



**The Victory Summit® Virtual Event:
Motor Symptoms and Parkinson's
Preventing Falls and Falling "Safely"**
Davis Phinney Foundation

Polly Dawkins (Executive Director, Davis Phinney Foundation):
Now I'd like to welcome Dr. Hannah Fugle to the virtual stage. Hi Hannah.

Hannah Fugle, DPT (Physical Therapist, Northwest Rehabilitation Associates):
Hi.

Polly Dawkins:
Been quite some time since we've seen one another.

Hannah Fugle:
Yeah, it's good to see you.

Polly Dawkins:
It's great to see you. We have invited you here today to talk about motor symptoms and how they relate to falls and falls are such an important and troublesome issue in our community. As a background, I'd like to let folks know who you are. So, you're a doctor of physical therapy in Bend, Oregon.

Hannah Fugle:
Yes.

Polly Dawkins:
And you specialize in treating people with neurologic disorders, diseases, and with a special interest in neurodegenerative conditions, like Parkinson's and MS, and are you okay if I refer to you as Hannah here?

Hannah Fugle:
That's more than fine. Yeah.

Polly Dawkins:
Okay. Super. Well, thank you for being here. We have traveled together to these events many times in the past, which was really quite fun where we got to know one another. I miss that. I miss being with our community in person, but we're so glad you could be here on the screen and share your expertise really around falls. So, let's start with why are falls so common with people with Parkinson's?

Hannah Fugle:

Yeah. Falls, I find are just a very complex issue. I think some of the other speakers have already touched on some of the aspects, but there's kind of this global PD pathology that makes us more at risk for losing our balance. What I'd like to do is we'll just kind of talk about overview and then we can kind of dive into the details of those aspects, but many of the systems that play a critical role in our ability to stay balanced and to keep our body weight over our feet you know, are disrupted by Parkinson's pathology. So, people with PD often will exhibit postural instability or imbalance. They'll have a forward stooped posture that can put them at a higher risk. They can develop things like festination or freezing of gait. Often there's an increase in weakness over time and that can be due to disuse or again, parts of that pathology.

They can have visual impairments, which I know was touched on earlier today. They can have a decreased tolerance to distractions in the environment. They may show impaired motor planning, which was also touched on, I believe in an earlier topic discussion. And then they can also experience something called neurogenic orthostatic hypotension. So, difficulty maintaining blood pressure. That can put them at a higher risk for falls. That certainly isn't an exhaustive list. But I'll kind of touch on those aspects today. And then I'll hopefully touch on a little bit of the environmental factors as well as it relates to home safety and the use of assisted devices.

Polly Dawkins:

Great. So that's a lot of reasons why people are at risk for falls. And I think the other troublesome aspect is as we get older, our bones become more brittle and prone to breaking, which can lead to really high rates of complication with falls.

Hannah Fugle:

And I think it also contributes to fear of falling, right? The implications of a fall can make people more nervous around falling. And then that often impacts your ability to balance well. I often tell my clients about, you know, high level balance performance. You think about people who surf or skateboard or tight rope walk, or they're never stiff, right. They're relaxed. They kind of give and move with those movements. And so being nervous around our falls and anxious can really actually diminish our ability to stay balanced well. Yeah.

Polly Dawkins:

So, what are some strategies that you use in clinic and working with people with Parkinson's to reduce maybe nervousness or reduce the chance of falling or improve certain muscles? Tell us a little bit about what a great approach is.

Hannah Fugle:

Yeah. I mean, I think it's, again, because it's a multifactorial issue, it takes kind of peeling back the layers and working on different aspects. So, if you allow me, I might just walk through some of those different aspects we talked about, you know, a higher risk for falls due to postural

instability. Why? Right. Vision, why? So, if you want, I can just kind of run through those. So yeah, the first, I would say just that postural instability, this is one of the main factors in terms of fall risk. So just increased sway or wobble. Less awareness is sort of a limits of stability, you know, where is that edge of balance, where if I tip outside of that, I might topple right over. And then also delayed reactive strategies, oftentimes. So, this may be, you know, adjustments we make at the ankles or at the trunk or even a recovery step if it comes to that.

And then I'll often just see that people have difficulty with integrating sensory information. So that may be, you know, feeling their feet on the floor and getting good information. It may be from the inner ear system the vestibular system. So, they'll have more difficulty in eyes closed conditions like the shower or when there's dark environments getting up to use the restroom in the middle of the night or something like that. I also touched on that idea of that forward flex posture. And this can contribute if you imagine where our body weight is relative to our base or our feet. If our weight is out in front of us, it's gonna make us much more likely to fall forward or trip on something. I find it can also contribute to festination or that freezing of gait experience. So oftentimes I'm encouraging people... say one more time.

Polly Dawkins:

Would you describe, would you define festination for those who might not know that word?

Hannah Fugle:

Yeah. So, I usually will describe it as an inappropriately scaled movement. So, the body is taking steps, but they're usually too small. And so, it's almost like this perpetual falling forward and trying to make up for it. But again, the steps are too small, so it's a shuffling quality and can appear you know, almost as if a toddler is kind of toppling forward right and that body gets out in front of you. Yeah.

Polly Dawkins:

Backwards, right? The backwards movement of some folks in our community, maybe festination backwards, is that the common?

Hannah Fugle:

Yeah, it can be. So, what they find sort of, as it correlate to falls is people who have freezing of gait or festination can often have more forward falls. People who have difficulty in other areas of postural stability are more likely maybe to go backwards or to the side. That being said, one of the aspects of posture that I'll often tell folks about, yeah having tightness in the front of your body, your weakness in the back part of your body are gonna contribute to that forward stooped posture. But if you feel like you're gonna fall backwards, you bet, you bet your body's also gonna shift forward into that forward flex position. So, for my folks with that forward flex posture, I say it's kind of chicken or the egg, you know, are you in that position and that's putting you at a higher risk for falls, or are you assuming that positioning because you feel like

you might tip backwards. So really important to find that kind of midline stability in that forward back direction.

Polly Dawkins:
Got it. Okay.

Hannah Fugle:
So, another thing I talked about was a little bit of that freezing of gait, so I can define that for you as well. So, if festination is sort of that small scale movement, that's, you know, inappropriate or not adequate to keep our body weight up over our feet, freezing is this impaired movement that results in our feet getting kind of stuck to the floor. Often people say, I feel like my feet just stop or they get glued and it's often around initiation. So, people will often describe it when they first stand up, they have trouble moving, when they initiate a turn, so say turning into the doorway to go to their office or bedroom or whatnot, their feet will freeze, narrow spaces or kind of visual distractions can also drive that freezing. And a big one is just distractions in general. So, I talked a little bit about the idea of dual task tolerance or people having difficulty with distractions. And I find that, you know, it's really important to work on that skill and to address that to reduce freezing.

Polly Dawkins:
Got it.

Hannah Fugle:
Yeah. And I would say with freezing of gait, it's, you know, that's a tough topic, but it can result in the high velocity falls and so for people who freeze, it can be really scary so you may want to use an assisted device. There's a U-Step Walker specifically designed for people who have that forward fall trajectory. And that can give you a little bit more peace of mind.

Polly Dawkins:
Yeah. Yeah. What about the next topic.

Hannah Fugle:
Yeah, so the other thing I mentioned was weakness and it can make us more prone to falls. If you've heard me speak before with the Foundation, you know, I have to talk that there's different types of muscular strength. One is just force production or torque, how much, you know, can we get out of our muscles? The other is how quickly we can turn on our muscles. Can we recruit them fast enough to, you know, go up a stair or take a quick step? Maybe if we are losing our balance, we need to get that foot out there to catch us. And then the other is the ability to turn on muscles and have them continue to stay active. So postural muscles are a great example of this. If you are working on strengthening, it's great if you can do 10 repetitions of something that bring you into upright posture, but that's not good, you know, after you've been on your feet for an hour. So, training your muscles specifically for the different types of

strength that we need to maintain to stay well balanced. The other aspect, you know, is as we age, unfortunately, there is this decrease in muscle and bone loss. So, it really takes diligence to make sure we don't lose the bone deposition or muscular strength. So, recommendations are that people, older adults and particularly people with Parkinson's do engage in resistance or weight-based training consistently in order to maintain that function.

Polly Dawkins:

Any recommendations for specific weight-based trainings that you like for people with Parkinson's?

Hannah Fugle:

Yeah, yeah. There's a lot, you know, there's different ways to achieve that. It may be using your body weight. It may be dumbbells or resistance bands or anything like that. The recommendation is just large muscle groups. So typically, I say, you know, fronts of your thighs, backs of your thighs, your core muscles are huge. Your buttocks muscles are a big driver in upright posture and power and then muscles in the upper back and kind of the posterior aspect of your body will help with positioning and posture. And then one aspect, I think that is often missed is also looking at the ankle complex. So, one of our first lines of defense for balance is what's called an ankle strategy, right? If you step on something uneven in an ideal system, that body will just correct with a small motion at the ankle. So, making sure you have strength in your calf muscles and the fronts of your shins can also be really helpful in terms of maintaining your balance.

Polly Dawkins:

So, calf and front of your shin helps with your ankle, is that right?

Hannah Fugle:

So, it's gonna help with, yeah kind of the dynamic stability, but also the ability of that ankle to correct for little perturbations or shifts in your weight that occur, you know, if you get bumped into or you step on something uneven.

Polly Dawkins:

Any recommendations of what people can do for calf and shin strengthening?

Hannah Fugle:

Yeah. So, heel raises are classic. Hold onto the counter, pop up onto your toes, you know, and run through that for a number of repetitions until you get some fatigue in that lower leg. In the same way you can hold onto that counter, pull your toes up towards the ceiling, avoid kind of leaning back and shifting away from that counter, but really trying to use the muscular effort. And then the other is just standing on surfaces that are compliant, something that's a little swishy or wobbly could be a foam pillow, or, you know, patio cushion requires small stabilization in the ankle complex as well.

Polly Dawkins:

That's great, things you have around your house that you could...

Hannah Fugle:

Exactly. Yes.

Polly Dawkins:

But you were saying stabilize yourself near a counter or what's your recommendation to really prevent falls?

Hannah Fugle:

Yeah. When people are practicing balance, my favorite is and actually this is a pretty good description here but is a back to the corner and then a chair or a Walker or something locked in front. And that way, if there's a loss in stability in any direction, there's some stable surface that will prevent a fall.

Polly Dawkins:

That's a great idea.

Hannah Fugle:

Yeah. So, if you don't have a corner in the house consider closing a door and that sometimes creates a corner that you don't already have in mind.

Polly Dawkins:

Closing a door?

Hannah Fugle:

Yeah. So, a lot of times people say, oh, I don't have any corners, but if you close, you know, a door to the bedroom, oftentimes behind the door you can create a safe environment.

Polly Dawkins:

Oh, that's a great idea. That's a great idea. Ok, we've talked about muscles, next topic that you wanted to touch on.

Hannah Fugle:

Yeah. I'm gonna talk about vision. So, balance, you know, in order to stay stable on our feet, we really rely on three systems. One of those is vision. What we gather about our inner environment, from what we see. The other is that inner ear, which I touched on a little bit, the vestibular system and then sensory information we get from feet or ankles, even feeling your bum on the seat you're sitting in, right, helps, you know where you are in space. If vision is compromised, it obviously will impact our ability to use that resource and people with PD, you

know, it's problematic, because they often are compensating visually for deficits in other automatic or internally generated movements that compensate for that postural instability. So, it was touched on I know in an earlier talk that people with PD can develop visual blurring or double vision. They can have field cuts or glaucoma or, you know, macular degeneration or other things that compromise their ability to use that visual resource. So, thinking about the importance of this, you know, when you're navigating curbs or uneven ground or busy environments more likely to trip on something or bump into something.

Polly Dawkins:

Are there strategies that you and the physical therapy world recommend for vision and eyesight?

Hannah Fugle:

Yeah. I mean it's a little bit outside of our scope. I usually will defer that, you know, to occupational therapy, some occupational therapists their passion is that visual training and sort of home set up and environmental awareness. And the other, as it was recommended was to work with an optometrist, you know, make sure that your glasses are up to date. If you're having double vision, don't just, you know, whisk it away, but really know that there are things to address that prism lenses are an opportunity to maybe correct for that a little bit, but again, very, very important to just work consistently with an optometrist. We do have a neuro ophthalmologist in our community, which is a huge resource to us. So, if you have access to that, it may be the right choice. I've found that some of our just general optometrists aren't as well versed at working with our neuro population. So, finding somebody who you know, is aware of visual dynamics and not just, oh yeah, your visual acuity's good. No problem. Because I do get patients that'll come in and they're like, I still can't see and I'm not sure what's going on. So, you know, explore your options in terms of optometrists and find somebody who understands PD pathology.

Polly Dawkins:

Great. Got a couple of other questions and a few questions from the audience, we have about 10 minutes together if that's okay for you. And I want to make sure that we touch on every topic you wanted to talk about today as well. The one question from Kevin in the chat is what are your thoughts on plyometric exercise?

Hannah Fugle:

Yeah. So, I'm assuming by plyometrics he means kind of dynamic strengthening or kind of full body movements? My best guess? Yeah. I mean, I'm certainly all for that. I think, you know, when we talk about postural instability, we're talking about a lot of different aspects of balance, static balance or your ability to just balance standing still is really just a very small part of your balance ability. So, you know, full body, large scale movements, including kind of dynamic or walking balance you know, reactive strategies and those, you know, larger adjustments than just an ankle strategy are really critical to work on. So, you know, again, full body movements,

things like PWR or LSVT Big are great options. So, if that's kinda what's being referenced, I think that's a great tool.

Polly Dawkins:

Super. Janet asks you that if somebody, a person with Parkinson's can do yoga practice, that incorporates large muscle groups like sun salutations, would that be enough of a weight bearing exercise to help deter Parkinson's issues?

Hannah Fugle:

So, I mean, I think any amount of movement is helpful for, you know, motor severity. Aerobic exercise and resistance training are particularly well supported in terms of reducing that motor severity score. In terms of weight bearing, body weight is good. If you can add more weight, that's gonna be helpful in terms of building muscle and developing that bone strength. From a balanced standpoint, you know, shifting your weight, controlling where your weight is over whatever base you have, yoga can be a great option. Tai Chi can also be a nice kind of community or group-based intervention to work on that.

Polly Dawkins:

Got it. Somebody else asks, Susie asks if you have back problems and I'm assuming pain, because she refers to pain as well. What is the best way to work on strengthening the back?

Hannah Fugle:

Yeah. So, I think typically people wanna target the low back, right? If they have low back pain, I'm like, I need to strengthen my back. But what you actually need to do typically in that environment is to offload your back. So, strengthening your core muscles or deep abdominals and your glutes or your buttocks muscles. So, stabilizing around that low back takes the pressure off of that area. So, working with PT, I always recommend physical therapy for low back pain because it can again have multiple factors. For folks with Parkinson's, it can also be related to axial rigidity. So, trying kind of large-scale rotations can also help if there's a stiffness related to that symptom.

Polly Dawkins:

That makes good sense.

Hannah Fugle:

Yeah.

Polly Dawkins:

This might be more of an occupational therapy question, but perhaps you might have thoughts on it. How do you slow down when putting stuff away? This person says I fall when I twist my upper body when I'm in a hurry.

Hannah Fugle:

So yeah, I think probably there is some level of home safety set-up that would be beneficial here. I think just being mindful of where your feet are relative to your body weight probably is the biggest thing in that scenario. Turning can be a common place where people lose their stability because their body weight gets kind of outside of where their feet are standing and that results in a fall. Working with physical therapy specifically, I will often use interventions practice turning on a treadmill within a safety net, which allows you to work on the speed and agility and power of a step when you're turning to make sure that you're not getting this kind of smaller stuttering step that may catch on the floor, catch on the carpet, and result in a fall. That's a tough one. Turning is worth addressing though. And again, I think the clinic environment can be a great place if that somewhere where you find that you are falling repeatedly.

Polly Dawkins:

Like I asked Amanda or said to Amanda, it seems like everybody should have a physical therapist on their Parkinson's team.

Hannah Fugle:

I do recommend it. Yes.

Polly Dawkins:

So, tell me, why is that the case? Why do you recommend that? Why and how often should a person with Parkinson's see a physical therapist?

Hannah Fugle:

I think, you know, it's a movement disorder and exercise is one of the number one things that we can do to manage the symptoms, both motor and non-motor. So physical therapy, we are movement specialists. That's what we do. When my clients come in, you know, with Parkinson's my first goal is education. And then a baseline testing. So, we use objective testing to look at different types of balance. We look at different aspects of your walking and then we say, okay, well from there, how do we get you where you want to be functionally? Right? Neuroplasticity is real and practice makes better. So, the clinic environment can be a great place to help you challenge yourself and your system in a way that wouldn't be safe within the home setting. But also designing home program or answering specific questions you may have or movement aspects that you may be presenting with.

And then, you know, PT can be really helpful, I think in collaborating with neurologists and movement specialists. Because we do have more time with you in the clinic. I take my objective testing and very thorough. And I will present that to the neurologist, even implementing testing specifically if they've had a medication change in the last two weeks or six weeks or something like that, because then we can say, okay, is this positively impacting their movement? Or is it

maybe resulting in increased dyskinesias or something else that's making them you know, less functional overall.

Polly Dawkins:

That makes sense. Yeah. Yeah. Somebody. Go ahead.

Hannah Fugle:

One aspect I wanna make sure I just touch on briefly today is because I think it's not often talked about or not fully understood is the idea of that dual task or distractions and then the impact of motor planning on balance and risk for falls. So, one thing I find is that people who have difficulty in distracting environments are more likely to fall or to festinate or to freeze. And so even the example of the gentleman in the closet turning and losing his balance, you know, he's doing two things at once. He's balancing and turning while holding something in his hand and thinking through where he is gonna put that shirt or putting it on a hanger or whatnot. So, it's a good example of if your body is compromised in those environments, it might be worth training that, so what's neat is that we see it is an area where things change if we practice it as a specific skill.

So one way to kind of check in on yourself if this maybe is something that you deal with is, you know, if you're walking and talking to your spouse or a friend, do you slow down when you answer their question or do you even have to stop your feet you know, to complete that sentence and that might be an indication that that system or your body's ability to efficiently shift between those two tasks is slowed. And so again, that might put you at a higher risk for falls and then that other piece, that motor planning, and I know this was touched on earlier is really your body's ability to kind of see your environment, to problem solve, how you're gonna move your body in sequence to safely complete that task. And unfortunately, this can be compromised. So, people choose either really inefficient or illogical ways of moving.

They may add extra steps or turns. They may leave their Walker in a place that's entirely unsafe and cause for tripping hazard. I find this doesn't always improve amazingly with intervention. So really just a call out to caregiver's spouses, loved ones. You know, if you're seeing this, sometimes it can be critical that you play kind of quarterback, you know, you see the field and you anticipate. Try to be one step ahead, move obstacles that might be a tripping hazard or say, you know, okay, let's go this way because this is the clearest path. Just kind of assisting that brain again to move safely through the world.

Polly Dawkins:

Yeah. That's an important part of the team approach, isn't it?

Hannah Fugle:

Absolutely. Yeah.

Polly Dawkins:

I've often heard our movement disorder neurologist friend Helen Bronte-Stewart who's a dancer as well as a movement disorder neurologist talk about training your deficits and that's what athletes do as well I expect.

Hannah Fugle:

Absolutely.

Polly Dawkins:

Really working on those topics with that are not the easy things with your physical therapist and leaning to those deficits, training those deficits might be some of the most important things you can do to your safety.

Hannah Fugle:

Absolutely. Yeah. And I think, again, you go back to that idea of fear of falling, you know, a lot of times that makes people avoid those things. But that only puts you at a higher risk for fall. So, working again with a physical therapist or, you know, a movement specialist of some kind allows you to hopefully overcome that barrier of fear by using equipment or having an extra pair of skilled hands on you so that you can challenge that system and not be at risk for falls, right.

Polly Dawkins:

Yeah. Time is flown by Hannah and I think we're...

Hannah Fugle:

Yes, it always does.

Polly Dawkins:

It always does. If you were to have a missive or a takeaway that you would like to tell folks who are watching, one piece of advice or take away, what would you ask folks to think about or do?

Hannah Fugle:

I'd say keep moving, don't stop moving. You know, whether that's aerobic exercise, resistance training, balance specific training, you know, that's one of the big things in terms of reducing that motor disease severity. So, keep moving and I think Joe touched on it, you know, ways that you enjoy moving are critical because you'll keep doing it. So as a PT, my biggest thing is yes, keep coming to see me and we'll challenge those specific aspects to keep you as safe and functional as possible, but really critical that people recognize, you know, the other 165 hours of the week or whatever there is left after they've seen me for maybe two sessions. That's the ticket, you know, is to keep moving in those hours remaining throughout the week.

Polly Dawkins:



Hannah, it's always great chatting with you and learning from you. Thank you for what you do for our community. And of course, we'll have you back here again.

Hannah Fugle:

Yes, please. I always love speaking, helping educate and, you know, share the knowledge that I have with the world of Parkinson's.

Polly Dawkins:

Thank you so much.

Hannah Fugle:

Yeah.

Polly Dawkins:

Take care.

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