



every victory counts®

Victory Summit: Sleep

The Effect of Exercise on Sleep in Parkinson's

Davis Phinney Foundation

Note: This is not a flawless, word-for-word transcript, but it's close.

Melani Dizon (Director of Education, Davis Phinney Foundation):

I am excited now to welcome Dr. Amy Amara. Hello.

Amy Amara MD, PhD (Associate Professor of Neurology, University of Alabama at Birmingham):

Hi there.

Melani Dizon:

How are you?

Amy Amara:

Doing great, thanks.

Melani Dizon:

Good. Thank you so much for being here today. We're really excited to talk to you.

Amy Amara:

Thank you.

Melani Dizon:

Where are you? What is behind you?

Amy Amara:

This is University of Alabama at Birmingham.

Melani Dizon:

Excellent.

Amy Amara:



But I'm actually moving soon, closer to you guys, to University of Colorado.

Melani Dizon:

You are?

Amy Amara:

I am.

Melani Dizon:

Oh, my goodness. This is the best news. I cannot believe that! That is exciting. We're so excited. Okay, great. Okay, so let's get going. Like I said, Dr. Amara's bio can be found in the program book. We sent, we put a link at the beginning, and you can see that on the event page, but I'd love for you, Dr. Amara, talk a little bit about how you got involved in this work; sleep, Parkinson's, the role exercise plays, where how did this, how did you get on this path?

Amy Amara:

So, I knew from the time I was a neurology resident that I wanted to work with patients with Parkinson's disease. And then as I learned more about Parkinson's, I realized that there were actually quite a lot of sleep disorders in patients as well. And so, I decided to do a sleep medicine fellowship also. And of course, I was fascinated by REM sleep behavior disorder and its relationship to Parkinson's, but then just realized more and more that that's not the only thing related to sleep in Parkinson's. Of course, there's sleep fragmentation and insomnia and daytime sleepiness, and many different causes for all of the sleep problems in Parkinson's so I've developed interest in studying sleep in Parkinson's. And initially I was studying how deep brain stimulation affects sleep outcomes, but then as I moved forward, I got more and more interested in how exercise might change things.

And so, in collaboration with some of our exercise physiologists here at UAB, we did an exercise trial to see how it affects sleep in Parkinson's. And we found that it definitely improved sleep. And we measured that with sleep studies, not just with questionnaires. So, we had people do sleep studies before and after a 16-week exercise intervention three days a week, and it was high intensity exercise and lot of white training, and it really improves sleep quite a lot and also increased the amounts of slow wave sleep, which is our deepest and most restorative stage of sleep.

Melani Dizon:



Okay, great. Well, I want to talk about absolutely every single one of those things that you just said. Okay. And also, I want to remind people to put your questions in the chat and we will, we'll try to answer, you know, any of the ones that are related to sleep, sleep disorders today, and the role exercise plays in that. And then some of you have asked some questions and non-related topics, and I just want you to know that we have a lot of resources on stuff like that. I just saw that Jackie put something in the chat about those and we may have a webinar that we've already done or we're going to do something in the future. So, we'll stick to the sleep questions today. All right. So, what I want to talk a little bit definitely about that sleep study, because I know everyone's going to have questions about what time, what type of exercise and the duration and all of that kind of stuff, but what is it, what is the mechanism of exercise that was so interesting to you?

Amy Amara:

So yeah, we're still trying to figure out what exactly why exactly exercise helps us sleep. But several things have been proposed. One thing is exercise reduces inflammation. And so, we think that neuroinflammation may contribute to worse sleep. And so, exercise helps with that and that can definitely improve how we sleep and how well rested we feel, feel, and that leads to improvements in cognition. Also, the, both the improved sleep and the reduction in neuro inflammation. And then there's a lot of good evidence. So just sort of as an indirect relationship, that exercise improves mood. And if you have better mood, you sleep better. People with depression tend to wake up early in the morning. If you have a lot of worries and anxiety, it can lead to trouble falling asleep at night and worsen anxiety, sorry, worsen insomnia. So, if you have improved mood related to exercise, certainly that can help with sleep.

Like I said, in an indirect manner and then exercise, it does also make you a little bit tired, so it can help with sleep onset just because you're, you need more energy. And so, you fall asleep a little bit better just from the fact that you're tired in our own work, like I said, we found that exercise directly increases the slow wave sleep, which is important stage of sleep for cognition. So, there are pathways that happen that I think are very exciting to, to make changes that way. And then we've also seen that exercise can change the brainwaves during sleep. So, make us have more sleep spindles for example, and that's a feature of sleep that is important for cognition as well. So, it relates exercise through sleep to cognition also. And so that's something else that we're studying and looking into.

Melani Dizon:

Okay. Yeah. So, we didn't talk about cognition much in the last session. I'd love to understand is like, is there a, is it chicken and egg thing? Is there, are there people that tend to have more cognitive decline? Do they tend to have worse sleep? And is this something that they're actually totally unrelated and, but when you do improve your sleep, you can slow down cognitive decline. How does that work?



Amy Amara:

So, I think it's probably there's probably some degree of both things. So, you know, if you're not sleeping well, of course you can't focus as well and have poor attention because you're just sleepy. People who are significantly sleep deprived actually can have micros sleeps while there, while they're awake and it can lead to little brief losses of time and might make it so that if someone's speaking to you, you miss words that they say, because you've had a little drop off to sleep that doesn't necessarily get recognized by anyone who's looking at you. So poor sleep can definitely affect cognition in that way. But then there are also aspects probably bidirectional aspects. If you have cognitive problems already, it can worsen your sleep. You know, there's a lot of especially with advanced areas of cognitive decline with dementia you can get sundowning and more hallucinations during the evening hours and that can impair sleep.

And then there is probably a relationship between having more REM sleep behavior disorder is a risk or just happens to be an association with having worse cognitive impairment. So, there might be things related to that. So that, I definitely think there's a bidirectional relationship, so one can affect the other, but then we also sometimes see that people who are at risk for cognitive decline might have a reduction in that risk if they sleep well. There was actually a study that followed people who didn't have Parkinson's or memory problems at the beginning of the study, followed them over six years and looked at how well they slept at the beginning of the study and the people who slept well at the beginning, even if they had genetic risk for Alzheimer's disease, they were less likely to get cognitive decline if they slept well at the beginning compared to people who didn't sleep so well. So there probably is a protective effect of good sleep on cognition.

Melani Dizon:

Great. Somebody asked you mentioned a sleep spindle. Can you talk about what is that?

Amy Amara:

So, sleep spindle is something that typically emerges in one of the stages of non-REM sleep, REM stage two. And so, we divide sleep into REM and non-REM, and REM is the part of sleep where we'd usually dream and that's where REM sleep behavior disorder emerges, but non-REM sleep is also really important. And non-REM stage two is our most prominent stage of sleep through the night. It takes up more than 50% of the night usually. And during that sleep stage, we identify it by sleep spindles and another EEG feature called K complexes on the sleep study. So, we look at the brainwaves and if we see sleep spindles, that's associated with non-REM stage two, and people who have more sleep spindles tend to have better cognition. And we've seen that in Parkinson's disease as well. And the sleep spindles are developed in part of the brain called the thalamus. And they just seem to be important for memory consolidation and the relationships between the thalamus and the



bigger part of the brain, the cortex. And so those relationships are important for getting those memories consolidated and keeping, keeping our function of cognition improved.

Melani Dizon:

Okay. so, can we dive a little deep into the study? Can you talk, talk to me about, you know, what exactly happened? Where were the people at baseline? What was the goal? And then all of the little pieces, like the duration and the intensity, and so, so that people can start to understand what sure.

Amy Amara:

Yeah, sure. So, we enrolled people of various different stages at, of Parkinson's. We, because of the exercise and needing to stay safe to do that, we didn't enroll anyone who always needed a cane or Walker, so everybody could walk independently, at least most of the time. And then we randomized to either the exercise intervention or a sleep hygiene intervention. So, since we were studying sleep is our outcome. We wanted to see if, you know, just a typical treatment for sleep might be helpful. And so, we use sleep hygiene as the control group, the non-exercise group. And so, everyone who was in the study for 16 weeks and before the study started, or before the intervention started, rather, we had a sleep study and various questionnaires and things like that. And then they did the intervention for 16 weeks and it was, if they were in the exercise group, they were exercising with a high intensity weight training that moved the participants from task to task without much rest.

So that contributed to it being high, high intensity, and also kept the heart rate up. So, there was an aerobic component to it as well. So, they came in three days a week and it was in the exercise facility. So, it was supervised, and they did that for 16 weeks and then had another sleep study at the end. And then the sleep hygiene group had a discussion about how they were sleeping and different strategies that they might use to try to improve their sleep on their own. So, we talked about you know, maintaining a consistent bedtime and wake up time. That's important. Consistency is important for sleep. We talked about sleep relaxation techniques to try to help them fall asleep and stay asleep more easily or get back to sleep if they wake up. We talked about, you know, not drinking so much fluid after dinner in case having to pee at night was a problem.

We talked about, are there any risks for sleep apnea that they might have that could be evaluated and you know, various other things to try to help with improving sleep without having an exercise intervention. And so, we had those discussions and then checked in with them periodically to see if they had any other questions and how they were sleeping. And then we compared the groups from the beginning to the end. And so, each participant was their own control. So, we were able to compare how they were sleeping at the beginning to how that individual was sleeping at the end. And like I said, the exercise



group had a big improvement in their sleep efficiency, which is the percentage of sleep, or, sorry, the percentage of time you're in bed that you're actually sleeping after you try to start sleeping big improvement in the exercise group and actually a little bit of worse sitting, we're sitting in the sleep hygiene group. And then we also saw a big improvement in, like I said, in the, that deep, slow wave sleep, as well as the total amount of sleep time and a trend toward improvement in the sleep latency. So how long it took to fall asleep at the beginning of the night.

Melani Dizon:

Okay. And that was 16 weeks. Yes. what would you, what did you attribute the sort of regression to those people that were just doing sleep hygiene?

Amy Amara:

Yeah, we were surprised by that. And so, I don't know if it's just, you know, natural progression of Parkinson's worsening and that could be, although 16 weeks is not a super long time for that, but that maybe it. And the fact of being in the sleep lab, maybe there were some variables introduced that, you know, we don't didn't identify, however, both groups did the time in the sleep lab. So, not certain about that. But we did also do actigraphy. So, we found that the actographs for the two weeks that the person people were sleeping at home were similar to how they slept in the sleep lab. So, we think it was fairly reliable.

Melani Dizon:

Okay. What gosh, I'm getting distracted by this noise. The, somebody asked about actually this is a question that comes up a lot. They, and it's a little off topic, but it is, does have to do with people going to sleep the, having to go to the bathroom and I was talking to somebody who is like, you know, sort of this breathing expert that is says, like, you know, tape your mouth, tape, your mouth shut because it's it, your, your, your, your bowel is not the one that's making you go to you. It's not waking you up to go to the bathroom, but you wake up because for whatever, or you're breathing or whatever. And then you're like, oh, I might as well go to the bathroom and then your kind of all up. So, what can people, is there, is there anything that people can do around, you know, breathing the water? I think David talked; David talked about that earlier. You were like, you know, I don't drink water before I go to bed. All of those kinds of things. So, is that part of the sleep hygiene?

Amy Amara:

So, it can be as far as when to drink water, I'm not sure about the taping, the mouth shut. I haven't heard that strategy before, but there is good evidence that if you have untreated sleep apnea, that makes you have to pee more at night. Oh,



Melani Dizon:

Okay.

Amy Amara:

So, when you have obstructive sleep apnea, your airway collapses while you're asleep and you try to breathe against that closed airway. And so, when that happens, your chest is still rising. So, you build up negative pressure in your chest, and those pressure changes in your chest actually make your heart secrete more of a hormone that makes you pee.

Melani Dizon:

Okay.

Amy Amara:

So, so people with untreated sleep apnea do pee more at night. And so, if you have a lot of peeing at night, it's a good idea to maybe, you know, think about whether you're, if you're also sleeping in the daytime, especially maybe get checked out for sleep apnea. And Parkinson's the symptoms of that are not always the same as what they are in other adults. So, you might not be obese, but still have sleep apnea. You might not snore that much if you have Parkinson's, but you still might have sleep apnea. So, it can be subtle and harder to identify without a sleep study.

Melani Dizon:

Yeah. And that's just something generally hard unless you're sleeping right next to somebody that is like awake all night while you're not right. While you're like taking those breaths. That's tough. Yeah. Was anybody that was in the sleep study in the exercise group? Were they also taking anything else that were they just taking their regular Parkinson's medications, or did they have to go off those or what?

Amy Amara:

No, they definitely kept on their Parkinson's medications. And there is a study that's going on right now. I don't know if you already talked about Sparks Three.

Melani Dizon:

We haven't talked

Amy Amara:



About that yet. Okay. So, there is an exercise study that is enrolling people who have newly diagnosed Parkinson's and aren't on medication yet. So, if anybody's interested there, you could find the locations for that on their website. And it's S P R X three. And it's looking at, like I said, exercise for people who are newly diagnosed, so not on medications and sleep is not the specific outcome for that study, but it's just different from what our study was, because we allowed all levels of medications. We didn't exclude medications. We just wanted people to be on stable medicines through the study. So was

Melani Dizon:

There work that you found that for particular people that were on particular medicine that they actually did better in the sleep study, like adding exercise to what they were already doing?

Amy Amara:

Well, they had, we didn't really measure the effects of the medication specifically because everybody was on such a different type of them. We couldn't really distinguish the factors related to the medications. We did find that there were not significant differences, for example, in the amount of, and manic or Parkinson's medications between the two groups. So, they were similar in the medications they were taking, but we didn't look at the specific effects of exercise in the setting of certain medications.

Melani Dizon:

Okay, great. So, let's talk a little bit about general exercise, duration, intensity consistency what you said, you know, you, this was weight training. That was obviously it was high intensity. It was getting there, aerobic up. So, it wasn't just like a set. And then there, you know, sit down for a while. And so those were, it was like you combined everything what about things like walking? What can people do that's actually going to help them or does it have to be, you know, super intense?

Amy Amara:

So, we think that high intensity is probably better for cognition and probably better for sleep. Although there have been very few head-to-head studies comparing different intervention types. The sparks three study that I mentioned is comparing higher intensity treadmill, walking compared to lower intensity or moderate intensity. And they're measuring that by the heart rate reserve or the how high your heart rate gets. So that I think is something that a lot of things still need to be figured out, but we definitely know that, you know, doing something is better than doing nothing. And so, what a, we usually tell, tell patients in clinic is that you should do the thing that you enjoy, because if you enjoy it, you'll keep doing it. And that's the most important thing is to do something that you'll keep doing. So, if you really hate running, or don't make that your exercise of choice,



you know, if and if you prefer walking, but can't get behind getting on a bike, then, you know, go for a walk it's better than sitting on a sofa. So, some exercise is better than none. If you enjoy something that really gets the heart rate up, that's probably better. And the world health organization, no, that's not the I'm forgetting now, is it which organization? I think w H O gets behind it too, but I can't remember right now, which organization it is that recommends this, but 150 minutes per week of low to moderate intensity exercise, plus two days of weight training. Have you already gone over this?

Melani Dizon:

No, we haven't.

Amy Amara:

Oh, okay.

Melani Dizon:

I mean, for somewhere else we have, but not today.

Amy Amara:

Okay. Or if you're doing high intensity exercise, you can do 75 minutes a week and probably get the similar benefit with, again, two days of weight training. So doing some number of weights is important too, but again, whatever you do is better than nothing. So do what you enjoy. And that brings, you know, that brings, it can be, bring a social aspect so you can enjoy hanging out with other people. And that also increases motivation because if you know, someone is waiting for you to show up at the gym or where you're going to walk or whatever it is that increases likelihood that you'll get there. So having an exercise buddy can help. And then also just things that you find relaxing and soothing, those are the best types of exercise. Give yourself time to think to

Melani Dizon:

Right. Yeah. Sleep and exercise have so many downstream impacts right. So absolutely it's just going to like help everything. But we do have a couple people asking about someone says I walk every day, but I can't go fast enough to raise my heart rate. How can I raise my heart rate? And then similar to that, somebody asks, what do you do when at 76, you're too old for high intensity.

Amy Amara:

So, to start with the second question, I'm not sure anybody's too old for high intensity. Of course, you have to build up to it slowly. But the participants we enrolled in our exercise



study who did this high intensity intervention. We had one who was an 85 when he enrolled. So yeah, you may have other health situations that make you, you know, everybody has to be safe and take it slow and do what your doctor recommends. But if you get into it and increase the intensity over time, everybody can get there. You just have to, you know, may have to have some encouragement, and support a personal trainer type intervention or something like, you know, the park boxing for Parkinson's disease. They have a lot of support that can help guide you in increasing the intensity. So, if you can't, you know, if you really can't feel like you can get to a high intensity, again, anything that you can do is better than nothing.

If you want to do a little bit more than walking to get your heart rate up you might do something like a floor cycle. I think these are a really neat idea. They're just pedals. You put on the floor in front of your regular chair. So, you don't have to spend the money and take up the space needed for a stationary bike and it's comfortable and easy for balance. And then you can also put it up on the table and pedal with your arms. And if, you know, you can go faster and faster without any worry about your balance or falling risk and things like that, which are of course is so important. You want to be safe when you're exercising too. So that's some ways some people really like swimming or like aerobics in the, in the water can be really helpful for helping to get your heart rate up because there's a lot of resistance from the water, but it's also a safe place that prevents falling.

And then if you really are, feel like you're working hard, but your heart rate won't get up. Maybe talk with your doctor about if any of the medicines you are on are preventing your heart rate from coming up. Some medications are designed to keep the heart rate low, like beta blockers, for example. And so, if you are on medications like that, you may want to talk with your doctor about if, if that's really what's needed and it may be, but they may have other strategies for helping combat that inability to exercise with the higher heart rate.

Melani Dizon:

Yeah. Someone said they take medicine for high blood pressure, so they can't get that up. Yeah. Yeah, so, you know, that's a tough one. You need, you need to, to be healthy, but what can you do, right. I mean, it is there's always going to be a spectrum, right. And there's the ideal that is okay. I'm hitting my 75 minutes of high intensity every single week. I never miss a session. I wake up, I get exercise every day, I get light therapy. I do all of those things. Everything's fabulous. Right. And then the other end is doing nothing. And so, anything along that spectrum is better than the doing nothing spectrum. Right? Absolutely. and the other great thing about intensity, if you could speak to this, is that it doesn't have to be like, it doesn't have to be done all at once, right? Is there benefit for people to be like, oh wow. I just, like, better spread it throughout the day. Or I go in my garden, and I do some really heavy thing gardening for five minutes, and then I'm tired and I go back, like, how does that work?



Amy Amara:

Yeah. And, you know, with Parkinson's, a lot of times I hear a lot of people tell me that they, you know, if they exercise really hard, then they are completely useless the rest of the day. And so, you have to, you know, achieve a balance for what works well for you and how you feel. You don't want to make yourself feel worse with your exercise. So, you know, having little bursts of exercise I think is a great idea. You know, you can get on the bike and pedal fast for five minutes and then have some rest and relaxation and maybe do it again later the day. And I think spreading it out is just fine. Again, something is better than nothing. So, if you can't achieve that 75 minutes or the 150 minutes then, but you can achieve, you know, 10 minutes every day. That's fantastic.

Melani Dizon:

Yeah. Great. And actually, oh, excellent. Jackie just put up a link. I did had a recent conversation with Mike Studer, and he talks about neuroplasticity, and he talks about a million different ways to get those few minutes of intense exercise in. Yeah. That is great. So, here's another question that we get about, so we are, hey, exercise helps with sleep, but for some people they exercise and then they can't go to sleep. So, is, did you, have you learned anything in your research that is, hey, you should, if you, if sleep is trouble, make sure you don't exercise such and such hours before you go to sleep or, and is there any, has there been any research around where sleep is beneficial? If you wake up and is part of your circadian clock that you exercise right away, like that's helpful for sleep or how does it work?

Amy Amara:

Yes. Exercise certainly can help and train the circadian clock. And I know Dr. Videnovic just talked about that extensively. Probably. I didn't hear his talk, but I know that's a big area of his research. So, exercise does allow your body to know and your brain to know that it's daytime basically. So having morning exercise, I think, is good for several reasons. It helps with that aspect, but then also it helps you become more alert. Exercise is not only good for sleep at night, but also helps you be more alert during the day. And sometimes when people with Parkinson's have a lot of daytime sleepiness, I encourage them to do exercise at the time they tend to be most sleepy. And maybe that will offset their need for a nap. Not the napping's always bad, just if it's excessive or prolonged, it can be so disruptive to your plans for the day.

So, I tell people to schedule their naps and also schedule their exercise. So, it's kind of the same time every day. And a lot of times the sleepiness comes from medications. And so, you can adjust that timing of the exercise to help with that. As far as certain times of day to exercise, you know, that for a very long time, it was thought that evening exercise is disruptive to sleep. I think that's been called into question a little bit. I haven't specifically



looked in our Parkinson's patients about the time of day and our research, how it's affected sleep at night. But if, you know, kind of just gauge how you feel, if you notice that you exercise too late in the afternoon and you don't sleep as well that night, then, you know, maybe adjust the timing. Or if you find that it does help you sleep better, then you know, some that may be true for some people.

There is some aspect of exercise increasing the body temperature and the temperature gradient can help you fall asleep at night. So, as you go from a higher temperature to a lower temperature, it helps you get into that deepest REM stage three sleep. So there actually maybe some, some benefit, and that's why warm baths at night can be helpful. And then one other important aspect is that a lot of people with Parkinson's have restless leg syndrome. And if you tend to be sedentary and then you have a really heavy belt of exercise, let's say you go for a hike that you're not used to, or you do something really intensive around the house. It may actually make your restless legs worse that night. So, keeping a more consistent exercise program is important for restless leg syndrome. Did I get at your question with

Melani Dizon:

Those? Yeah, you did definitely did. Somebody said, or, yeah, someone says, I do chanting mantra be 15 minutes before sleep. It helps me to fall asleep and calm down. Somebody says, what about steps? I hear so many talk about the importance of 10,000 to 20,000 steps. Is there, is this really helpful or is it it's not in, you know, it's better than nothing again. But if, if I were going to, if you were going to say, hey, you should spend, it's more important for you to get your 10,000 or 20,000 steps or for you to have intense exercise. One 10th of the time, what would you say on that?

Amy Amara:

I think having some intense exercise probably is important, at least as far as the data that we have. There have been studies looking at large studies looking at people who exercise and risk for developing Parkinson's and that high intensity exercise has been shown to be important for either delaying or preventing that risk. So, we assume that it would also be important once you've been diagnosed as far as the number of steps you know, it's nice to have a goal for that. If you, you know, if, if walking is your main thing, especially if that's your main form of exercise, then achieving those goals every day. Not, not specifically just for that number, but because it's motivating, like I have an apple watch and, you know, it gives me a calorie goal for every day. And so, I feel motivated to exercise more to meet that calorie goal because it's, you know, it's just a feedback. And so, so having that for your steps, I think can be helpful. If the type of exercise you're doing involves stepping, so it can be used as motivation for sure. But if you don't achieve that you know, and you, but you went for a long bike ride and you're not stepping, then that can be certainly just as, or maybe even more beneficial.



Melani Dizon:

Right. did you get any, what was some of the anecdotal or survey responses from people who were in the study that their, you know, their sleep study came out positive afterwards? What were some of the other things that they said, this is, this has changed in my life, or this has helped or anything like that?

Amy Amara:

Yeah, it was so rewarding because we got so many letters from people about how the exercise program had changed their lives. And they were going to, you know, continue doing it after the study was over. We gave gym memberships for 16 weeks to people after the study ended, even the sleep hygiene group. And so, it was rewarding to see get feedback, too, of people continuing on and doing their exercise. Other people went on to join the boxing for Parkinson's programs and various other things. And so, it really has been welcome feedback for us and makes, you know, it's very rewarding to do the research and then find out that people really do feel like it's helping them. So that has definitely been rewarding. And we're doing we're doing a new study now where we're looking more at how changes in sleep may improve cognition due to exercise. So, we are recruiting people for that study now and similar feedback. We're getting a lot of positive feedback for about how much the exercise helps.

Melani Dizon:

Okay, great. And was that, is that going to be out of university of Colorado or is that going to be Alabama or

Amy Amara:

It will be moving with me to Colorado.

Melani Dizon:

Okay, great. So, we can, we'll, we'll definitely share that link with people for that study so they can learn about it. And you're, you're in the area. Are you just recruiting in Colorado or everywhere?

Amy Amara:

Just Colorado.

Melani Dizon:

Okay, great. We have a lot of Colorado people here, so hopefully can fine about that. Interesting tennis and golf helpful, but serve mechanism is not working well. That, yeah,



that is interesting. There's a lot going on in Teer. I played competitively for much of my life, so there's a lot going on there. I can see where that would be. Like, it's that memory of it is the muscle memory gets lost. And just, it's interesting. I hadn't thought about that.

Amy Amara:

Yeah, I'm sure that's very frustrating. And you can maybe find a partner who will do the serving all the time.

Melani Dizon:

Right? Or pickle a ball. You don't have to serve overhand. Yeah. Let's talk a little bit about sleep. Yeah. Ping pong or pickle ball, Polly. Exactly. Let's talk a little bit about sleep hygiene. Can, can you go through maybe some let's say no, let's say people don't have any sort of sleep hygiene at all. Can we talk a little bit about what are some, like maybe one thing they could try this week and then add on like over time instead of being like, you have to do all these things right now, what is good thing to start with?

Amy Amara:

Okay. Exercise. Yeah, but, we'll pass that one. So also having no electronics in the bed, you really want to train your brain, that your bed is where you sleep or have sex and nothing else. So, you want to not worry in bed. You want to not pay bills or work in bed. Certainly, never have your laptop in the bed. You know, some people read in bed and find that relaxing and they have no sleep problems. And then, you know, that's fine read in bed, but if you are having sleep problems, then really having good sleep hygiene, and making your bed only for sleep is very important. And the other thing it is kind of can look at it on the flip side as well, if you are in your bed, trying to sleep, but unable to sleep and becoming frustrated about not being able to sleep, you really should leave your bed.

And now, you know, sometimes if you have walking problems in Parkinson's and you're unsafe to get out of bed, sometimes you can't do that. But if you can, if you can get up out of bed and safely get to a different room, sit down and a fairly darkened room, you don't want to have the light exposure that of course is alerting and will wake you up. And you know, do something you find relaxing until you feel drowsy and then go back to bed. And that way you take that stress association away from your bedroom. And cuz you want to train again, train your brain, that the bed is where you sleep, and you don't lie there awake. Don't look at the clock that can be really stressful. So, if you glance at the clock and realize, oh my gosh, I've only slept an hour.

Then you become very frustrated. Or if you realize you've only got an hour left to sleep, it makes it again more stress. So, it's harder to go back to sleep when you're stressed. And there are some sleep relaxation techniques that you can do. One of my favorite ones is called progressive muscle relaxation. And so, it has you really focus on counting while



you're inhaling to a slow count and exhaling to a slow count. And every time you exhale, you focus on a specific body part and think about that body part becoming really relaxed and really heavy and so relaxed. You couldn't even lift it if you had to. And then as soon as that body part's relaxed, you move forward to the next body part. And I always start with my hands. And usually by the time I get to my shoulders, I've fallen asleep.

But if you're doing the counting it kind of distracts you from thinking of worrisome things and keeps your mind focused on that. And plus, it's relaxing can, can help you fall asleep, and you can do it at the beginning of the night, or if you wake up during the night or any other time we talked about trying to control, you know, urinary symptoms. So, if you can find strategies to help avoid having to pee at night. So, things that will wake you up with Parkinson's you might need an adjustment in your medications. Like maybe you're waking up because your body is stiff, and you can't roll over when you get uncomfortable because you're having that slowness of movement. So maybe you need a little bit more medicine to last through the night or some medications lead to insomnia. So, you might want to talk with your doctor about, you know, what you think this the trouble is with your sleep or troubleshoot that with your doctor.

Melani Dizon:

What are some of those medications that you know of that that tend to make, you know, somebody who may have had a normal sleep once they have this medication, they just get kind of falls apart.

Amy Amara:

Well thinking specifically of Parkinson's related medications. So, Levodopa or Sinemet, it actually can cause insomnia in some people, but then again, in other people, it really helps with sleep because it improves the motor symptoms. So, you just have to maybe do some experimentation with it, with your doctor's help about, you know, whether it's better to take it at night or not. Amantadine and Selegiline or both Parkinson's medications that can lead to alertness. And so, if you take those two close to bedtime, like they're supposed to be given two or three times a day, depending on which one you're taking. And for both of those medicines, we like them to be, you know, for Selegiline, have it morning and noon. And for Amantadine, if you're taking it three times, like morning, noon, and 4:00 PM or no later than that. So just to keep those earlier in the day to avoid insomnia and then there's some antidepressants that can lead to insomnia depends on what ones you're on. There are some antidepressants that actually help with sleep onset. And so that can, you know, be something that you could talk with doctors about. And then you, the main alerting medications might be things like stimulants. But those are the main ones that come to mind as far as might maybe disrupting sleep at night.

Melani Dizon:



Okay. What about sound? How I sound okay. You know, we want to turn off the phone and do all those things, but what about maybe somebody listening to the progressive muscle relaxation, sometimes they do that, or they have all these really funny sleep with me podcasts now that are just gibberish and they're, they're not really saying anything, but they lull you to sleep. Is there anything around auditory that is problematic for, for trying to get sleep?

Amy Amara:

If, you know, if there are large fluctuations in the noise that could be a problem because if there's a big volume change or a change in intensity or stress of the speech, it, you know, could be disruptive. Dogs, dogs barking is a big one. If you can avoid that. Some people really do like white noise machines or soothing sounds and that's, I think those are completely fine. It might be a good idea to have a timer on them so that they, you know, cut off and stop so that if you do get into the, into sleep, but you have a near arousal, it doesn't bring you completely to alertness trying to figure out what the noise is. But yeah, if it seems to be helpful, that, and that goes for a lot of things in sleep, if it seems to work well, then that's a great thing to do.

Melani Dizon:

Right. Great. Oh my gosh. We're out of time. Let's see. Okay. Using sleeping pills what have you found in your research about sleeping pills? Yeah, I mean there, whether short term use long-term use effectiveness, that kind of thing.

Amy Amara:

So, the most thing that we use long-term is when people have REM sleep behavior disorder and need treatment for that, a lot of times the medications we use induced sleepiness just as an additional effect. And then some of the medicines we use for restless leg syndrome can make you sleepy. And so that can contribute. But as a sleep doctor in general and my colleagues in sleep, at least in our practice, we very seldom prescribed sleep aids. And when we do it typically is for short term, like if someone's newly diagnosed with sleep apnea and having trouble getting used to C-PAP, that's a situation where we often do prescribe sleep aids for a few weeks. And even if we do prescribe sleep aids we tend to say, you know, don't take them every night, maybe do two or three nights a week.

Now that being said, there is some degree of comfort that can come from knowing that you have a sleep aid available. So sometimes if someone's been on a sleep aid and we try to taper them off, I always, or not always, but often allow them to keep, you know, a few a month's so that they just know that they have it if they need it. Like if there's a big event coming up the next day and they really need to have a good night of sleep, they've got that available. Or if they've had several nights of bad sleep, they know that they can use the at medicine if they need it. And a lot of times just knowing is there will allow people to sleep



well without even needing the medicine. You know, sleep is very psychological. You have to be relaxed and calm and comfortable and happy.

Well, not happy necessarily, but you have to feel relaxed to be able to fall asleep. And so, if you're anxious and, you know, having stress related to sleep, it actually a lot of times leads to worse insomnia. So, one of the other strategies that we often use is trying to tell people to stop thinking about sleep so much, because it, when you're in, when you have insomnia and you don't sleep well, you feel bad during the day. So, you think about sleep and how bad it was. And, oh my gosh, what if it's terrible tonight too? And so, sleep becomes the focus of your life and that's very counterintuitive for falling asleep. So, trying to come up with strategies to avoid that. And you mentioned earlier about the app, you, or an app for falling asleep, the noises, but there's also one that we use sometimes called CBT I coach.

And its CBT, which stands for cognitive behavioral therapy and the is insomnia and then coach. So, there's a cognitive behavioral therapy has definitely been found to be more effective than sleep medications for sleep. And that's because it doesn't lose effectiveness over time. If you stop using the techniques, you can always restart using them if your sleep gets poor again. So yeah, CBT I coach is an app you can get, and it goes through some of the sleep relaxation techniques. It's got an area in there that you can record when you're sleeping, I think, and just varied various different measures. And then if you have one in your area, you can also try to see a psychologist who does CBT I treatment. And that's very, very effective.

Melani Dizon:

Yeah, absolutely. We will. We'll share some of the resources that we have on that for sure. And then also lots of people have been asking about CBD medical, marijuana, those kinds of things. We're not going to talk about that today. We do have a bunch of information on that. It continues to be the thing that everyone's really excited about, but there's no hard research that says that this is going to be the thing, or this is working. And so, we don't spend too much time on it. We would prefer for you to work with your doctors on that and try it. If, if you, if you feel like that's something that you want to do, but we just, we don't have the research to share. So, we don't want to talk about it too much. But I really like the idea somebody says, how about getting off of any sleep aids?

And I think that the takeaway here is that not pretending sleep is easy and people tell us, they can tell us a million times you need sleep. You need to get sleep. It's the most important thing. And it's just frustrating for people who cannot get it. And so, I think one of this, you, you talked about, don't think about it too much, and they'll be too negative about it. My friend and I both of us have not been great sleepers our whole lives, but we always, now we're like, oh my God, stop great. I'm a great sleeper because like stop telling the world and yourself that you're a terrible sleeper. Like I'm a great sleeper. I don't know if it's going to do anything, but we're trying it out. So maybe try that out. And also, you know, a



lot of really great tip is pay attention to the time you're going to bed, exercise, light therapy you know, blackout rooms, no light in your room, get off your screens and then see if you can do all of these little things.

And then eventually maybe they're going to help. And then you can get off some of those sleep aids with the help of your doctor. So, I know it's tough. I know it's frustrating. But I think we had really great information today, Dr. Amara. I really appreciate you being here, and I cannot be more excited that you're coming to Colorado. So, we're going to have more conversations for sure. And we'll share the link to that study and everything else. So great. Thanks so much for being here. I really, really appreciate it.

Amy Amara:

Thanks to everyone.