DANNY LENNON: For any of you who have looked at any of the literature around sleep and its importance in athletic performance, injury prevention and so on will be unsurprised to know that it can play a very large role in helping athletes perform at their peak to try and get a enough sleep and enough quality sleep. And thankfully this is a message that has been pushed more and more in recent years. And most athletes, both high level professional athletes all the way down to competitive amateur level athletes are aware of trying to try and make their sleep as best as possible. But what happens in cases where athletes own schedule plays havoc with their ability to get enough sleep with the timing of their sleep and impacts on their circadian rhythms? One of the most unique challenges we can think about is the schedule that is faced by the NBA athletes.

So for any of you unfamiliar with basketball in North America and particularly the NBA, they have an 82 game regular season. And during that time frame they are averaging about a game every two days but often with periods of back to back games and they're also traveling huge distances as their games are taking place all throughout the United States and Canada. So you can have very frequent air travel potentially with that moving across time zones

as well and that happening very regularly for a prolonged period of time. So what barriers are put in place not only for getting a enough sleep, but the timing of that sleep, the disruption around the optimal setup who'd have to try and get good sleep and then also impacts on circadian rhythms which are going to impact many biological processes. This has been one of the challenges that's faced by today's podcast guests, Dr. Meeta Singh, who has consulted for many different professional athletes and teams across many different sports. And specifically one of the areas I was interested in talking to her about was her work with the NBA teams specifically for this reason of the unique craziness of their schedule and the challenges that presents. Now, of course these are not only seen in the NBA, many other different sport athletes can have issues with sleep, travel, jet lag and so on. But I think the NBA is a perfect case study to look at what happens when we bring that to the extremes. So Dr. Singh is a sleep medicine doctor who has her training in psychiatry at the Mayo clinic and followed that with a sleep fellowship at the Henry Ford hospital and she is a board certified psychiatrist and sleep medicine sub-specialists with the American board of psychiatry and neurology. And outside of her in practice work with patients with sleep disorders she has consulted with many of the sports teams and she performs various sleep assessments trying to give them personalized prescriptions to not only get better sleep, but also helping the players and teams put together a schedule to manage their travel as best as possible, trying to focus on addressing sleep deprivation, sleep restriction, jet lag, and all these other factors that can impact their performance.
So with that, let's jump into this discussion with Dr. Meeta Singh. Remember you can get the show note of this episode over at sigmanutrition.com/episode310 and with that let me introduce Dr. Meets Singh.

Before we get into today's episode, let me give a quick mention to today's show sponsor Legion

Athletics. Legion athletics are a supplement company that I've actually been involved with for a while now as a member of their scientific advisory board alongside several other reputable people who you're probably familiar with and I agreed to do so because it was clear how much importance the company placed on having evidence-based decisions and ethical marketing at the center of their plans.

So Legion have full transparency over the ingredients in their products with no proprietary blends used and peer reviewed research cited for each product. And one of the cool aspects is that the company asked those of us on the scientific advisory board for independent input on the potential effect, newness and evidence strength of different products, ingredients set they are considering or using. And that means importantly that all the ingredients included are dose at the clinically effective levels actually seen in research. There's no over-hyping of products or even the value of supplements in general and if there are no misleading claims about what they may do. If you're interested in trying any of the Legion supplement line, then you can go over to buylegion.com and if you use the coupon code SIGMA that's SIGMA in all caps, you will get 20% off your first purchase. If you're in the U.S. you get free shipping on any order. And then for all other international customers you get free shipping on any order over $99 and all of those orders comes with a 100% money back guarantee. So if you want to try that stuff out or even just take a look at the product line, just go to buylegion.com and use the coupon code SIGMA.

Dr. Meeta Singh thank you so much for joining me on the podcast.

MEETA SINGH: Well thank you for giving me a platform to share my ideas.

DANNY LENNON: I'm interested in your background and maybe if you can give a bit of a summary because I know

you're a board certified psychiatrist, correct? But also have a sub-speciality in sleep medicine. Can you just explain what that typically looks like some of your education and how you got into the those qualifications?

MEETA SINGH: Okay. So well I'm sleep medicine doctor. I finished my medical school, then did a residency in psychiatry at Mayo clinic. And it was during my residency in the last year of my residency that I found sleep medicine. It was one of the rotations I was doing. Now when I did medical school and during the initial point of my residency education about sleep science was largely non-existent. So discovering sleep was really fortress for me and I was instantly hooked. So in fact I remember there was a core resident who was applying for a cardiology fellowship actually making fun of the fact that there was entire field of medical clients related to sleep which is ironic as to now we know more and more how sleep and circadian rhythms are intricately involved with cardiovascular health. So in the U.S. sleep medicine fellowships that typically a year long program, they provide you clinical training and research experience in the field of sleep medicine. So that as a physician I learned about normal and pathological sleep, learn about diagnosing and treating sleep disorders and just helping patients of all ages with sleep disorders.

DANNY LENNON: I'm just interested in the whole field of sleep medicine and how maybe that's evolved in your opinion.

MEETA SINGH: Well so sleep science came about in the early about, I want to say 1950s there was some seminal steps when rich I know REM sleep was discovered. And actually at Henry Ford hospital where I have my main clinical practice we have Dr. Thomas Roth who is he's a phenomenal researcher and he, with Dr. 0:07:57.5 and Mary [Indiscernible] [00:08:01] these are the initial people who started the field of sleep research and sleep medicine.

So sleep medicine as a fellowship has been around since 35 years and initially sleep was not at the forefront, but now there's been a lot of research. There's also a lot of research on circadian rhythms and because there's more and more research about circadian rhythms and how in fact every physiological function has a circadian rhythm. And because we live in a world where we now know that almost every medical disorder is affected by both sleep and circadian disruption.

DANNY LENNON: And we definitely want to explore some of that throughout this conversation. But before we do what does your current work look like then? Because obviously I think it spends across a lot of different things that you've ended up being involved with. So what are some of the current things that you're involved with work-wise? What do they look like typically for you?

MEETA SINGH: So I do have a clinical practice at the Henry Ford Sleep Disorder Center in Detroit, Michigan, where I see patients who have sleep problems. But the reason I think that you'll want to talk to me is in addition to that, I have a very, I have a niche practice in which I work with pro-athletes, pro-athletic teams, college athletic teams, as well as C-suite executives. And the focus is to enhance and optimize sleep with an aim to optimize performance at all levels. And in addition to that, I have a niche clinical practice where I see athletes who have sleep disorders. So for pro-athletes that would be working with me when they're off season to work on any sleep issue that they may have because once the season begins, of course they're very, very busy.

DANNY LENNON: Sure and and I'd like to focus in a bit on the pro-athletes for a while just because I find it so intriguing and I think as I had mentioned to you one that I'm really fascinated to ask your experiences on is working with the athletes in the NBA because on one hand I'm a big NBA fan, but also more interestingly, I think you

would be hard pressed to find a schedule that is as crazy as the athletes in the NBA. And we could probably dive into some of that. I mean like they have a 82 game regular season. I think the average something like a game every two days, something crazy. And then you factor in that they're moving across time zones across all in North America. And it gets absolutely crazy. And there's a few different elements that we could probably discuss. First maybe if we get a base for people to understand what we're talking about with time zone travel, how does that actually cause circadian disruption? What is circadian disruption and how does that time in or tie into traveling across time zones?

MEETA SINGH: Okay so let's begin with what the circadian system is. The circadian system is an intrinsic, it's a 24 hour long timekeeping system that we have in our bodies and that modulates almost all physiological systems. And the reason we've developed this is because we live on our rotating rock and we have alternating day and night cycles, right? And so to help anticipate this change, we've developed cellular clocks that because we are anticipating this change, it helps use energy more efficiently. So in human beings, in us, our main circadian clock, it's located in our brain. And although it's an intrinsic clock, it's synchronized to your local environment by exposure to light and dark. And so light serves as a signal to your circadian clock. So during the day, exposure to light suppresses a hormone that we secrete in darkness called melatonin. And as a result your clock secretes an alerting signal. And in darkness melatonin is secreted and this suppresses your alerting signal. Okay. So very simply put in human beings, your circadian clock actively drives wakefulness during your habitual day and it actively helps consolidate sleep physiology at night. And a minute ago we talked about actually every physiological function is affected. So we now know that every cell has a circadian local clock, and every physiological function has a time it peaks and a time at ebbs and so forth. So for athletes we

now know that in a 24 hour period there's actually a time of day with things like muscle contractile strength, joint flexibility, dexterity, postural balance, all of them peak. And that typically coincides at the time where your body temperature peaks. So your body temperature has a circadian clock.

And so that's also the time when your joint stiffness is at its minimum. And so when athletes are traveling, it's not just that they have to, it's not just that their circadian rhythms of their sleep wake cycle is disrupted, but their circadian rhythm that regulates athletic performance itself gets disrupted. So now that we've talked about circadian rhythms, if you take a jet and you rapidly cross time zones and get to a new time zone, your circadian rhythms lag behind. And so when you get to the new time zone, they're scrambling to get synchronized to the new time zone and that what results in the symptoms of jet lag. So that's what jet lag is.

DANNY LENNON: Right. And I think particularly in some of these athletes we're talking about with some of the guys in the NBA, for example, this gets even more compounded by several other factors that we'll probably discuss, but for maybe those in the audience who are unfamiliar with basketball and particularly the the pro-athletes in the NBA and the WNBA can you maybe outline what their schedule kind of looks like and their typical travel times for away games some of these to kind of explanation or illustrate why they're probably running into these circadian and sleep issues?

MEETA SINGH: So the NBA and the WNBA, I mean these teams travel a lot. So air travel is really high. The cross time zone. So although it says four times zones, because in America we have Eastern, Central, Mountain and Western time, it's basically three time zones. So they spend more time above 30,000 feet than any other athlete right now. So a few years ago they would play about six to eight games in a

preseason and then they would play 82 games. In the last few years there's been a lot of emphasis on player safety. So the NBA, the league is trying to work on player safety. So they're trying to reduce the amount they're flying. So currently instead of playing eight preseason games, they now play a four to six preseason games over a period of three to four weeks. And also that's followed by 82 regular season games that they play across 26 weeks. So that's about 177 days. So on an average day they will play as many as a maximum of five games per week and a minimum of two games per a week. So the NBA is trying to reduce the number of back to back games, which is when two games are within a two day span. So even though we are reducing the number of back to backs now there are about 14 to 15 back to back games in the current season which is still high. Right? And so typically they're night games. They play a game, they get on a plane and they fly to the next destination and within a couple of days or maybe the next night itself they have to play again. And although the number of preseason games have reduced the NBA now is trying to, they, they want to spread globally and explore more markets. So, for example, this year they sent four teams overseas and they went to Asia to play two games. These are preseason games, but there's not enough time. So they're traveling and crossing more 9 to 12 times zones to get to a new time zone, play two games. They're there for about three to four days and then they fly right back. So that's the extent of the problem that the ongoing issues that they're having.

DANNY LENNON: Sure. And I think you're starting to see teams take that into their own hands cause you certainly start to see more resting of star players and leaving them behind for certain games because it's almost unmanageable for these athletes to play all 82 games really and –

MEETA SINGH: Right. And I have to say, in all fairness the league is trying its level best. I don't know if you saw the news just in the last one week they

are announcing how they're going to make more major changes and maybe reduce the number of in season game two 78, which will further allow them to get more time. And actually there's one more thing that in the last two weeks, two years they added about a week to the preseason. So they extended the duration of the regular season by seven days. And as a result there are fewer back to backs. But that still brings it to about 14 to 15 back to back games.

DANNY LENNON: Sure. Yeah. And I think they're kind of in a rock and a hard place, I guess given that if anytime they're going to reduce the number of games that's reducing the revenue, that reduced the revenue that the players get. And so you're trying to take care of players but also say, well we can't give you as much money is a difficult trade off I guess. And I think the schedule that you outlined, they did a really good job of showing that this is not just a travel across time zone, jet lag issue, cause there's all these other considerations that impact sleep and circadian biology negatively. So you mentioned that a lot of their games are late at night and then afterwards they're going to have to get on a plane to maybe fly back home or fly to an away game such late night travel. So it could be all hours by the time they reach a hotel, they're probably eating late because they finished a game late in the day. So having all these other factors that are probably impacting sleep and circadian biology I'm guessing.

MEETA SINGH: Yes. You eloquently described what the problem really is. So it's important because first of all we know that even short flights can increase injury risk. It can impact performance. So definitely competing in away games result in increased seasoned injury risks. There was a study that was published and I'll send you the link to the study. It basically showed that the likelihood of them getting injured at away games was significantly higher than the expected injury rate for home games. And so

just if you, if we didn't think about jet lag, which is crossing time zones and we just looked at the cumulative travel fatigue that happens because they're taking so many flights. So even if they were not crossing time zones every time you're on a flight, there is slight amount of hypoxia. There is dehydration. There's definitely sleep weight disruption. All of that will result in a affect your mood, your fatigue. But because the schedule is so irregular it contributes to poor sleep. So even without the travel we know that there is research that shows that athletes have many, many reasons to sleep poorly. So an athlete may be stressed out before a competition. They may have anxiety before the game itself that can result in difficulty sleeping. But then once the game is done, athletes may have difficulty staying asleep or falling asleep because there's hyper arousal that's associated with the game. The adrenaline is high. The body temperature is high. They use caffeine just before the game or during the game to keep their energy levels high. And that's still in their system. Cortisol levels are high. They may have aches and pains. They may have excitement after winning a game. They may be stressed or anxious after losing a game. And all of this can result in difficulty sleeping after game. And do you know Ian Dunican?

DANNY LENNON: I do. I know Ian well. Yes. Fellow Irishman.

MEETA SINGH: Yes. So he had the study in rugby players and he found that there was a good percentage of these players who were not sleeping at all, at all after the game because they were so wound up. Now like for example in the NBA or actually in all of the leagues here oftentimes when players are on stimulant stimulant medication or say ADHD they will take that medication just prior to the game because they want, it helps them focus. And of course that's still in their system. So poor sleep itself is going to make them anxious or depressed and often time if they don't address it, they're going to seek

medications and sleep is definitely an issue for the average NBA player.

DANNY LENNON: If I can ask maybe about some of the things that you've done in practice when you've consulted with some of these types of athletes because as you've just outlined, this is a really difficult scenario that we're tasked with that it's almost impossible to get things optimal I think. And there are so many different challenges and so many different demands on their players being pulled from different directions. So what are some of the strategies that you've tried to implement or to recommend when you've been consulting with some of these proteins?

MEETA SINGH: So the first thing that I do with a team is really talk about give them some amount of some sleep education. So talk about sleep science, talk about their circadian rhythms. And I tell you athletes really one that they want to hear the science. And I think when you explain or talk about the science it allows them to make informed decisions themselves. o that's the first step. And typically when I talk with teams, I will talk to the entire team including the front office. So that's one aspect. The second aspect of course is that I work a lot with the schedule and I will do that in work with their performance coach and the travel coordinator and help in looking at their overall schedules and looking at it doesn't make sense for them to spend an extra night somewhere where they can and get a full night of sleep rather than boarding a flight immediately. Especially if there's a day, they have an extra day in between that would mean something as simple as spending the night waking up and then maybe practicing right in that location before they fly to the next location. Depending on how detailed they wanted. Sometimes I will actually make a schedule for them every two weeks in which in the form of a grid, I will show them where they should be sleeping, where the nap opportunities are, where I think the practices should be etcetera. And then of course, it's up

to them whether they're going to, they want to listen or not. I cannot emphasize how important it is for them to be educated because ultimately these young men and women have to, the decision to put down their phones or to make time for sleep is depends on them. So they have to decide to do that.

Now in the last few years in the NBA, at least they fly. They have these special charter planes that are larger, that can accommodate these really tall people so that they're able to sit comfortably and if they're going to take a night flight to make sure that they have headphones that they choose to aware them or relax and try to get some sleep on it on the plane itself and then finally, of course I do work one-to-one, one-on-one with players in which it's because people's circadian rhythms are different and their sleep issues can be different so that they can, we can address this on a one-to-one basis.

DANNY LENNON: Absolutely. I wanted to talk a bit about the education piece that you just mentioned there. And I think maybe and I'm presuming this, but one of the issues may be with working with athletes is sometimes I've found that if you talk about some of the health impacts of certain behaviors and actions that doesn't really resonate as much to create a want the change may be directly linking that with impacts on performance which I think they obviously want to try and maximize as much as possible. Do you talk them through how circadian disruption and/or sleep restriction plays a role on their performance, on maybe decision making? What type of discussions do you have with them to try and essentially win them over that sleep is something they should be prioritizing?

MEETA SINGH: So first of all, I have to tell you that it's a very insightful remark because you're absolutely right because young, healthy players may not be interested at all in what the health implications are 10 years down the line. And so

a great hook, the good way to talk to them really is to talk to them about the performance enhancing aspects. And before I talk a little bit more about that, I will tell you there is, so the older players, the coaches, the athletic training staff who live the same life as the players and have the same amount of sleep deprivation and circadian dysrhythmia, they are interested in the health effects. And they want to know because this, for them, they want their players to perform but they want to be healthy too.

So and I often use this line which is catchy, but it's so true that think of sleep as being that single switch circuit board, that if that failed, almost every switch will fail. And the NBA players really at the most basic level, we know that if you don't get enough sleep, your reaction time slow down. Your mean speed as well as your accuracy, they both tend to degrade. And so the first important thing is that they do so in a dose dependent fashion. So which means that if you're getting five hours of sleep and versus six hours versus seven hours versus nine hours your deficits in your reaction time or your accuracy are it's worse when it's five versus six versus seven versus nine and then it's cumulative, right?

So as time goes by, those deficits accumulate but the key thing to remember is that your self perception or awareness of the sleepiness does not parallel this. So which basically means that when you regularly get less sleep, Danny, you may be slower, you may not be as accurate, but you're also going to be less aware of the fact that you're not as fast and you're less accurate. And I think of, I think that when a player is slower and less accurate I think of these as arrows of emission in which you misjudge the distance, you don't get to the ball on time, you don't react within milliseconds. And so you miss the play. But the second major area where I think for athletes it's important is because sleep deprivation messes up your mental thinking.

So when you get less sleep, as you're aware, you make decisions that are overly emotional and the prefrontal cortex, which is a part of your brain that is responsible for good judgment, goal directed activity, multitasking, good decision making gets preferentially impaired and this decision making is especially impaired in time crunch situation. So yeah especially towards the end, there's a time when the clock is on and you have to make a point or you have to get, make a play within a certain time. And actually there is research that shows that even using caffeine if you're drinking caffeine, your reaction time may come up, but your judgment doesn't. So now you're making wrong decisions, but you're doing it faster. So that may not help. Emotional regulation definitely gets impaired when you get less sleep.

And I'll tell you, experienced players and even coaches will absolutely see this. So your ability to appraise a situation and then decide whether you're going to respond and/ or maybe walk away and then finally the way you respond to it. I mean every aspect of this process is affected by the amount of sleep you've had. So if you're on the court and you say, and you see somebody say something or make a remark whether you're going to take the bait or if you're going to ignore it things like things decision making is done in split seconds. I mean this process becomes really vulnerable.

DANNY LENNON: That's so interesting because there's all these indirect, intangible things are very hard to quantify that are going to be impacted and maybe sometimes players feel bad or on a form or they put it down to something that just can't be explained when really may be something behind. It could be asleep restriction. One thing I'm really interested that you brought up some of this stuff around emotional health or emotional decision making around a psychology and mental state. And if we go outside of the area of performance and maybe talk about some of the health concerns. One

thing I was intrigued to ask you is about is the potential current state of the literature looking at links between sleep and circadian disruption and things like anxiety, depression, mood states, and so on. I'm not suggesting by any means that the schedule saying the NBA is causative in any of those, but I think over the past a year or so, some of the real big stars of the NBA guys like DeMar DeRozan, Kevin Love have came out and publicly talked about some of their mental health issues, anxiety, depression and so on. And I wonder for people who are susceptible to that or maybe experiencing that, it surely is it conceivable that their schedules and putting them in situations of great sleep restriction and circadian shifts is just exacerbating that problem potentially.

MEETA SINGH: Right and I think the short answer is yes. And so again, these studies are not done in athletes, but we know that there is a bi-directional relationship between sleep and mood and anxiety states, right? So for example, insomnia which is difficulty initiating or maintaining sleep or non-refreshing sleep despite adequate opportunity to sleep is very common amongst depressed people. People who have insomnia have a tenfold increased risk of developing depression as compared to people who sleep well. And we know that depressed people themselves have different insomnia issues. And of course anxiety plays a role. So if you're anxious and clearly athletes have multiple reasons to be anxious. Sometimes the stress is not just internal stress, but stress that expectations of their coaches or even their fans that can result in problems with sleeping. And so when it comes to circadian rhythms, remember cortisol has a circadian rhythm. And so when we think about sleep and circadian disruption we know that that cortisol rhythm also gets disrupted. So you're absolutely right. I mean, I don't think it's been studied in the NBA. I don't think we've even studied what the prevalence of mood or anxiety disorders is amongst the NBA, but what we know is that in

the general population, sleep problems are more likely to affect people who have psychiatric issues and that they can actually increase the risk for developing mental illness and that mental illness is often associated with sleep problems and that oftentimes sleep issues are the last to recover when you have anxiety or depression. In fact, there is some studies that there is research not in the NBA but in the NCAA, which are college athletes. And I don't know if you've ever spoken to Michael Grandner, he's out of the university of Arizona. Phenomenal sleep researcher, phenomenal. And he's done a lot of lot of work looking at mental health in college athletes and he's found that student athletes have a higher prevalence of anxiety and depression. They're more likely to use alcohol or drugs and they're more likely to have increased suicidal ideation as well as drive, drunk driving is more prevalent in athletes who have insomnia. So this I would say a vast field that in pro-athletes still needs, needs to be explored more. And the one last thing I'll say is that if, mental health cannot be addressed without giving sleep health a seat at the table because of all the things that I just said because they're so intricately bound to each other.

DANNY LENNON: Like you say this is a very deep area that we probably could have spent the whole discussion at talking about. But maybe for another day. One thing that I did want to get to before we do finish up and this relates outside of the NBA, but more specifically I think with athletes you may have consulted with in the NFL or combat sport athletes would fall into this category as well of the impact of sleep restriction and some of these sleep issues on risk of traumatic brain injury which is obviously these athletes are already at risk given the contacts that are in sports like football as well as combat sports.

MEETA SINGH: So I think what you're asking is sports concussion. TBI is a very broad diagnosis which includes any sort head injury which

includes an MVA motor vehicle accidents, right? So the first place to begin is by describing what a sport concussion is basically, you may or may not get hit on the brain, but there's movement and because of a movement there is some alteration in brain function that happens. And it's more likely to happen in collision sports. Like you said. Now because sleep happens to take place deep in the brain and because the injuries in a sports concussion occur deep in the brain therefore sleep and concussion have again, sports concussions have a bi-direction really relationship. And again the first thing is that we don't really know what causes, what are the risk factors that predict concussion. And we didn't tell about till earlier this year where again, Michael Grandner's group did a study and they looked at NCAA athletes and they found that athletes who had poor sleep and insufficient sleep. So insomnia as well as sleep restriction had a significantly higher likelihood of developing sports injury, concussions. And that's really relevant because like I said the only thing we know now, we used to know is that a history of prior concussion predicts the likelihood of getting another concussion. But if you think about how not getting enough sleep or poor sleep can affect your reaction time, your accuracy, your decision making process, your even things like postural balance and how it can increase risk taking behavior or it can impair moment to moment decision making. It's not a far stretch to see how poor sleep could contribute to developing a concussion. So that would be one relationship. But also when people are concussed after a concussion, typically people will have excessive amount of sleepiness and this is thought to be a restorative. So that's where recovery is happening in the brain. And then oftentimes they will develop insomnia or they will develop irregular sleep and that's something that should be addressed because that itself can result in a prolonged post concussion syndrome. So it's again without going into too much detail this could be another podcast. But so yes, there is, it's a bi-

directional relationship and just another reason why sleep is really important for athletes.

DANNY LENNON: One last thing before I get to my final couple of quick questions, and this one is kind of more out of curiosity for myself and it's about the prevalence of potential sleeping pill use in some of these athletes given the schedules that we've discussed today and I know it's going to be hard to quantify, but how much of that use of sleeping pills is what you would deem potentially unnecessary if other things were deemed too? So do we know anything about the prevalence of the use or maybe even over use of sleeping pills within pro-athletes given the craziness of these schedules that they're facing?

MEETA SINGH: This is a thorny subject because the true prevalence of using sleeping pills in pro-athletes is really not known although anecdotally we know it's very high. So really the legitimate reasons for using a sleeping pill in an athlete would be the same reason you're using the general population, which would be either they have true sleep, like they have insomnia, which is and/or they've been diagnosed with a sleep disorder, which requires a sleeping pill or they have circadian rhythm issues like jet lag in which maybe melatonin could be used. But we know that athletes use the sleeping pill really to treat the hyper arousal that's associated with the pre or post game anxiety or stress. Right. And all to counter the effect of all the stimulants or the caffeine they've consumed or because of that travel they're trying to fall asleep at a different time zone than their regular bed time and we're limited here because there are no studies that show that you can use a sleeping pill in somebody who doesn't have a true sleep disorder and how it affects them the next day. We don't know that. We don't know. We do know how it interacts with alcohol. We know how it affects, what the side effects are. So in fact when I first started out in the NFL, the reason I was going in is because the NFL, the team physician wanted me to help

with the use of sleeping pills because people were asking for sleeping pills all the time. Again, it's a very thorny issue. One of the things that we're trying to do I and a few colleagues, we're trying to, we're creating a framework to identify screen and identify for sleep disorders earlier in athletes. So something that they would use in the preseason and this would be something use a screening tool so that they could, that this would be used by the athletic trainer or by the team physician so that they could be sent in a timely. They could be referred to a sleep specialist in a timely manner. And so in the general population when somebody has true insomnia short term you could use sleeping pills, but the long term way to treat insomnia is with CBTI. It's called Cognitive Behavioral Therapy for Insomnia. Now that's a time consuming thing and no athlete has time for that. They're not going to learn that and do that during the season. But athletes understand skills acquisition. And so that's one of the things that I do in my clinic like which is why I was saying that that part is always an off season where so it's, do this, teach the principles of CBTI during the off season so that they could use those as those skills. So learn it during the off season so they can use it during the season.

DANNY LENNON: Really interesting. And with sleeping pills. And I'm not trying to suggest in any way, there's no beneficial use because of course there's several instances where that would be, that would be well indicated to and you don't need me to tell you that. But one thing I have heard, and maybe you can correct me if this is inaccurate, but the sleep architecture between a normal sleep so to speak, and the sleep that you get on a sleeping pill does that look markedly different?

MEETA SINGH: Yes, it does look different. So sometimes the traditional sleeping pills they might reduce the number of awakenings but they may, for example, reduce the amount of deep sleep that

you have. They may also and because they're a whole different sort of sleeping because there's such different classes of sleeping pills. So they may affect the sleep architecture in different ways. Now as a sleep physician when I see a patient, I take into account their prior history. Take a full history and then look at what other medications they may be on, what they've used in the past, etcetera, and look at the entire situation before deciding if they would qualify for a sleeping pill and what they can use on a short term basis. See the problem I think that we have in pro-athletes is that oftentimes they're not getting them from a team physician. A team physician may or may not be aware of what they're taking. And so there's no really, there's no good way to quantify it and to find out what they actually are taking. And I'll say this again, it's always a matter of education. So individualized prescriptions as long as they include things like going to bed or trying to shift your clock using a light stretch, strategic light exposure or avoidance and proper sleep hygiene and overall using non-medical ways will work. But it's easy to reach for a pill. And it doesn't involve work and unless you educate the players or the team members why they need to make that extra effort, they're not going to do it.

DANNY LENNON: Before I get to the free final quick question we end the podcast on for people who are maybe interested in finding more about you and the work you do meet out, where's the best place on the internet for them to go and check that stuff out?

MEETA SINGH: Well, so I am active on Twitter. My Twitter handle is athletesleepmd1. I also on LinkedIn. I also have a website. It's MeetaSinghMD.com I'm chuckling a little bit because I regularly respond to any questions I get. However, I'm very bad at updating it. So a year goes by and then at the end of the year I look at all the things I've done and then I have somebody added for me. I just want to let you know that I do. I think if you went on YouTube and you typed in sleep and athletes or circadian

rhythms, I've done some talks at MIT Sloan, the sports and analytic meeting. It's online. So there are all those ways to get in touch with me.

DANNY LENNON: Great. And for everyone listening, I will link up to all of that in the show notes so you can go and check that out. And with that Meeta that brings us to the final question that I always end the podcast on. And this can be to do with any topic, even outside of something we've discussed today. And it's simply if you could advise people to do one thing each day that would have a positive impact on any area of their life, what would that one thing be?

MEETA SINGH: I would have to say to be cognizant of light exposure as well as avoidance not just to make sure that we to minimize electronics and reduce the amount of light exposure we have with our handheld devices in the evening, late in the evening towards a bad times and throughout the night, but also during the day to make sure we get enough sunlight or outdoor lights because oftentimes we, because that really helps strengthen our circadian rhythm. And if you think you have a sleep problem speak to your primary care doctor or a primary care nurse because, don't ignore it.

DANNY LENNON: A great piece of advice and something that I've certainly try and do as much as possible. And with that Meeta let me just say thank you so much for taking the time out to come and talk to me on the podcast today.

MEETA SINGH: Thank you Danny.

DANNY LENNON: So that was Dr. Meeta Singh. Remember you can get the show notes this episode over at sigmanutrition.com/episode310. There you'll be able to get a transcript of this and previous episodes of the podcast. You'll get links to anything relevant to today's discussion, for example, where you can find Dr. Singh's website, Twitter, etcetera. Also while you are on the show notes page, you can check out our link to today's sponsor of the podcast and you

can also check out previous episodes of the podcast that you may have missed out on. So that's all over at the show notes page sigmanutrition.com/episode310 and whilst you're there, have a look around the website, see if you want to check out our email newsletter, any of the resources that we have as well as any other articles, podcasts or our coaching service. That's all at sigmanutrition.com.

That is it from me. I will talk to you in our episode next week and until then have a great week and take care.

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