Ribcage Biomechanics In Parkinson's Transcript

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Introduction to Parkinsonu2019s and Breathing

Hello, everyone, and welcome to the Parkinson's Solution Summit 2.0. I'm your co-host, doctor Barbara Pickett. Today, we'll be speaking with Dr. Paul Caron on the role of the ribcage in expansion and compression biometrics as they pertain to Parkinson's.

Respiratory issues and difficulty breathing have been linked to Parkinson's since it was first identified in 1817 by Dr. James Parkinson's Parkinson's, as we know, affects movement of the arms and the legs, impacting motor control and muscle rigidity, as well as postural instability.

Parkinson's also impacts various systems in the body, including the nerves, muscles, and muscle coordination that control breathing. From the early stages of Parkinson's onward.

Breathing problems become seen as part of the disease itself, not as a separate entity or a separate condition. Issues with breathing can cause some of the main speech difficulties in people with Parkinson's as well, like a softer voice and or difficulty forming longer sentences.

Research has shown that ongoing treatment may help with both speaking and breathing. Therefore, it's essential to stay active and engage in exercise is specifically designed for your chest, back, and lungs.

Today, we'll be speaking with Dr. Caron about how Parkinson's disease affects the lungs and breathing, and also, importantly, movement of the body. Dr. Caron will discuss enhancing ribcage mobility to improve overall physical function and quality of life in PD.

Dr. Caron, thank you for being with us today. Can you take a moment to introduce yourself? Yes. Thank you so much, Dr.

Dr. Caronu2019s Movement-Based Approach

Pickut I'm very excited to be here and try to provide as much value and information as I can. I am a chiropractor based out of Atlanta, Georgia. I should say that most traditional chiropractors would probably practice a bit differently than I do.

I spend a lot of time seeing how people move, and that is something I've become very excited by. And so today I'm hoping to focus and show you all how the rib cage can be something that should move and can affect people experiencing Parkinson's, and help them move better throughout their day to day activities.

But, I work with everyone from elite athletes, to the elderly who've never formally done any sort of exercising. so I have a broad scope of the people I see, but almost everyone I see does need some help in the rib cage and pelvis area.

so a traditional chiropractor, that does a lot of movement within my practice. That's wonderful. Thank you. So you touched on something that piques my curiosity.

Why is the rib cage such an integral part of how you approach someone's movement patterns? Yeah, that's a great question. So in my view, the rib cage and the pelvis are the foundation of all movement.

Now, many people would assume that the rib cage isn't a, mobile thing. but it is. It is what our shoulders are attached to. It expands and compresses upon every single breath.

a lot of the time when we have issues with rib cage mobility, it shows up in different parts of our body, like neck

pain, shoulder pain, elbow, etc.. theoretically, in an ideal world, the rib cage should move 360 degrees, so it expands and then comes back together.

it's a bit more dynamic than that, but for today's purposes, we should know that the rib cage moves. and if it doesn't, it gives us clues as to why and what's going on.

so when we see someone's rib cage, for example, sometimes we have a narrow info sternal angle or a wide, and for a sternal angle, and it's just what it is.

There's two ends of the spectrum. and so my job is to make sure that we can stay somewhere in the middle so that when we find more mobility in our rib cage.

Why Rib Cage Mobility Matters

And I'll explain a little bit more as we talk, I'm sure. but when we when we find more mobility in the rib cage, a lot of the other issues I think that pop up in not only the Parkinson's world, but day to day world for everyone else, especially in our sedentary lifestyles today.

those tend to go away. So, I have to say, you know, the rib cage is so huge. If you look at someone, most of what you're seeing is the rib cage. And not many people realize that that massive structure is protecting something that's vital to humans, which is the lungs.

and we need those every second of every day. So, that's something I think that is overlooked by a lot of people in the musculoskeletal world, which is where I reside.

But, and in your world as well with, you know, breathing and how that's becoming more mainstream, the meditative side and the wellness side of the taking time to breathe.

I think all of these things can come together pretty beautifully to help us, you know, improve someone's life. Very interesting. Thank you. I have a question about the infrared angle.

Is that something genetically determined? Is is that something that can be modified? Is it a static entity? And and where is that? Can you. Beautiful question.

Yes. The infra sternal angle, the infamous. And for sternal angle. this is something I use as a clinical clue. it is somewhat genetic, but I do believe that it can be changed over lifestyle and movement capabilities.

so the infra sternal angle quite literally means infrared below and then sternal, which is your sternum angle. So if you look at someone's chest, the angle that the ribcage actually makes.

And I think we all know someone who is a big barrel chested guy in the room. They have a wide and first sternal angle. Their chest just looks bigger for some reason.

And then maybe someone who's more petite, smaller around the waist, they tend to have a smaller angle of the ribs, and it's just the the angle the ribs make below the sternum.

We'll talk I'm sure about more how that affects things and maybe how it directly affects people with Parkinson's, because there's a common posture as as you know, that, tends to be the norm when we start to cave in and come forward.

And what does a rib cage look like? under that. So, that just gives us clinical clues. Two ends of the spectrum. We all fall within that spectrum. It's not good or bad.

It just gives us indications of how that person might move. Interesting. Okay. still along those lines, then. Can you explain how the rib cage compression and expansion exercises, how they influence respiratory function, and how

might these benefits be particularly useful for our viewers with Parkinson's?

Yeah. Beautiful. so I would have to ask a rhetorical question here. What's the number one goal of the body? And I would say to survive. so we could probably go without food for quite a while.

We've seen and and water, maybe less so, but still a couple of days there. The one thing we can't go without for more than a couple of minutes, is air.

And so we breathe in every second of every day, thousands of thousands of times. The body is not meant to constantly optimize. It's just making sure we survive.

And so one thing I do want to talk about today is, is that forward head posture. That position that people take, you know, day to day life that we are now compressing the front of our ribcage.

And I'm going to explain this a little bit more in depth. So, when we breathe the primary muscle doing so is the diaphragm.

Breathing, Posture, and Center of Gravity

I think everyone's on board with that. I think when our rib cage and our pelvis don't sit on top of each other perfectly stacked, I call I use that word a lot if they're not stacked on top of each other and maybe they're like this or like that, that's when issues start to arise.

So the diaphragm can't function as well. It can't pull air in, it can't relax and allowed to come back out. And then the body's like, oh man, we can't breathe.

We got to do something about this. And then all these other muscles jump on board to help. And so with a lot of the population today and then with with those with Parkinson's, you'll see this continual falling forward of the head, the rounded shoulders, the caving in, so to speak.

And there's two reasons in my mind for that one. the port poor diaphragm position, which we've talked about, it's a diaphragm, is not doing its job. Then these accessory muscles, all of these muscles literally pick up your rib cage and put it back down every time you breathe.

Now, that's a lot of times per day. So when we pick up and put that back down, these muscles start to pull and pull us forward. So that's one potential reason for that.

Second, our airway is in the neck, so we breathe in through the nose, it comes into the lungs, expands the ribcage. If we are compressed in the front of our chest here and we are tilted back like this, this airway gets quite there to compress as well.

The body's way right of of fixing that is let's just get our head forward, open up this airway so we can breathe. It doesn't think about all the other things that happen when we push our head forward.

All it wants to do is breathe. Well. Survive. Survive survives. Number one, having good posture at your work desk is number probably four or 5 or 6. It's not too concerned about that quite yet. So, in, especially in Parkinson's, when we are compressing all of this area, that head might come forward as well to just simply survive and give us more air, breath, etc..

The, the, the trick is how do we break into that, that feedback loop and, and make sure that we can open this up, let all those things start to happen.

And I think we'll probably have a great conversation shortly about what can we do and why. Why would we actually want to restore that that motion to the rib cage?

Okay. Very, very interesting. Thank you for that. So before we go into that, can you, tell us a little bit more about the relationship between rib cage biomechanics and postural stability and how might improving rib cage mobility help mitigate this problem of postural instability that we often see in people with Parkinson's?

Absolutely. And if I talk for too long here, please jump in with questions, because I could probably give a week long conversation about how this is important.

the rib cage. Yes. How it affects our postural stability. and I think everything honestly, I think the number one thing to take away from this little segment is center of gravity, center of gravity.

Where are we in space? And I know with Parkinson's we have a concern of falling. Falling is definitely one of the major concerns after we've we've lost the ability to move well.

And so my goal as a practitioner is to continue to be able to move well for all the patients, the clients I see, because once we lose that, a lot of quality of life starts to drop off.

so center of gravity, let's come back to that. Our body is constantly moving in the center of gravity. Imagine, imagine we're on a on a tightrope, right?

We can go front to back. Fine. But if we start to move left to right, there's not much wiggle room for space. And I'm sure I'll tie back in shortly. But let's say we widen that out to the size of a sidewalk.

We feel much more comfortable within that space. We can teeter back and forth. We have a bit of space to move front, back, left to right without worrying of falling off right.

The goal of the center of gravity exercises, which I'll touch on later, is to make sure that we are in the middle and we have space to move into. Now, we mentioned the diaphragm earlier, the diaphragm not only being the most badass of muscles of breath and keeping us alive every day.

One is breath, two, it's a massive core stabilizer. And so if this rib cage that we've been talking so much about is not in an ideal position, the diaphragm doesn't function well in breathing, and then all of a sudden we lose a lot of core stability, which in my mind, core stability is the the king of everything.

And it governs how the human body moves. If we lose our center of gravity, our core stability, our mobility is going to plummet and we want to make sure that stays high.

Rib Cage Exercises for Mobility and Rigidity

And there's there's a word used, in the compression expansion world, called the zone of that position. where when we get that, the zone of apposition.

Yeah. So there's a, there's this stacking mechanism of our ribcage and pelvis. If those are stacked, well, everything else can move well. So we'll we'll just assume that's great.

The zone of apposition is the actual domain of the diaphragm within the rib cage. And now if this stacking doesn't, you know, work well this domain might be flat.

It might be to one side. It might not work quite as well. So we're looking for this beautiful domain of the diaphragm to not only breathe but to make sure that we can stay stable.

And so to kind of come back full circle and that center of gravity, when we have that, that, that posture that's so commonly seen coming forward, we are fully at one end of the spectrum of center of gravity.

We are quite literally falling forward. And so how can we bring these patients back in space within their own body so that they have the ability to maybe teeter forward and maybe teeter back, avoiding hopefully falls, giving them a

bit more space, range of motion to move into and giving a bit more control to their their muscles and body.

Because, as as we know that muscle rigidity is a real issue. Okay. Yes, indeed. So you've touched on, the, rib cage focused exercises somewhat. Could you expand more on that about the impact that that has on motor control and muscle rigidity in, in Parkinson's?

Yeah. This gets me really excited. I would like to shift your, your perspective on what muscles do and why they're tight or not tight or loose, and the whole world of stretching and why rigidity even exists.

I'm going to bring in another word. We have a little keywords for each section I guess so far this key sections word is bio tensegrity. And so it's the thought of.

Bio tensegrity. Bio tensegrity. So I put simply, let's say we're just made of rubber bands which we are. All of our muscles are just awesome rubber bands.

And if you are positioned correctly, all those rubber bands are perfectly taut and just keeping us upright, etc.. Now the difficulty with that is, we don't stand in one place all day and we don't all do the same thing.

So when our joints and I want you to consider the joints being more important than the muscles, because in my world, I think that's the way we should be approaching the musculoskeletal system.

I think, laying a foundation for those with Parkinson's and the rigidity often comes from different things, and I understand that. But something that I could do from my perspective is give them a better foundation of movement to begin with so that they have something bigger to build upon and hopefully increase that range of motion, strength, power and motor control.

So the reason I bring about hand is if a two joints are not in the correct space, muscles will act differently. And so I'll use my bicep as an example.

The joints that are in between for the bicep to connect, or the shoulder and the elbow and the biceps job is to bend the elbow. That's great. If for whatever reason this shoulder was in a completely different position, you would imagine that now that muscle is doing a slightly different action.

Right? And so all of a sudden a shoulder that is rounded forward has now a different action and tension than if it was in the quote unquote correct position.

Why does that matter? Yes. Yeah. Why does that matter? the ribcage, the rib cage is what the shoulder sits on. If we are able to expand in the right areas, if we're able to put the shoulder back into the correct position, the rigidity, the tightness, whatever that muscle was feeling is usually a lot less, pissed off.

As I say, it does its job, and that's all it has to do. Yeah. So getting joints in the right positions and allowing muscles to do what they do is something that I think is, overlooked, especially in, in the rib cage world and, and the musculoskeletal world in general.

So if you want to, I'd love to actually talk about certain exercises. very quickly. Yeah. About. Yeah. So in my world, let's say I'm seeing an elite athlete, I would do the exact same thing with a, with a child or anyone in between.

So this does not change. And a lot of people see these exercises as low level or too low level to make an impact. An exercise I would do for something that our shoulders are coming forward.

I would need to expand the front of the chest to allow for rotation of the shoulder. I can go into depth of, you know, the different quadrants of the ribcage and how that allows the shoulder to move.

Well, but for something where the shoulders have been rounded and completely 99% of the time, it means that the front of the chest has been compressed.

And so something as simple as lying down with your arms up to the side will force air to come into the upper portion of the chest and then expand that.

And I know that sounds silly, but with just a simple lying down drill and focused on breath for just a little bit, we not only lower the central nervous systems, panic mode, but also allow for quite literally, the biomechanics of the ribcage to expand gently into that space, restoring range of motion, restoring that control, and hopefully relaxing some of that muscle rigidity that we were just talking about.

and all of those things within 15 to 20 breaths, in my opinion, is an unbelievable, positive. Yes. Thank you. Yes. As you're speaking, I'm envisioning someone, laying on the floor, and doing that.

So I have a couple of questions about that. When, when, when we have Parkinson's, often times it has, impacted the body such that the head is forward and laying on the back can be a challenge.

And sometimes one needs a pillow. and can't lay flat. Yeah. So if you could go through that and then, also, how should the arms be positioned 90 degrees from the body that belted, bent at the elbows or how would you.

Yeah. And and to make this simpler, we could, we could do it two ways. So I'll go through the way that we could lie on our back and do this breath. pillows are most certainly, used.

I use them every day. I should emphasize that the best way to get results when we do these two different exercises, and I'll explain them shortly, are to make sure that the body is completely relaxed in the best of its ability, when we still feel tension and we're trying to, hold a certain position or do these things, then then the body's not going to be able to reprogram and relax into a more comfortable state of how it's actually processing breaths and repositioning those joints so that the muscles can relax.

let's say, for example, we're trying to, do the one while we're lying down.

Practical Breathing Positions and Variations

All we were doing is something called hook line breathing. And so you would lie on your back, put as many pillows as you need, either under the neck to support the head.

And I know that kyphosis of the mid-back sometimes is exaggerated. So if we need pillows under that, whatever makes them the most comfortable is vital.

And, and we'll touch upon some research that shows different positions standing lying, side lying, expand different parts of the ribcage. but so if we're lying on our back, imagine the ground is not allowing for air theoretically to push into there as easily.

Right? So, we can use that to our advantage because, you know, just like pouring water into a bowl, the air is going to go where there's at least resistance.

It'll take whatever shape allows it to expand. And so for the one while we lie on our back 60, 60 hook line position, we have our feet nice and the ground, we lie on our back and we're going to breathe simply in through the nose and out through the mouth.

So the knees are bent at the knees. Yeah. And the reason that it's called 6060 is that the hips have a 60 degree angle. and the knees are about 60 degrees, you know, bent.

So nothing, nothing crazy. Just if you lie on your back and then you put your feet on the ground, you're probably going to be in the right position. Okay.

the arms are quite literally just out to your side. Just allowing them to be as relaxed as possible. If that is uncomfortable, use things to be placed under them.

If they're unable to do that, the the progression of this this breathwork, I would be breathing in silently. We'll go through this, I guess, breathing in silently.

that little cue there is important because it will help the diaphragm do the work instead of these accessory muscles. So the quiet breath in will all of a sudden they'll feel a deeper breath.

And then out through the mouth and out through the mouth is also important because it allows the side abs, the obliques, to engage just a little bit more.

And now I want us to use our imagination again. When we use those obliques, and we kind of pull the sides of our at our abs and our ribcage, we kind of clamp it together and we breathe back in.

Then we're going to it's like filling up a balloon. So if we do a good job of exhaling and cinching the ribs off at the bottom gently, everything's gentle.

Then air is allowed to kind of come in like a hot air balloon and expand into those positions that we have not blocked, which, because we're lying on the ground and our hands and arms are out to the side, we have not blocked this upper area.

So air is going to rush into those areas right under the collarbones and feel amazing. And people like, oh my gosh, all I did was line the ground and breathe like, how is this going to help?

I would suggest that everyone watching this try just breathing there we say five second soft inhale and then a long ten second exhale to feel those side abs turn on towards the end of that breath okay.

It's yeah. And I know sometimes the the difficulty of getting up and down from the ground is too much. Yes. A simple band is is another alternative. So this is that second exercise and we can just stand against a wall.

Relaxed feet a little bit away from the wall. So we're actually falling backwards in space which ties into what we were talking about before. If our feet are a little bit away from the wall it feels like we're falling backwards.

Which is exactly what we'd like. And we're just having our weight nice into the wall. We take the lightest of bands. Sometimes I even use a t shirt. I'm not even pulling.

It just gives us some engagement. muscles can actually be the wall for us or that or the ground. Because when we pull that shirt or that band apart, the muscles in the back.

Yes, exactly. The muscles in the back will turn on and cause that compression, which is okay in this case in the back. And then causing expansion or turning off of these muscles so that we can breathe in again.

So there's thousands of ways to do this. And even if you're just focusing on where that breath is, I think there'll be massive improvements to not only the rib cage expansion, but the mobile mobility available of the shoulders, arms, neck, everything afterwards.

That's wonderful. That sounds good. Hearing you speak has relaxed my breathing, so I appreciate I'm envisioning, embodying, your words. So that's wonderful.

And and I think could be very, very helpful for our viewers. we have just a few minutes left, and I wanted to ask you one question. Still, if I may, what are the thank you.

What are the potential long term benefits of incorporating the ribcage compression and expansion techniques that you've described into a Parkinson's management program?

And how could these exercises complement other exercises like physical therapy, for example? Yeah. And I think we we briefly talked, you know, camera about all of this.

And one of the first things, individuals with Parkinson's are suggested to do is get into some sort of physical therapy. I think that's great.

Long-Term Benefits and Where to Find Dr. Caron

I think movement for all humans is so healing that, I mean, the name of my clinic is the Art of movement. So, the long term effects, if humans aren't able to move, I think quality of life quickly, becomes a concern.

And so something as simple as being able to move, being able to be a little bit more independent, is, a world's difference. And some of us might not have that perspective quite yet, but, being independent, having your motor control, having all of those things is such a big deal.

And so I'm not asking anything crazy in suggesting we change any of the the already awesome plans in place to help those with Parkinson's. I'm saying maybe maybe with the physical therapy that we're already doing, which is wonderful.

Maybe we just position the body in certain ways, allowing air to flow into parts of the ribcage. that would allow for a bit more movement. Freedom, I'll call it, so that not only can they move just a little bit better, the foundation of their entire movement as a human is improved.

And then lastly, that they feel as if they can still make changes for the better in their movement, musculoskeletal world. And so let's say they're already doing a physical therapy program.

Then let's instead of having them do their banded exercise or whatever, all of them seated, let's have them sideline. research shows that when we're on our side, if that's possible, make them comfortable.

If they're on our side, we are compressed, you know, from the side and quite literally more air will come and tear the posterior front to back. Most of us today are compressed front to back.

And so expanding front to back is the goal. And most of the people I see in my clinic, but what I'm saying is we can improve quality of life by increasing the rib cage biomechanics.

And I think by doing very simple adjustments or additions to the alternative treatments that they're already doing or that they're already involved with.

And so, I think it's an easy fix, as far as rib cage is concerned and, and well worth looking into because I don't think, as far as I know, that there's much rib cage use or focus on those with Parkinson's at this time.

And, and in my mind, because I see it with a different lens, Parkinson's can be seen as such a respiratory and musculoskeletal thing. And both of those things in my mind are the same thing.

Respiration is movement. And so without one of those, the other collapses. And so my whole job and world is making sure that when we breathe, our movement comes with it and each movement has breath and vice versa.

So, that's something I would love to see researched more in applied and see how we can improve the quality of life of these individuals. That's wonderful.

Thank you. For what your job that you do in the world. It makes a lot of sense to me and it could be very, very valuable to many people who are watching today.

How can people find you. if they bump into me in the streets of Atlanta? I'm usually walking around there. but my, my business is called the Art of movement, chiropractic and performance.

you can find me on Instagram is where I post a lot of these exercises and movements. @aomchiro So CHIRO Art of movement is the AOM. if you follow me there, there's tons of exercise movements that might, you know, pique

your interest or give you some tips to how you could maybe move, a little bit better and help those with Parkinson's.

So please check that out if you're willing. Or just come visit Atlanta, Georgia. It's nice and sunny and warm. Okay. Can you repeat that one more time?

The, the website, the name of the website. Yeah. So the name of the website, aomchiro.com same thing for the Instagram handle as well. All right. Wonderful.

Dr. Caron, thank you so much for this. Very interesting. And, enriching talk that we had today. Thank you so much for having me on. I truly enjoyed it, and I hope I was able to provide some value.

You certainly have. Thank you.