Rehabilitation Strategies

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[00:00:04] **Rebecca Whitney:** Well, thank you all for joining and Dr. Cabahug thank you so much for coming up here last minute to be able to be a part of this. So, there's some incredible expertise right here in these four women. So, thank you so much for being here with us and taking the time to be a part of this community. We really appreciate it.

[00:00:23] But this session is also meant to be interactive so if you have questions as we go along, please raise your hand, as well as for those participants who are online who are taking questions from our online audience as well. But we'll just start off with a basic question, and as we go along, I would also like you to say your full names and which institution you're affiliated with. We could do that as well. But when and why is rehabilitation important after a diagnosis or an inflammatory attack? And how soon after onset should rehabilitation begin?

[00:01:01] **Dr. Christina Sadowsky:** I guess, I'm first in line. I'm Christina Sadowsky. I'm from Kennedy Krieger and Johns Hopkins. And when? As soon as medically stable. Why? Because disuse is never good for the nervous system. Is not good for the musculoskeletal system. Was there anything else there? There is some basic science work that says that too early of an onset of activity can contribute to secondary injury. That secondary injury at the cellular level is defined in the first about two weeks.

[00:01:43] But I don't think in the clinical practice that has any role because the truth is when you have a neuroimmune disease, you're going to have medical complication at the beginning so that and the inflammatory circuit continues much longer than that. So post traumatic, if you have no other issues probably you shouldn't have intense activity in the first two weeks to avoid a secondary cascade of complication, but that's my answer.

[00:02:18] **Dr. Clarice Sinn:** I'm Clarice Sinn with the University of Kentucky. I was previously at University of Texas, and I was in clinic with Dr. Greenberg, Dr. Wang, Dr. Harder, who just spoke. Now in Kentucky to start the pediatric rehab program. Just to piggyback off what she said, at Dallas we had our therapists start working with the patients pretty much immediately assuming they were medically stable. But it starts out slow and just as they tolerate it and then as their tolerance builds then they would increase the amount of therapy. But we weren't really hesitant to start therapy. We got involved right away.

[00:02:57] **Dr. Heakyung Kim:** So, my turn. Hi everybody, my name is Heakyung Kim, I'm pediatric rehabilitation doctor at UT Southwestern. And I would say I agree with the Dr. Sinn that we usually start from the beginning because the cellular level could be different. But what I want to share that current medicine is really focused on disease. After disease, treatment for neuromuscular disorder usually we have some difficulty with prolonged disease we have to deal with. But most of medicine is focused on disease-oriented. So once we treat the disease, afterwards we don't really pay attention.

[00:03:42] It comes to rehabilitation process but there's quite missing component at this time. So, I like to emphasize that disease control is important but afterwards we want to bring the life back to the patients. I think that's the rehabilitation process number one. Number two, I think when is always the question but when you think about when, you are late already. As soon as the patient walk into the hospital the physicians or team should think about both acute and chronic or continuum of care.

[00:04:21] After I see you, I'm going to call PM&R, rehabilitation department or therapist. W. As soon as the patient walk into the hospital from the neurocritical care, we should think about whole rehabilitation team or whole care team. So that's my answer.

[00:04:39] **Rebecca Whitney:** Thank you. And Dr. Cabahug, would you please also?

[00:04:47] **Dr. Philippines Cabahug:** Hi. Good morning, everyone. So, I am Dr. Philippines Pines Cabahug. So, I work with Dr. Sadowsky at the Kennedy Krieger Institute. So, I agree with all of my wonderful colleagues here that, yes, as soon as you're medically stable the rehabilitation process should officially start and I guess what Dr. Kim says, it should start the moment you get into either the hospital or the rehab center.

[00:05:13] One of the things that I'd like to emphasize is that it's not just a matter of the physical rehab, we should also focus on the psychological and the mental rehabilitation aspect as well. Because the changes that has happened to you, it is life altering. It can be devastating not only for you and for your family. So hopefully, we also include the rest of your family as well in this process.

[00:05:41] **Rebecca Whitney:** Thank you. Thank you so much. And another question too and this is one that comes up so often from our community. I know I heard it with my child when he was diagnosed and I know many here have heard it as well. Is there a specified time frame in which rehabilitation can occur? So oftentimes, we hear that within the six months or first year after onset that what you recover is it. Is that indeed the case? Please.

[00:06:14] **Dr. Christina Sadowsky:** That's why I asked the question from Dr. Thompson that was set up for this. You're never too late or too old once you have neurologic deficit to rehab.

[00:06:31] **Dr. Heakyung Kim:** I totally agree. I'm a physical medicine rehabilitation doctor but what I have been watching, exercise is medicine. So, it depends on what disability we are talking about but brain needs exercise, lung need exercise. If you don't use, you lose. So that's my answer, use it. There's no timeline for the treatment. The time when you need one you should start and you should continue.

[00:07:01] So, I like to just emphasize one thing that I am dealing with all patients with chronic condition. I'm heavily working on the transitioning program for childhood onset disorder at this time. The problem what I found that in the community a lot of physicians or therapists who involves the pediatric care end up saying to my adult patients that you are plateaued, we have nothing to offer, go home. And that's the saddest comment I ever heard. So, I make phone call that you applied to them and say, "Should my patient die? You cannot say those things to the patients." So, I like to finish that comment.

[00:07:42] **Dr. Clarice Sinn:** And studies have shown that you will continue to get gains back and it can be years, 10 years down the road. And one of the I think the AFM and TM session I was in yesterday, somebody mentioned that her diagnosis was 10 years ago and she's just now starting to get some sensation back. So, it can keep happening. You may get a big boost or the most gain right up front. So sometimes that's what people focus on, especially in brain injury and ADEM but you can continue to get progress throughout the time.

[00:08:17] You may not have as intensive therapies as times goes on but sometimes, you'll do therapies in spurts where you take a break, do a home exercise program especially in the pediatric population. Maybe, six months, a year later they retouch back with their physical therapist to say, "Hey, has anything changed? What are we doing? We're making progress. Our goals may change so we need to reset what we're working on."

[00:08:43] **Dr. Philippines Cabahug:** To close out that question, as we age our body changes whether you have something that's affected your spinal cord injury or not. Therefore, if our body changes our needs will change. Your rehabilitation goals will change. So this is going to be an ongoing developing process as we grow older.

[00:09:04] **Rebecca Whitney:** Thank you all very much. And when we're talking about rehab, it's usually very synonymous with those physical capabilities, walking, reaching, muscle strength, but I think we also need to consider all of those other things and it was touched on just a bit ago as far as how rehabilitation exercise movement plays into mental health. Can you all discuss how it also impacts things such as bowel and bladder, mental health, sleep. Dr. Cabahug you are being summoned to start that question off.

[00:09:45] **Dr. Philippines Cabahug:** I'm so sorry, I got lost track with your question.

[00:09:51] **Dr. Christina Sadowsky:** Bowel, bladder and exercise.

[00:09:53] **Rebecca Whitney:** Yes. How does rehabilitation play a role in those other aspects of managing?

[00:09:59] **Dr. Philippines Cabahug:** So, one of our recommendations, especially when you want to facilitate a better bowel movement or bladder program is being physically active. So just the act of being able to stand or to facilitate into standing, gravity helps with the movement of your feces down to your gastrointestinal tract. Being active helps it as well.

[00:10:25] So, in terms of when I look at the rehabilitation process and how it coincides with how we improve bowel and your bladder function and ability to manage your bowel and bladder. You learn skills during your rehabilitation process in order to help facilitate your independence or we can also train your caregivers if you are in a position that you're not able to manage your bowel and bladder program on your own.

[00:10:54] Now I have patients that, for example, in rehabilitation, if they do exercise they feel that it is better or it's easier for them to have a bowel movement or to facilitate better catheterization. I know I'm going to the weeds, but if for example, one of the problems that a lot of individuals can encounter is spasticity. And in rehab one of the things we address is how to manage or minimize or control spasticity.

[00:11:28] So, if the spasticity is interfering with your day-to-day activities or for those who need to catheterize, if you're too spastic and you can't get access to do your catheterization, that's going to be a problem. So that's where one aspect of rehab and doing the exercise and activity and working with your therapist to troubleshoot what you need to do can help. I'm sorry, it's a bit of a long-winded problem but I hope you understand where I'm coming from. It is not a one-size-fit all and that's what rehabilitation tries to do. We're like the jack of all trades in trying to address all of these different problems. We are the quarterbacks bringing all of this together. So that's my little spiel. Thank you.

[00:12:15] **Dr. Clarice Sinn:** Just to add on, exercise therapy can help with pain management. I think that was in the original question you sent us. Wwhether that's from spasticity. If you're not moving, you're not doing bracing, not really managing that, you can get contractures which causes a lot of pain, can lead to skin breakdown. So, I think just having somebody check-in with you, either your doctor, your therapist just to make sure that we're trying to prevent some of these complications can help. The exercise overall can help sleeping, can help mood, just how you're feeling in general.

[00:12:49] She mentioned the bowel stuff, but some are for bladder. There are different physiatrists who specialize in women's health and deal with pelvic floor exercise. That field's probably even smaller than pediatric rehab but there are people out there that focus on it and that can help. So, there's just a lot of different things you can do that is not just helping you walk, reach for things, grab things but it helps with the overall aspect of your quality of life and health.

[00:13:18] Sometimes I joke with my patients, I'm your cruise director make sure that you're getting every little bit that you need looking at the big picture. I think you mentioned previously that sometimes you just focus on the disease, how do we treat the disease? We as physiatrists focus at the whole big picture. How do we get you back to your life and having fun or work or just whatever it is that your goal is.

[00:13:42] **Dr. Heakyung Kim:** So my turn. I think number one, I want to emphasize is education when a physician works with the patient. Bowel and bladder is all about education. The reason why I'm saying this one because if patients themselves or family do not understand the physiology, the consequence of not knowing bladder physiology from the disorder, they cannot be good partner with the physician, so they end up having complications. They cause [inaudible] problems. So, I think from the beginning we start to educate, that's what physiatrist we usually do education, education, education. So discuss physiology with their spastic bladder. If you don't take care of bladder what happens? And then that's the starting point.

[00:14:33] Number 2, having the partnership with our partner of physicians, urology or orthopedic surgeon, seeding so that helps bowel and bladder. The other one, exercise comes. Most of our patient has spastic bladder, spastic bowel and then as Dr. Sinn says, perineal area around the rectum or bladder usually we have a severe spasticity which causes closing of the orifice, opening part is very tight. So number 1, you can exercise first but number 2, I think it's significant serious spasticity management around that area. Not simply doing exercise but little bit of, we do a lot of botulinum toxin injection in the perineal area, hip adductors or sometimes we do the rectum, in the rectum to improve spasticity, which is going to help the bowel and bladder movement.

[00:15:34] Lastly, I like to emphasize that you guys have to really stand and move with any means. Because especially bowel movement problem is if the last segment of bowel function is sucking the water from the rectum sending back to the body. So, if you sit there all day long not moving your bowel is going to sit in the rectum and the water is going to be going back to the body so the stool gets harder and harder and harder. That is going to block your rectum so you cannot really poop. So, whenever you have the time move and then dancing around. My recommendation, my prescription is always dancing. If you can dance you can help mental health, your body moves, you can pee well, you can poop well. That's the life.

[00:16:29] **Dr. Christina Sadowsky:** Maybe we can get some music tonight. But two more points. Locomotor gait training. There is good electrophysiological clinical research evidence that locomotor gait training improves the autonomic nervous system, specifically bowel and bladder. And it has to do with the fact that they're innervated from the same lumbosacral area. And the other point, tying in with the previous talk, one of the little tiles that was stop when you're overwhelmed and don't know, everything is crashing on you, is exercise. And then you hit two birds with the same flower, because I'm a pacifist.

[00:17:18] **Audience Member 1:** I have a question. What do you do with let's say, my neurologist had told me you just need to continue doing PT, keep doing PT indefinitely and I love that. But the place that I went to for physical therapy after a few sessions said, "Ok, well, we're done." And I go, "No, we're not done." "Well, based on my assessment we can't really do much more for you. We're done." So how do you…?

[00:17:52] **Dr. Heakyung Kim:** So, can I answer?

[00:17:56] **Rebecca Whitney:** Ok.

[00:17:56] **Dr. Heakyung Kim:** I don't know my place. As I said, I'm working on the transitioning program so I have the problem all the time. But I have to also educate my patient. You don't need to go to therapist all the time, you need to tune up for therapist. So you get the exercise -- you learn from the therapist and I usually ask them to go to gym and hire the personal trainer. They love my patients because it's different. And they learn from them too and then you continue just like eating meals, three meals.

[00:18:28] So, I think the pitfall of our rehabilitation for the patients always will think we have to have a therapy. No, therapy you are going to do it but you going to learn from the therapist. Then sometimes we forget, right, we get lazy. So you go back and you ask your doctor to write the script. So, I always say tune up therapy when you become grown-ups. And then or after you get very sick then you are deconditioned that then you need intense therapy. So that's why we are here to support you guys.

[00:19:00] **Rebecca Whitney:** Thank you.

[00:19:01] **Dr. Clarice Sinn:** And I always say, if there actually is an ongoing issue that needs to be addressed and your therapist isn't really getting it, I tell my family you're not married to your therapist. Just like as a doctor you can get a second opinion. I've mentioned in the panel yesterday, also look to see what kind of therapy they do. If they're a sports med center and they deal with orthopedic, total hip, total spine, they may not be used to dealing with stroke or spinal cord injury or brain injury.

[00:19:33] I tell them therapists specialize just like we do as doctors. And so you want somebody who does neuro and usually the web page will tell you this is what we treat, strokes. You just want to look for any neuro rehab because if you're at a sports med or an orthopedic place, it's very different. And sometimes therapists are going to say, "Well, you're pretty functional. I don't really know what I'm going to add to this." So, also as a physiatrist, if I have a very specific goal I won't write just evaluate and treat to the physical therapist. I will say exactly what the issue is if in case the patients aren't good at relaying it, for what we're working on.

[00:20:13] **Rebecca Whitney:** Thank you. I think we have another question over here.

[00:20:17] **Audience Member 2:** It's not necessarily a question, it's a comment. One I really appreciated your panel discussion. I've had TM for 15 years and one of my major issues has been balance. And I'm always looking for things and I came across a tai chi class for water, where you're doing it in the water, where it supports you. And I found that my balance has improved probably by 50% - 75% and it's something that really surprised me. So, it's always looking for the next thing that could potentially help you. You can't just say the status quo is the status quo, I'm going to stay with that.

[00:21:16] You always have to be out there seeing or listening and trying to find something that will help you. I've also found a hot wax bath that is used mostly in salons but I use it for my hands and it drops my pain level from nine to five and it's a mental lifesaver. And I just found that out in the last year too and I'm using it, and suddenly, I'm finding relief from the pain that I experience. And so, these are all surprises to me. But it's

just being open. Opening up your mind and your heart to the next thing that could potentially -- and you try things and some things don't work but you have to be open and that's all I had to say. Thank you.

[00:22:30] **Dr. Clarice Sinn:** I think that's great. Oops, sorry. Water aerobics, water tai chi, any of those are great things to work on. For a lot of my patients sometimes like the kids they get tired of PT and just doing therapy over and over again. So, I'll be like, is there something we can find that's fun? And sometimes it's karate, gymnastics because they work on core strengthening, your balance, all of that, but you're having fun and you're doing it with your peers. So, finding stuff like that is great.

[00:23:08] **Audience Member 3:** And for people who are looking for opportunities that the ADA is almost 35 years old and many of your county and city recreation programs offer programs. A lot of times they'll say seniors but it's also adapted. They have adaptive fitness programs or have people who are certified in that. At every Planet Fitness by next year, they're supposed to have people trained as adaptive personal trainers and they have accessible fitness equipment.

[00:23:43] And you don't have to have a monthly thing and get locked in. And the others go to the US Olympic Paralympic site because where you find Paralympic sports clubs many of those do recreation through or can lead you to who has those programs. So, there are a lot of programs in your local community that you're not aware are there, but they're there.

[00:24:15] **Dr. Philippines Cabahug:** I did but it was basically almost the same as what our participant just said earlier. So, with rehab it's not just the actual formal physical therapy but you also get to explore things that are fun for you that will enable you to find your own community. Just for example, today is our running festival in Baltimore. So we have an adaptive cycling team. We have some of our patients participating at our 5k, whether they walk or they run or they are with their family.

[00:24:51] So, basically what I just wanted to let people know, look into the resources that are available in your community. There are pediatric adaptive recreational activities. There are adult adaptive recreational activities. And consider as that gentleman said over here, opening your heart, opening your mind, exploring what is of interest to you, what you can find passion in pursuing again.

[00:25:18] **Dr. Heakyung Kim:** I think that's why the mental health comes because once you stay home by yourself and you get depressed and then you don't want to participate in anything. But when we study rehabilitation, participation is really critical because participation means you just like what we discussed all kind of exercise or sports activities. But if you don't get to involve those things, there's mental health issues and neuromodulation is just coming out.

[00:25:46] So moving your body is the most important with any means. It can be with a therapist, it can be with virtual exercise or dancing, rock climbing. I even send my quadriplegic patient to rock climbing. They are ready for you guys because we are not looking for it. So, any place you go they are ready for you and say please participate in all those things and enjoy your life.

[00:26:10] **Rebecca Whitney:** Thank you. And we have another question.

[00:26:15] **Audience Member 4:** I wanted to expand on with the comment on, my physical therapist basically said, "Okay, you're done with me. Go find something else because I have nothing else to offer you." And so during the time that I had off I went ahead and did horse therapy, water therapy. Be careful with water therapy because it was a hot tub for physical therapy. I could barely crawl out. It was wonderful until the end.

[00:26:44] So, I did more of a cool bath after that and water aerobics, deep water aerobics with a life belt or just shallow aerobics. So, I found things, I looked through like you said, the city catalog of recreation. I looked for things that was things I hadn't done in decades and went back and had fun. So, I just looked for fun things. That got me out of the house, got me motivated and I loved meeting the people.

[00:27:16] **Rebecca Whitney:** Yes, another question.

[00:27:18] **Audience Member 5:** I have a question. When you have a setback like, for example, I got hit in my back with a shopping cart. And my difficulty is finding a physical therapist that knows about neuro issues. They're hard to find and like they said earlier, they'll tell you when they're finished with you there's nothing else I can do for you. I understand that but what if I need someone that understands my condition and be able to help me get back to where I was before I got hit in the back?

[00:28:08] **Dr. Heakyung Kim:** I can understand but we can start from the university hospital therapy team. Because if you go to university hospital, they usually have different sets of therapist team. So as the doctor said, there is a sports medicine therapist. There's therapy for the neurorehabilitation. So then they know the community therapist too. So, I think that's the way we can connect. And then most of the therapists are well educated. But maybe they will fall from those disease for a while but they will know what kind of colleague is in town and help you out. I don't know any.

[00:28:46] **Dr. Christina Sadowsky:** I do want to add that there are programs in which the spinal cord injury medicine actually becomes your primary care physician and you follow-up with your physiatrist or a spinal cord injury medicine specialist ongoingly, the same like you follow-up with your neurologist. In fact myself and Dr. Pardo we have this ongoing relationship, whenever people come from out of town to see him they come see us and so forth. This is a lifelong condition so you should have lifelong management and lifelong consultants include your physiatrist or spinal cord injury medicine specialist. And we are the biggest advocates. That's why we chose this profession.

[00:29:34] **Rebecca Whitney:** Yes, over here.

[00:29:35] **Audience Member 6:** Hi. I was just wondering, for the last six months or so we started vibration therapy. And I haven't heard anything about what benefits if we're using more vibration. My granddaughter loves the vibration plate. She loves having vibration in her hands. But we see her taking steps better when she just is on it for three minute. It's a very fast therapy for her in the morning just to get her alert and start standing taller and it's almost like it's connecting something from her feet to her brain. But I haven't heard much about it.

[00:30:23] **Dr. Christina Sadowsky:** So, there is emerging literature that looks at the role of vibration in management of spasticity and also bone mineral density. Managing spasticity will allow us for better gait training, so that's emerging literature. It's not a lot but probably if you actually look on PubMed you're going to find around 20 papers that have been published in the last 10 years. And I do believe that there is one company that does the shaking little. It's based in Germany and they have some more data. But it's in its clinical data in pediatric population. So be assured that this is clinically supported.

[00:31:09] **Dr. Heakyung Kim:** I have the same comments. There are several studies and ongoing studies, and there's whole body vibration or certain area vibration. But if you can imagine the spinal cord, there's a posterior side of the spinal cord is delivering the vibration to the brain so it can work on the neuromodulation component. But according to study it does work for the bone density and then spasticity. And then you can

imagine the whole body shaking. It makes you feel good. So then mental health comes again, everything is connected.

[00:31:45] **Rebecca Whitney:** Thank you. Do we have any other questions?

[00:31:50] **Audience Member 7:** Sorry, I just have a quick question. I know that they had done, this was in the past, Parkinson's patients and being on bicycles and how that changed their trajectory as far as being able to walk. Are there any research with any of the diseases here that they've studied that same type of environment of like riding a bike?

[00:32:17] **Dr. Clarice Sinn:** I've looked at recently a couple studies because people ask me for like pediatric patients if adaptive trikes can help. There were only very few limited studies that I saw and they were like could potentially help and the subject number was really low. I've never seen it to hurt but there's not a whole lot of literature out there that would support it. Meaning it's hard to get your insurance company to approve it if you want to get an adaptive bicycle.

[00:32:46] **Dr. Christina Sadowsky:** I think that there is a study that was about 10 years old out of Philadelphia Shriners looking at children with traumatic and non-traumatic spinal cord injury and usage of FES ergometry versus passive cycling, versus just electrical stimulation of the muscles and the results of the studies are showing that there is improvement in muscle mass, spasticity and bone density.

[00:33:19] I'm veering towards bone density because I just looked at the literature recently for a talk so that's why I'm a little more versed than that. But the study is Therese Johnston, I think is the principal author, is the only one that I'm aware of. There are three publications out of that, one prospective randomized trial that looks at pediatric spinal cord injury. And it's about 10 years old.

[00:33:51] **Rebecca Whitney:** Well, I think we are the ones who are standing between these folks and their lunch but before we let them go, I do want to ask each of you, what you personally tell your patients as far as developing goals for rehabilitation. It's a lot, someone comes to you after a diagnosis for their child, for themselves, for a loved one and we're talking how this has changed the trajectory of their lives. So how do you speak with them about what it is that they want? What are your reasons for establishing the goals that you would for them?

[00:34:35] **Dr. Clarice Sinn:** I can talk about that first. It's very individualized. Every patient is different, whether it's their goals, their family goals. So, I sit down with them, "How are we functioning now? And is there anything in your life you wish you could be doing but you can't?" So, my treatment plan will be very specific. Like when I said if I order therapy, I may be very specific what I want. Also, I have to make sure it's realistic goal as well. I had a kid a couple years ago, the height of pandemic, who got AFM, she was completely quadriplegic, eventually got the arm movement back but didn't get anything in the legs.

[00:35:13] Because of COVID, she was doing school at home so she wasn't in the school system so she was laying flat all day long. She was doing her classes that way and then she'd come to our therapy center and be like, "Well why aren't we using the robotics?" And I think the grandma accused our therapist of withholding treatment. But because this girl was laying down all day, she used to get severe orthostatic hypotension, dizzy, nauseous and I go it's baby steps. I'm not saying we're not going to get there but there's things we have to do to get to that.

[00:35:46] So first we knew she had a stander at home but wasn't using it. Now there's just a lot of things. So sometimes you have to let the families know or the patient that we set little goals first with the goal to

eventually get to that big goal. But it is always very patient-centered, family-centered, what are you guys wanting to get out of this? There is no cookie cutter, everybody gets the exact same treatment.

[00:36:12] **Dr. Heakyung Kim:** So, I agree with that and this is a lifelong. I would say, disease or problems. And the most important thing for me is building the rapport between doctor and patient or family. So, I am always saying that you are my partner, we have to have this partnership first. Then as Dr. Sinn says, everybody has different problems or disorder and then I tailor the care based upon patient condition.

[00:36:48] But the other one I think there's a big difference between adults and pediatrics. Adult is much easier. As long as you build the relationship with patient, patient is going to follow based upon their disease and potential recovery. And then we can tailor that very well.

[00:37:08] The children, the most important one is continuum of care. Children are growing continuously, they are getting taller, muscle grows and bone grows. If they don't follow with us regular base, no matter what we provide the outcome of function is very different. Adults, they can miss one year, fine. Children, they have to really work with you every couple months, follow-up with you guys.

[00:37:35] So my bottom line is always building the relationship, have them trust me and sit down and set up the goals. And based upon goals as Dr. Sinn said, we pick the therapy and we specify therapy based upon the goals. We don't recommend therapy or treatment plan without goals. That's the PM&R, Physical Medicine Rehab. We always set the goal for the outcome. Without the goals it's too diffuse. We are not giving the antibiotics, we are not giving the medications. We do give medication but everything is related to goals, what we said.

[00:38:16] **Dr. Christina Sadowsky:** And I would just add, I do use --

[00:38:18] **Dr. Carlos A. Pardo:** You have one minute.

[00:38:20] **Dr. Christina Sadowsky:** 20 seconds. I do use the behavioral framework of SMART, the SMART goals. So, they are specific, they're measurable, they are achievable, they are relevant and they are time limited. And breaking goals in that behavior framework allows for advancement, functional advancement and physiological improvement.

[00:38:58] **Dr. Carlos A. Pardo:** Thank you very much. And remember one thing is, forget about the neurologist. Here is the team --

[00:39:06] **Dr. Christina Sadowsky:** Not about him.

[00:39:08] **Dr. Carlos A. Pardo:** That you need to have for taking good care of yourself and whatever is going. Thank you so much.