More Than Beauty: Length and Quality of Sleep and Its Impact on CV Risk Factors in Teens - Frankly Speaking EP 82

Transcript Details

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Dr. Frank Domino:

Brad a fifteen-year-old, is here with his mom for his school physical. He has no complaints and states he likes school and seems to be a happy, stable teenager. His BMI is 31 today. Before Mom leaves the room, she states, "Brad is so busy. I don't think he's getting enough sleep. He has band practice, a job after school, and lots of homework. He sleeps with his cell phone and his music on. He's up late every night, and up early for school, and gets about six hours of sleep each night. Is that okay?" Hi, this is Dr. Frank Domino, family physician and professor at the University of Massachusetts Medical School's Department of Family Medicine. Joining me today to discuss about teenage sleep issues is Dr. Susan Feeney, Assistant Professor and Coordinator of the Family Nurse Practitioner Program at the University of Massachusetts Medical School's Graduate School of Nursing. Hi Susan.

Susan Feeney:

Hey, Frank.

Dr. Domino:

So Brad's a fairly typical teen. He's involved with his technology; he's quite committed and possibly over-committed. Mom asks a good question. What's considered an adequate night's sleep for a teenager?

Susan Feeney:

Well, according to the National Sleep Foundation, they look at it and they break adolescents into two groups. 11-13 and 14 to 17. So 11 to 13 year-olds should get nine hours of sleep a night, which is more than 540 minutes; that's a lot. And 14 to 17-year-olds should get a minimum of eight hours or greater than 480 minutes, but they also talk about sleep efficiency, and that's basically how much time that they're sort of resting in bed, are they actually asleep? And optimum is at least is greater than 85% of the time should be sleep efficiency. So we do have some numbers. And clearly, from his history he's well below where he should be.

Dr. Domino:

He certainly is. So there's some recent literature that we should discuss. What are the risks to teens if their sleep period is short and of poor quality?

Susan Feeney:

Well, there was a recent study by Dr. Feliciano, and it was a very interesting study. It was a cross-sectional work on teenagers from Central Mass; these were teenagers recruited from the Atrius Health System. There was a project started over 20 years ago where they enrolled pregnant women, and then they followed the mothers and their children for various reasons. And so what this study did is recruited over a thousand of these teenagers to be in the study, and they followed them with wrist watches that monitored their sleep and their activity. And out of that they got 829 kids who actually fit the valid protocol, that

kept the watch on for more than five days, and they kept it on for more than ten hours a night. And they looked at their sleep and what they found was, there was a direct correlation or association, I should say, between length... Duration of sleep and sleep efficiency and cardio-metabolic risk factors.

They looked at a variety of cardio-metabolic risk factors which were... They looked at their adiposity, so they looked at their BMI and their fat percentage. They looked at their systolic blood pressure; they used the homeostatic model assessment for insulin resistance looking at fasting insulin and fasting glucose, and then they looked at triglycerides and HDL, and then they derived a score from that. It was a pretty intensive look, and what they found was that there was a correlation between the longer somebody slept and the better their efficiency, the lower their cardio-metabolic risk factor was. What was also very interesting is they found out of this 829 kids that the mean sleep was just below... It was like seven hours, which is kind of astonishing when you think that it's supposed to be eight hours for the 14 year-olds and up, and from 11 to 13 it should be nine hours. And efficiency was an average of 84%. So out of these kids, there was only 2.2% or 18 people out of that group that met the minimum requirements for sleep.

Dr. Domino:

Wow, so quite a large percentage of the population, 98% are not meeting the minimum requirements, and that's increasing a variety of intermediate outcomes that can be worrisome, especially as they go into adulthood. Well, what do we know about sleep going forward? Is there any data that shows improved quality of sleep can affect real world outcomes.

Susan Feeney:

Well, there was a systematic review done recently, and what they looked at and they looked

at a multitude of studies, and they found that which we've known for a while is short duration of sleep is associated with poor cardio-metabolic outcomes, but also it's directly related to obesity; that the shorter periods of time people sleep the greater the association with obesity. They also found that just overall quality of life and well-being through poor emotional regulation was associated with short sleep duration and that cognitive ability was impaired. So it's kind of hard to talk to teenagers about... We wanna reduce your insulin resistance so you don't get diabetes when you're 45, but we can say things like, "But if you get a good night's sleep, you might be thinner; you might be able to be less angry. You might be able to do better in school and better on the field, in your sports. You'll be safer behind the wheel." So there are some things we can say to them. We have real data on that we can help them hopefully get the sleep they need.

Dr. Domino:

And I think that's probably tuning into where their interests lie. If you say, "Gee, you wanna try to get your weight better? You wanna try to do better in school? One of the things we know that'll really help is trying to get you a little bit more sleep." So now, how do we counsel Brad and his mom? He's going to bed every night with his cell phone. Any advice?

Susan Feeney:

It's really tough because we are so tethered to these things, but I know that there is a very high percentage of kids that sleep with their devices, and they ding all night, right? So I think maybe speaking to him about that, that even though he may not feel that he's getting inefficient sleep, that we know he is; so that even if he's only getting his six hours, let's maximize that. So look at that first; let's see if we can take the distractions away, take the screen away for at least a half hour before he tries to initiate sleep, and then start thinking about, "How can we get your sleep now from six hours to seven hours? And maybe from seven hours to eight hours." And work with him on like you would with

someone on exercise and diet, "What are things you could do during the day that might give you more time to get to bed on time?"

There are some structural things that are against kids. Most teenager's circadian rhythm is that they want to stay up, that's a normal... We know that we've got lots and lots of data on that. So we give them all these things to do; they naturally want to go to bed later, and then we make them get up at 6 o'clock to go to school because that's where our school is. And some schools are actually... Some school districts around the country have I have flipped it, so the little kids are going to school earlier and the teenagers are going to school later because it is an issue. There's been a trend across the country that adolescents are sleeping less, and less, and less, and I think it's a big problem for them now and down the road.

Dr. Domino:

I couldn't agree more. And I think it is ironic that we ask the people who are least able to get up early and go to school to do so. And the many reasons I hear for this, is that so that they can participate in adequate after-school activities. So the tail is wagging the dog. So it really is a very interesting phenomenon. I think this is a great study. I think that the interesting thing is how few teens are getting adequate sleep, and the systematic review saying, "Really hard outcomes like weight loss and better emotional health can be obtained just by altering your sleep schedule." Any final thoughts, Susan.

Susan Feeney:

Well, I think it's something that a lot of times because there's so many risk factors that we talk to teens about that sometimes we don't even get to talk to them about sleep because we're talking about sex, drugs, and rock and roll, which are really important, but I think we need to drill down. And not only like, "Are you sleeping okay?" 'Cause we look at, we think

about depression screen. So, "You falling asleep okay? Are you're staying asleep?" That's only the tip of the iceberg. We need to say, "When do you go to bed? When do you wake up? Are you waking up during the night? Do you feel rested? Are you falling asleep behind the wheel?" We really have to drill down on their quality of sleep and do that efficiently, and it's something we need to keep track of.

Dr. Domino:

Well, thank you, Susan.

Susan Feeney:

You're welcome.

Dr. Domino:

Practice pointer. The vast majority of adolescence probably get inadequate sleep. Doing so increases their risk for adverse outcomes both cardio-metabolic as well as obesity, emotional health, and academic achievement. Query your teens about how much and how well they sleep. Join us next time when we discuss the role of budesonide and formoterol use in mild, persistent asthma. And for more timely, relevant, and practical medical education check out Pri-Med.com.