Introduction and Dr. Hawleyu2019s MS background

Welcome, Dr. Hawley I am so glad that you were part of the Multiple Sclerosis and Neuroimmune Summit. You have so much to offer our attendees. I'm going to read your, bio, and I'll add a little bit.

Dr. Hawley is a Doctor of Physical Therapy and a Multiple Sclerosis Certified Specialist. She will explained that, when we do the interview, she, utilizes the concept of neuroplasticity.

in a wonderful online, MS wellness program, The MSing Link, which helps her clients reduce fatigue, get stronger, improve their balance, walk better. This is really a fabulous approach.

that I love. Dr. Hawley's been a keynote speaker at several MS. Conferences. she features, frequently in MS Support groups, and she continues to help herself.

and she keeps herself up to date with what the research says are the best things for all of us with our MS. And I'm one of those people with MS. so, welcome, Dr. Hawley.

I want you to tell us a little bit more about what the MS specialization really means. Yes. First of all, thank you so much for having me. I'm excited to be back.

And the MS specialization, I think is really important because most physical therapy eyes are not specialized in MS, meaning they may have experienced one day learning about multiple sclerosis within their doctor at a physical therapy program.

But as we all know, Multiple Sclerosis is a different breed. It's not even the same as your classic or typical neurological diagnoses. And so the MS specialty is a certification that dives deep into the symptoms of MS, the treatments for multiple sclerosis as well as symptoms, different therapies.

And it's all based on science and what research says. And so it's more of a in depth holistic approach specifically for MS. Not orthopedic injuries not other neuro diagnoses.

She's just MS. You know and for everyone who's listening, I really want to, reinforce the benefits of having an MS. Specialist. on your care team that really understands exercise and, the various things that we can be doing to live the greatest life possible. So, how how how many MS.

Specialists are there in the country? Oh, my gosh. I'm not exactly sure how many there are in the country, but just to give you an idea, when I first became an MS.

Specialist, which was, oh my gosh, maybe eight, eight years ago or so, at this point, I was one of three in the entire state of Massachusetts. So very, very few now in the state of I now live in New York State, but I, I still treat some of my clients in Massachusetts.

Now in Massachusetts, I believe there are six. So it is few. And it's one thing that bothers me because as we'll dive into MS specific physical therapy is so different from traditional or orthopedic physical therapy.

And so there needs to be more of us. So hopefully that number will increase. But it's very, very low. I mean, I it's I think it's, vital that everyone get to see a physical therapist, ideally a, MS.

Specialist so that they can understand your baseline and, help you improve it, help you stay strong.

What MS specialization means

So let's let's, begin with walking. well, it will be even more basic. So what does it take for my muscles to work? Let's say my muscles, in my arm? because I'm going to be drinking, some water as we talk.

what needs to happen for all of this to work? Yeah. I think that's such a great starting point because we really need to understand what is happening in our body in order to make an actual improvement that is meaningful, not just getting stronger, but improving function.

So first, what needs to happen is our brain needs to activate. And that can happen one of two ways. One by you having the thought of reach for my coffee cup, reach for my water, reach for my mug, you have to have this thought to do the action, or the other way that can happen is a reflex like if you touch something hot you don't even have to think of move my arm, you just move your arm to stop touching the hot thing.

So one of two ways your brain has to first think about what you want to happen then. And this is the most important. Then that thought needs to pass down a bunch of different neural pathways down to the muscle.

hang on Dr. Hawley neural pathways, people may not know what neural pathways is. So can we break that down to. Absolutely. So your neural pathways is the connection between your brain and the muscle.

So in this case let's say this is my bicep. Right. So let's say I need to straight in my arm. And that would mean to use my bicep in one way my tricep.

There needs to be a way for my brain to talk to this muscle, in this muscle to extend my arm. It doesn't just jump from here to here. So neural pathways are the the the system that it travels through.

It's like a Wi-Fi connection almost, that start at your brain and travel down to your arm. And then that's what tells your muscle to move. So it's going.

That so it's going through my brain probably a couple cells in my brain through my spinal cord, probably in my neck. and then out, the peripheral nerve, to the muscles, for the legs.

It's going through the spinal cord, a little further, because my legs are further now. Yeah, yeah, those neural pathways, that WiFi connection has so many different ways to get from point A to point B, and it has it travels different system.

So as you mentioned, your legs are further down. That's going to first travel down your spinal cord a little bit further than it would if we were just going to be using our shoulder or our elbow.

It's it will leave the spine at a different area. But to keep things simple, it's those three steps. It's the brain has to activate. Then that WiFi connection, those neural pathways and then the muscle.

And that's really important because most people with MS. and most physical therapist are personal trainers that don't use an MS approach. They'll just focus on strengthening the muscles.

But as we all know with MS, the muscles aren't really the issue. Yes, there can be weakness, but the reason there's weakness is due to that Wi-Fi connection, that neural pathways the demyelination.

So we have to focus there. So how do I strengthen, my muscles? you know, because everyone is listening, I want you to know, I'm 68. in I know the natural history of, people in their 60s is we're losing muscle mass.

We're getting weaker, more fragile. we have more problems stumbling and falling. And I don't want any of that stuff to happen to me because I've got big plans.

So what? What what do we do? Absolutely. So one of the best ways, according to research, to get stronger and improve your function. And by function, I just mean things you just talked about.

Like you still want to live your life without tripping, without falling. Our day to day activities. Essentially, it needs to be more function based exercises rather than just purely strengthening exercise.

And so what I mean by that is if you didn't have MS, what you might be prescribed by a physical therapist or even a personal trainer might be things like squats and lunges and, bench press and machines at a gym.

But when you have MS, unfortunately, the brain does not have the same carry over, meaning you could get full strength with sideline leg raises or the clam shell exercises.

Typical PT exercises.

How the brain communicates with muscles

You could get full strength, but then you go to stand up and walk, and there's no carry over that strength that you had lying down or sitting doesn't activate when you're standing.

So hang on. So going to the gym, getting stronger, doing my, squats and barbells and dumbbells, which make bigger muscles may not be as effective at improving my walking as a functional exercise program.

Exactly. And you'll know that you're the type of you'll know if you've been doing the correct or incorrect. I mean, all exercises. Good, but you'll know you've been doing the correct or incorrect type of exercise, basically meaning regular or functional.

If you have felt like you're getting stronger. But walking is still hard, or you're getting stronger and better balanced. But stair climbing is not any easier.

Like something's improving, but your day to day activities aren't improving. That is a huge red flag that you have not been doing function based exercises.

So, let me back up for a moment. how quickly if people, listening here are doing their exercises, they've they've gone to their PT or their gym, their personal trainer and, when should they see if, in your mind, functional improvements in their tasks of daily life.

Ooh, that's a good. Like, a two week thing. A three week thing. A two month thing. Great question. It's going to depend on the strength of your current Wi-Fi connection that we were talking about, the strength of your current neural pathways.

I will say for some people, and I can give you a demonstration of what I mean by a functional exercise. But for some people, truly, within 3 to 5 days they will tell me feedback of, oh my gosh, I'm lifting my ankle high or my foot drop is better in just 3 to 5 days.

And if that's the case, the reason that's happening is because your neural pathways, again, the connection leading from your brain all the way down to a muscle, in this case, your ankle, it was already there and working.

It was just a little bit weaker. Or maybe your body was overcome with a different neural pathway. So we just woke this one back up. So if that's the case, if those neural pathways are still there and working, they're just a bit weaker.

It is possible to see improvements in 3 to 5 days for other. That sounds like you're describing neuromuscular reeducation. Yes, exactly. Okay. So what do you explain that term I love that term.

yeah. And I think it'd be great for our attendees to understand that. Yes. So neuromuscular reeducation is basically reeducating the the correct muscles.

How to work and when to work. And this happens in mass as well as really anything else, even if there is no diagnosis involved. When a muscle gets weaker, our body automatically, unbeknownst to us, our body over

compensates with different muscles because it can and it makes it easier.

But if we don't catch on to that, the weaker muscles will continue getting weaker. They're still there, they're still working. But we need to reeducate them.

We need to wake them up so that they can start working again through specific exercises for that muscle group. So that's generally what's happening with neuromuscular reeducation.

Okay. are there ways to, do that? Is that what we're talking about? The functional exercise? Yeah, I think one of the best ways to do that is through functional exercise for the second piece is for specific muscle groups.

And a great example of this is most of my clients that I work with are looking to improve their walking. But you wouldn't just want to practice walking as a whole because your body, your subconscious brain, it's going to use the muscles that are already strong, not the weaker ones, because your body's overcompensating with the muscles that are working.

So by in order to get neuromuscular reeducation, we have to do specific exercises for specific muscle groups and even specific muscles. Not just big broad exercises or big broad movements.

Can I show you a demonstration of what I mean? Yeah, yeah, I think that'd be super helpful for me. Okay, so move that out of the way. Okay, so if you are someone who is looking to improve your walking, of course one thing you could do is just practice walking.

But again, if you do that, you're going to more likely than not be overcompensating with the muscles that are already strong and with mass, we really want to focus on strengthening the weaker muscles.

So yes, that's going to be more challenging, but it's what will reap the most benefits. So what I mean by functional exercises is instead of just practicing walking as a whole, we break it down.

So we want to think what specific movements do I need to do to take a step forward. So the first thing that we need to do to take a step forward is shift our body weight forward.

If we don't do that and we go to lift this leg, we're going to fall backwards. So we first need to shift our weight forward. Then we need to bend our knee.

Then we need to swoop our foot up so we don't have foot drop. Then hang on. So we're we're swapping well flipping the foot up at the ankle so the toes are come in the front half the foot are coming forward. Yes.

Functional exercise for walking and movement

And if they don't come forward far enough, we trip over our toes and fall. Yeah. You're more likely to drag, have foot, foot? Yes, exactly. So once you do that with your ankle, then we bring our knee up, then we straight in our knee.

And then we put our foot down or heel down. And while all while that was happening, I was standing on one leg. So that's seven movements to move one leg forward.

Then we do all seven movements on the other side as we move the other leg forward. So that's what walking requires and what we would want to do for functional exercise is make each of those into their own exercise.

So for example, the first one was we have to be able to shift our body weight forward. So this is an exercise that would be an amazing exercise to do for improving your walking, because it's the first step.

Another example could be step number two was to bend your knee. Now if this is too challenging you can do this holding on to mobility aid or whether it's a trekking pole, a cane, a walker, a countertop, whatever you have, hold

onto something and practice bending your knee.

If that's still too challenging, you could practice it seated. I'll use the other leg, but you can practice bending your knee this way. If that's still too challenging, you can practice it lying on your bed when you're lying on your side or lying on your stomach, so you find a different position that makes it easier and more doable for you.

But regardless, your practicing bending your knee, that's a specific action that we are doing to try to activate those hamstrings. Gretchen, just about so, as you're going through these motions, are we doing them rapidly?

You know, a a lot of rapid movements. Are we doing them very slowly and precisely? Well, or is there a what's your approach really question. My first approach when I'm working with, let's say, someone new, they've never done more specific exercises before is always slow and steady, especially because I'm making this look easy.

But the majority of people watching right now are probably thinking, I can't bend my knee that much, and just know that you don't have to bend your knee this much.

You can bend your knee this much, and you're still bending your knee, but this slower and more controlled you go. The more time that gives your Wi-Fi connection, your neural pathways to get from your brain to travel down your spinal cord and then out towards these nerves all the way down to your knee.

That takes time. If you're trying to go quick and speedy, it's probably not going to work as well. And that can actually make spasticity worse, tight muscles worse.

So slow and steady is the approach that I like to do. do you have a magic number of how many reps you want people to do in a session? So generally speaking, what's more important than the number of repetitions is good quality.

So that's the first thing to know. And what I mean by that I'll fix you for the same exercise. So good quality for this exercise would mean that as you bend your knee, your foot is hidden behind your thigh.

That would be good quality, because what that would indicate is that when you bend your knee and then bring your forward, you're in good alignment. What would be bad quality would be something like this.

Like your knee goes out to this side, or maybe your foot goes out to this side. So the number that I tell my clients to shoot for is 30. Good quality repetition.

And but what that might look like is your first set might be ten good ones. And then you take a break. Your second set, you might only be able to do six good ones before you start noticing that the knee swings out.

So you stop there. Your third set might be four, and then you start noticing some swing. So you have to pay attention to the quality. It doesn't matter if it's ten times three sets or if your first set is ten, second set is six, third and fourth set or three doesn't matter how you get there.

Cumulatively, 30 is the number that I like to shoot for. And it looks like you want to be, and you want people to be in front of a mirror so they can have that visual feedback.

Absolutely. And a mirror would work great if for some reason you don't have a mirror, that would work. We all like to use zoom. Nowadays you can pull up zoom just with yourself.

You don't have to have anyone on the other side of the screen, your phone. So many different ideas. And okay, so everyone who's listening here, I want you to do a zoom of, of your first bout of exercise that, Dr. Gretchen Hawley just so graciously demonstrate for us.

and then you can see your progress. So, yes, you zoom. that is marvelous. I have people take photos of themselves because they they don't understand just how much transformation they're going to have in the next

year.

Absolutely. And it's tricky too, because these exercise. So each of those seven movements that I demonstrated are seven exercises. We just demonstrated the first two.

But when you're doing them, more likely than not they're going to feel hard and challenging. So your you might be less likely to pick up on improvements that you do see unless you're recording it and or taking pictures.

So I love that idea. This is wonderful. Well, thank you so much for joining us today. I, I hope you found this interview, this demonstration incredibly, insightful, engaging and very helpful.

Now, if you're a summit purchaser, stay right here because we're to continue on this wonderful conversation. and if you're not, click on the button below or to the side and, get access to a world of information.

Now get ready to reclaim your health. If you're watching this, thank you so much for being a valuable member of the community. Gretchen, let's dive in and continue this conversation.

So if people are, doing these zoom, videos, what kind of transformations, are you seeing? So the first thing, the first type of transformation that, that I've seen that you would likely notice first is more movement.

So as I mentioned about earlier, you might notice your ankle is lifting a bit more than what it used to when you're doing an ankle lifting exercise. Or in the example we were just demonstrating.

You might notice you're bending your knee a little bit more. Your toes are getting off the ground. So more movement. It's typically the first thing, the first type of transformation that you'll notice and that you'll feel.

Then this second type is when it starts to also impact your day. So you'll notice, oh, I'm not tripping as much. Normally I tripped three times a day.

It's only been 1 to 2 times per day, or I'm not using my arms to pull myself up the stairs as much as I used to, but the trick is to see that type of transformation.

You not only need to do the functional exercises that we've been discussing, but you also need to implement the movements, the exercises throughout your day as you see fit.

Neuromuscular reeducation and practice strategies

So an example of this might be let's stick with that same exercise of bending your knee. You're working on bending your knee more, and you're doing that for up to 30 good quality repetitions, whether that's within one setting or throughout the day.

But in addition to that, every time you get up to go to the bathroom, you're going to try to bend your knee more when you're walking or anytime you get up to go anywhere within your home, or maybe going to get a glass of water in the kitchen you're implementing, bending your knee more.

And what that does is it allows your brain to understand, oh, you you don't just want to get stronger there. You want to use that strength specifically when you're walking in your home.

Got it. And it starts to put two and two together. So it requires that functional exercise combined with implement doing it throughout your day. And so let me let's see if I'm going to paraphrase that correctly.

We do the functional exercise. We work on this neuromuscular education. And then as I'm doing my task of daily life, the more I can, visualize and incorporate some of those movements, the more rapidly this will carry over into my task of daily life.

Absolutely, perfectly said. Do you do any visualization exercises with people, as they go through these programs? I do, I think visual ization, excuse me, is a big component, especially if you are someone who, when you go to practice movement, let's say like the bending of the knee, maybe lifting up your ankle, lifting up your leg and no movement happens or very minimal movement happens.

It is still extremely important that you practice that exercise, because the way to find a neural pathway, that Wi-Fi connection, a way to find a connection that works is to reroute itself, which is possible through our brain.

But the only way to make that happen is to practice. The movement, is to keep doing the thing that you are aiming to improve, even if there is no movement.

And one thing that can help with that is attempting to do the same exercise while also visualizing what you are wanting to happen. So you're sitting or standing and you're practicing bending your knee.

And regardless of what movement you see, or even if there is no movement, you're visualizing your knee bending, bending, bending, bending, and feeling those muscles on the back of your thigh tensing.

And by doing with my eyes closed or my eyes open. It could be either. And honestly, everyone's a bit different. I personally can visualize a bit better with my eyes closed, but other people can visualize it better with their eyes open.

Some people like to, or some people will notice the most benefit with their eyes open and looking down at the specific body part that you're trying to move in.

Yeah, exactly. And then, is it helpful sometimes to put my hand on the muscle I'm trying to activate? So now I can, like, okay, I'm feeling those muscle fibers do something.

So and I'm visualizing that and I'm trying to get it to happen and oh my goodness I can feel the muscle activating. Is that helpful to put my hand there.

Yeah it's very helpful. And for one of two two reasons. One, as you just said you can feel it working. But the second reason it's helpful is because you might think that your muscles not working at all, when it actually is.

And a good example of this, I'm going to scoot back for a second here. A good example is a movement that I call marching. So if you were standing, it would look like this where you lift your leg up.

That was one of the steps of walking was lifting your leg up. But to do that, seated I'll face this way, to do that seated it would look like this. And it's oh yeah, to attempt that movement right now there's probably some people watching where it doesn't lift at all.

You're trying to do that, but nothing is happening. But if you touch the muscle that's supposed to be working, which in this case it's your hip flexors, so the muscles in your hip crease, so you can take one, 2 or 3 fingers, poke somewhere it doesn't have to be specific.

Poke somewhere near the top of your thigh and attempt to do that same movement again and try to lift look like a lift down. Did you feel anything under your fingers?

If not, maybe you weren't in the right spot. Maybe shift your fingers a little bit more outside or inside or further down so it takes a little bit of trial and error.

But what is likely happening is you will feel muscles pop up into your fingers and as you attempt to lift, even if there is no lifting. And what that tells us is that that neural pathway, that connection from the brain down to your hip flexor is working.

It's just weak. It's not strong enough yet to actually see any lift, but it's there and it's working. We just have to get it

stronger. Oh, that is such, wonderful information.

So this is a way for you to know that the messages are coming. We just need to continue to reinforce them to do that. Neuromuscular reeducation. And then we will be able to begin to grow stronger muscle fibers.

But with the arms, we have to wake up the wiring first, and then we can make stronger muscles. Yes. And if you're someone who you just practiced not with me, and you had your your fingers on your thigh and you truly didn't feel anything, regardless of how many places you moved your fingers, then what that means is that your Wi-Fi connection, your neural pathway from your brain down to your hip flexors.

In this specific example, it's not working. But that's okay. As we discussed, your brain does have the capacity to find a new way to get from your brain down to your hip flexors.

That's what neuroplasticity is. And so even if you didn't feel anything, please don't feel it's easier said than done. But please don't feel defeated and just give up and move on to the next exercise.

It should still be an exercise you do, because with every repetition, your brain's going to try to find a new way, a new Wi-Fi connection to get from here down to your thigh.

Electrical stimulation and exercise tools

Now, another, key question here. electrical stimulation of muscles certainly accelerate my recovery. because I was profoundly, profoundly, profoundly weak. and, I'm curious, do you see a role, for adding electrical stimulation of muscles into the functional exercise program?

And if so, what? how would you use that? Absolutely. So electrical stimulation is a great way to basically enhance those neural connections and get the job started, essentially, especially if you're someone who you go to try to move your leg and there's no movement, or you can feel the neural pattern, not feel the neural pathways, feel the muscles popping into your fingers, but there's no movement happening.

Electrical stimulation is an amazing tool, I think, to enhance the benefits it basically for. do you keep this in regular terms? It zaps those nerves and it zaps the Wi-Fi connection to make it more powerful.

Think about like if, if you're oh my gosh, what are those called when you're trying to, someone is having a heart attack or something. You're trying to revive a.

Defibrillator or shocking people. Yes, you can kind of. I mean, obviously that's not what electrical stimulation is, but you can kind of think of it like that with every repetition that you feel when that electrical stimulation kicks in, it's waking up those neural pathways.

So I think it can be beneficial. I do like to suggest doing exercises with it on so you can get that that benefit, that enhancement and with it off, because our neural pathways work different when we have assistance from stimulation versus no assistance.

So I personally like to recommend doing both. Yeah. I in my practice I do that too. I'd like to have people, sometimes they never use them. I don't want to be, clear that each term is not a replacement for exercise.

It's simply another tool to, enhance it. Yeah. And one thing also to note which your audience knows this very well, but just to make clear, is that there's different types of electrical stimulation.

It's not all created equal. For example, there's a specific type called Tens which stands for transcutaneous electrical nerve stimulation. That's probably not going to do much for you unless you're using it for pain relief.

But that's not the type that's going to help activate your muscles. The more the type that's going to help with your muscles is more. And, yes. Which stands for neuromuscular electrical stimulation.

So there are differences. Don't just go out and buy the first electrical stimulation unit. You see. definitely. Do you, and you want to have, physical therapist help you get started with it.

I think, getting, some of these gizmos and starting trying to use them on your own, they will not be very helpful. you want it to be used with the help and guidance, of a physical therapist to get the most out of it.

Yeah. And you can combine everything that we've been talking about. You can have the electrical stimulation pads on, let's just say on your hamstrings as you're doing functional, specific exercises for your hamstrings so we can combine the two.

It doesn't have to be okay. I'm doing my electrical stimulation now. And then later I'll do my functional exercises. It it all works together. Okay. Now one of the most common questions I get, is what are the best exercises according to research, to maintain my function or to restore my function. So.

Oh, what does the research tell us? What what what where should we focus?

Research-based exercise principles and neuroplasticity

So where we should be focusing one piece of this is something we've touched on, which is the function part, the functional exercise and the way that you can implement that into your day is to think, what goals am I working towards?

What? What daily activities do I want to be easier? And I give the example of walking earlier. So let's just say walking. You break that goal, that activity down into as many movements as possible.

And those movements are now your exercises. So you could do the same thing. If your goal is to stand up from a low or squishy surface like that chair back there, or the toilet with better strength, break that down.

What needs to happen in order for you to stand up from low surfaces and there's generally about 5 to 6 movements or so. Those are your exercises. So that's one component that research shows is an absolute must.

Is that functional exercise is another component is focusing more on the neuroplasticity side of things. As we discussed. That's the ability of your brain to strengthen that Wi-Fi connection or to find a new connection if it's not working.

And a few ways that we can do that one is through functional exercise, but a few other ways is to make sure that you are having focused attention with each of your exercises.

You're not just doing your exercises, but thinking about your grocery list or what chores you're going to do later or what you're going to make for dinner.

You're focused on the exercise at hand. Another way we can enhance neuroplasticity is to add a challenge. So maybe you're trying to do a certain number of good quality repetitions before your favorite song ends.

One of my clients recently said she was doing her walking exercises to Miley Cyrus song. Apparently she loves Miley Cyrus and it was specifically this song Wrecking Ball.

She plays a song and her goal is to complete that round of exercises with good quality before the song is over. That adds a challenge. It's a fun challenge, but it adds challenge.

You could add balance and the there's the reward and a risk. The risk is you don't want to fall off of this squishy foam pad that you're that you're standing on.

So adding some form of challenge or urgency can also increase our neural pathways in neuroplasticity. And then the last one that I like to implement is novelty, which means doing something new.

And this can either just mean simply doing your exercises in a different order. Don't always do them where the first exercise is always first, and then it's always the same second exercise.

You want to switch up the order, but also using those muscles in brand new ways. One of my favorite examples in my online program we have an a physical therapist assistant who is a professional ballroom dancer, and she comes in once a month and teaches seated ballroom dancing.

And it's so much fun, but so much of what she does and how she moves utilizes the marching exercise that we discussed. And bending your knee and lifting your ankles.

And it's just a fun new way to utilize the same muscles that we're trying to strengthen, to improve your walking or standing up from low surfaces or stairs.

So that was a lot of information on that. But those are the two types of things we want to focus on functional exercise and neuroplasticity. Utilizing those techniques.

This has just been wonderful. Gretchen. I loved everything that you were doing. I love that you've created this online program to give people access to, this knowledge, this skill, this level of support.

Finding Dr. Hawley and closing remarks

can you tell us, how to find you? Absolutely. One of the best ways to find me is probably just right through my website, which is doctorgretchenhawley.com, but I'm also on social media.

I'm on Instagram as @doctor.gretchen. I have a YouTube channel where I show tons of exercises, which is Dr. Gretchen Hawley. I have my MSing Link, which is available in paperback, e-book or audio.

And I also have my, online program called The MSing Link. this is wonderful. Thank you so, so much for being part of the MS and Neuroimmune Summit. You, offer so much to our community.

Much love to you and your family. And I'm so excited, for you and your, soon to be addition. Yes. Thank you so much for having me.