstruction or restriction that's moderate and over 30 is severe. She had 58.

**Dr. Anup Desai:** Wow, there you go.

**Dr. Ron Ehrlich:** Even though there are only 60 minutes in an hour, I don't know when she was breathing. You know -

**Dr. Anup Desai:** Well, she's not. Every minute she's blocking and remember we don't even rate a blocked airway until it happens for more than 10 seconds.

**Dr. Ron Ehrlich:** 10 seconds, yeah.

**Dr. Anup Desai:** And the average durations probably closer to 20, so for a third of the night she's just not breathing.

**Dr. Ron Ehrlich:** What's the longest you've ever recorded anybody actually stopping breathing?



**Dr. Anup Desai:** To be honest it can be two minutes and even beyond. Probably about two and a half minutes.

**Dr. Ron Ehrlich:** Wow.

**Dr. Anup Desai:** It's staggering because if you held your breath underwater for two and a half minutes you'd just pass out and die.

**Dr. Ron Ehrlich:** Yep, yep.

**Dr. Anup Desai:** So there seems to be a little bit of tolerance at night time for stopping breathing in the sense that you don't die, or at least we don't think you die.

**Dr. Ron Ehrlich:** Yes. A near death experience.

**Dr. Anup Desai:** We can't show that you die at that point but clearly it has a lot of other effects, which is what we've talked about before.

**Dr. Ron Ehrlich:** Yeah, okay. What are some of the things people can then do when they're diagnosed with say obstructive sleep apnoea, be it mild, moderate or severe? What are some of the things they can do?

**Dr. Anup Desai:** So if it's weight related, we certainly recommend losing weight. So that's a key for many people for lots of reasons, not just sleep apnoea. Blood pressure, cholesterol, diabetes risk, heart disease risk, stroke risk. So losing weight can be an important strategy.

As you know for someone on the mild end of the spectrum we recommend mouth splints. So particular mouth guards that sit over the top and bottom teeth that connect and push the lower jaw forward and that helps to open up the space behind the tongue and that keeps the airway open to reduce snoring and sleep apnoea.

There are some surgical procedures also designed for opening up the airway. Whether it's concentrating more on the nasal airway or the airway behind the tongue. There is a CPAP machine which is a machine by the side of the bed.

**Dr. Ron Ehrlich:** So CPAP. C-P-A-P stands for?

**Dr. Anup Desai:** Continuous Positive Airway Pressure.

**Dr. Ron Ehrlich:** Right. So it's actually pumping ... Literally putting air in there to keep the balloon open or the airway open?

**Dr. Anup Desai:** Correct, yeah. It's putting pressurized air in that sort of acts like a splint, a pneumatic splint, to keep the airway open.

**Dr. Ron Ehrlich:** Right.

**Dr. Anup Desai:** It's very effective. We tend to use it more for the moderate to severe end. It can have remarkable benefit but of course the problem is not everyone finds it easy to use.

**Dr. Ron Ehrlich:** What is the compliance rate on CPAP machines? I mean, you know, what percentage of people that get prescribed it use it regularly for a whole night?

**Dr. Anup Desai:** Yeah, a lot of it depends I think on how symptomatic they are and what benefit they get. So the ones that are significantly tired and sleepy often do quite well because they perceive the benefit and they feel brighter and better and they're able to do a lot more during the day. So they're often quite compliant. At the end of the day like lots of medical treatment, compliance drops off. Even compliance for like cholesterol tablets drops off. Hypertensive tablets drop off. And probably around 40% might give it up at a guess. It just depends on which group, severity group and where you catch them in the cycle. Compliance is a limiting factor.

**Dr. Ron Ehrlich:** Yep, yep. Now last time we spoke, we spoke about insomnia. I just want to finish with a little bit of information. It's a big problem. I mean you mentioned it could be anywhere from 20-40%. This is chronic insomnia, which again defines that for us? What would define a chronic insomniac?

**Dr. Anup Desai:** So that's difficulty going to sleep or maintaining sleep when people are waking up too much overnight or can't get back to sleep and then during the day they're feeling tired and drowsy or irritable and disturbed by their sleep quality.

**Dr. Ron Ehrlich:** But it needs to go ... I mean we all have periods of that, but where it becomes a chronic problem is what, more than a month?

**Dr. Anup Desai:** So it needs to go on for at least a month and at least several nights a week.

**Dr. Ron Ehrlich:** Yep. And you also mentioned that there were different types of insomnia. There were the ones about couldn't get to sleep-

**Dr. Anup Desai:** Which is sleep initiation insomnia and then we talked about sleep maintenance insomnia where people wake up and can't get back to sleep. And then we talked about early morning awakening where they just sleep right through and then wake up at 4 am and then just can't drift off again.

**Dr. Ron Ehrlich:** And the last time we spoke you did mention a few things that people should ... I mean obviously looking at sleep hygiene, a sleep protocol people put on is a really important part. What are some other strategies that people can do? How does one treat insomnia?

**Dr. Anup Desai:** Yeah. So those general sleep hygiene principles I think are just good for everyone at all times and it's a helpful start for the insomnia patients, but they're not that powerful for the insomnia patients at the end of the day. So then the insomnia patients

need to be treated either with what we call cognitive behavioral therapy, which is changes in routines and habits and sort of mentation about sleep or with medications or possibly a combination of both.

The important thing about medications for insomnia is that they should really only be used in the short term. And what most people need is the cognitive behavioral therapy. That's a bit of a challenge because a lot of people can't access it or it's not even offered by many Doctors. But hopefully, with time, these things will be increasingly available and also accessible through some online programs that are starting to be developed.

But essentially what cognitive behavioral therapy does ... It's a whole structured program delivered by a Psychologist, just like you might do for depression or anxiety, usually over several weeks, maybe months on a handful of occasions. And they're basically teaching people how to sleep and giving them good sleep techniques. So it's a lot more advanced than sleep hygiene. They might try to set some rules about how they approach the bed and what they do in bed. It may look at giving them distraction techniques or relaxation techniques or breathing techniques for when they can't fall asleep. They might even use a bit of mindfulness. Maybe a bit of meditation and it might also be designed to address some of the cognitive side, the way people think about sleep. Often people with chronic insomnia start to fear the bed and don't want to go to bed and start to develop all these maladaptive thoughts or behaviors and it's about trying to recognize what they are at a patient level, turn them around and deal with them. So it's really quite a complicated condition with time. Insomnia really becomes quite burdensome and there are quite a few facets that keep it going and that's why we need a Sleep Psychologist, you know, with good training and experience delivering what we call cognitive behavioral therapy.

**Dr. Ron Ehrlich:** And I guess calling a program as sleep the most important part of the day and you're not sleeping would add to the anxiety there.

**Dr. Anup Desai:** That's right.

**Dr. Ron Ehrlich:** But anyway. Thank you so much for joining me again today. We've covered over these two programs some really important stuff on sleep and I hope everyone has got the message that sleep is the most important part of the day. Thanks, Anup.

**Dr. Anup Desai:** No problems. Thanks, Ron.

**Dr. Ron Ehrlich:** So there it is, folks. Sleep is the most important part of the day. Don't ignore it. Particularly if you're chronically tired and from my own experience, as I said, I never thought I had a sleep problem but in fact, and actually when I had my sleep study done, I didn't seem to have a sleep problem. I didn't register as having obstructive sleep apnoea, mild, moderate or severe, but I did snore and I still felt much better for it. So just because you don't have an identifiable disease you can always improve your sleep. But don't get too stressed about sleep. I have done another great podcast. This is going to be a recurring theme on this podcast. You're going to have to have a listen to this great chat I have in coming weeks with [Dr. Chris Winter who's written a fabulous book](#). So we're not finished with this topic yet. It's far too important, so until next time. Be well.



[If you are based in Sydney and would like to get in contact with Dr. Anup Desai, you can do that through his website \(click this link\).](#)

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