Jennifer Johnson: On Learning to Play More Effortlessly, Through a Better Understanding of the True Design of Your Body

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February 2, 2020

You know when you need to hang a frame, but can't find a hammer, so you decide to put a nail in the wall with the handle of a screwdriver, and end up making a mess of the wall or hurting yourself?

Well, that's not too far off from what I would sometimes do in the practice room, when it came to technical challenges, whether it was playing chords in tune, or playing faster, louder, or softer. When I was trying to learn up-bow staccato, for instance, I quickly discovered that my elbow and wrist would get really tight and just didn't seem capable of moving fast enough to do what I thought they were supposed to do. And this being in the pre-Google, pre-YouTube days, it wasn't like I could look at 20 different people doing it to deconstruct what they were doing that I wasn't.

Eventually I did figure out that I should be rotating my arm so that I could use the up and down muscles in my wrist rather than the side to side muscles, which made doing up-bow staccato so much easier. However, there were probably a ton of other little things that I never realized I was doing that made playing the violin much more difficult than it needed to be – both in terms of effort and accuracy/consistency.

Have you ever felt that sort of stuck-ness? Like you've reached some sort of physiological limit with your instrument and perhaps your body just wasn't designed to do the thing that someone else seems to be able to do effortlessly? Well, the good news is that sometimes, it's not that we've reached an actual physical limit, but that our internal "map" or concept of our body is just slightly askew, leading to an attempt to move our body in ways that it wasn't necessarily designed to move.

Wait...what's that now?

Meet Jennifer Johnson

Jennifer Johnson is a violinist, who currently plays in the Newfoundland Symphony Orchestra, and from 1993-2005, was a member of the Atlantic String Quartet.

She is also the author of *What Every Violinist Needs to Know About the Body*, and as a licensed Andover Educator, presents Body Mapping workshops around the world.

Whether you've been frustrated by feeling like you've hit some sort of wall in your technique, can't play with as much ease in certain passages as others, or this is the first time you've heard the term Body Mapping and are simply curious about how it's similar or different from Alexander Technique and Feldenkrais, I hope this chat with Jennifer – and special co-host, violist Carol Rodland – will provide you with some new paths to explore.

In this month's episode, we'll explore:

- What is Body Mapping is exactly? How does it relate to Alexander Technique? And how did it come to exist? (8:33)
- Why does it matter that we know exactly where are joints are? How does a "mismapping" affect our playing? (11:50)
- How to sit the right way. (15:38)
- What should we be looking for in a chair? And why trying to sit "properly" can actually be inefficient and cause pain. (19:32)
- Are high heels a no-no? (22:19)
- How Body Mapping is not just about injury prevention, but getting rid of limitations that a mismapping may have placed on our technique – like in Jennifer's case, how remapping her thumb led to a huge improvement in her staccato stroke. (27:12)
- The problem of hyper-mobility – and how just because you're flexible and *can* move a certain way, doesn't mean you *should* be moving that way. (30:57)
- How culture and the images we see can influence our posture and how we move, and lead us to carry ourselves in less than ideal ways. (33:34)
- The impact of emotional trauma that we may carry with us in our bodies, and Barbara Conable's thoughts on how to change your experience of performance anxiety. (35:07)
- How to breathe more effectively. (40:04)
- How can we tell if someone on YouTube is playing in a way that represents a good example for us to model? (44:26)
- How Karen Tuttle came to switch from violin to viola, and started down the path of finding "truth." (46:31)

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Noa: I was fortunate to never really have to deal with pain or injuries for the most part in the years that I played, and generally able to intuit how to do things, whether it's vibrato or straight bowing. So, for better or for worse, I never really thought about the physiology or body mechanics of playing the instrument probably for about 20 years until I started getting frustrated with feeling limits to consistency and just freedom and ease and just being able to go to that next level. And although I'd had some exposure to Alexander, I had never heard of Feldenkrais, and had no concept of body mapping – even though I was actually born and raised in central Ohio, and even had chamber music coachings with Bill Conable, but had no idea that he and Barbara were involved in this sort of thing at all until just a few years ago.

Jennifer: Right. Wow.

Noa: But it was this sort of realization 20 years into playing that, oh, I'm playing with a lot more tension in all sorts of ways that I'd never realized. And even visually it wasn't necessarily apparent to the observer. But then once I realized that and started practicing differently and being more aware kinesthetically, it just opened up a lot of things, my playing. Even with consistency and playing fifths in tune and all sorts of little but important things for me. And so it's like being five and opening this awesome video game system or Christmas present and being able to have a whole new world opened up. And so I do want to explore that today with you and with Carol Rodland who's here to also ask questions and be a cohost. But maybe even before then I could ask Carol to introduce herself.

Carol: Hi, I'm Carol Rodland and I play the viola. And I had wonderful experiences with Feldenkrais and Alexander technique when I was on my own journey to try to figure out … I didn't realize until too late, I was switch hitter playing violin and viola for awhile. And as a teenager you do things with a lot of passion and maybe more out of your heart and your gut and less out of your head, and your intellectual development at that stage. And I have very small hands and I'm not the largest person. And I very quickly found myself in some serious pain because of the size of the instrument, and the way that I was playing it at the time. And at first it was always everyone said, "Oh, just play less because you sound great." And I thought, but I don't want to do this if I don't feel great and sound great.

Carol: And it was just always really painful. And then I had sort of, I had one of those moments where I sent it up to the universe. I said, okay, I'm either going to quit and go be a writer, or I need help. And in the same week I met Karen Tuttle and Forrestine Paulay and they changed my life. And Forrestine was a wonderful Feldenkrais practitioner and healer and body worker. And the work I was able to do with her and with Karen Tuttle at the same time was really, really wonderful. And it's taken me on a great journey of exploration for myself and then for my students because I felt like I … Part of what happened to me, I didn't want to see happen to other people.

Carol: And so that's very much a part of my work at Juilliard as a teacher now is, I want to help people who have a real passion for music, learn how not to block themselves from expressing it fully and having great joy hopefully in what they do.

Noa: Yeah. So how did you … You're a violinist, but how did you end up getting involved in body mapping and Alexander and so forth?

Jennifer: Very similar stories to yours except it sounds like a little more extreme. I did start when I was young in a Suzuki program, and there was some very good teaching going on, but one problem was that I was also very small and I had way too large an instrument to begin with. So I attribute some of the original injuries starting there. I was hurting by the time I was 12, and severely enough that we were really seeking answers with chiropractors

and massage therapists.

Jennifer: And I think when I was 16 I had one Alexander technique lesson, and I was too young to understand. I didn't have the maturity to really grasp what the great depth of knowledge that was behind this technique. So I kind of muddled through for many years, probably a decade and a half. Despite the ongoing pain and discomfort and limitations, I got a job in the Atlantic String Quartet.

Jennifer: I played second violin there for 12 years. But I think about, oh gee, how far into it was it? It was probably in the 10th or 11th year where I by that time had, had several Alexander lessons. Actually probably a couple of years worth with a wonderful teacher. And I remember having one of those revelatory moments. I was on the floor, we were doing floor work and I thought, if my body could feel this good most of the time, I would just be in heaven. Why couldn't I learn how to play like this? So, that was the turning point. I thought, I've got to do something about this. So I spent that whole summer making applications to try to find some money to fund a sabbatical where I could go and the Canada council came through.

Jennifer: I'm very grateful to them. They basically funded that whole undertaking. And I went mostly to England and I studied with all of the music Alexander technique teachers I could find there. I spent a little bit of time with Pedro de Alcantara in Paris studying with him. And somebody somewhere in that journey said to me, you really should go meet Barbara Conable. I said, "I don't know who that is, tell me more." And they gave me her first book. And now Barbara is the founder of body mapping. And the very last week of my seven month sabbatical, I ended up in Princeton, New Jersey having a week with Barbara learning about body mapping. And that changed my life. That was the moment where I thought … Because even into that sabbatical I was thinking, this feels so good when I'm in the room with the teacher. But I'm just not independent enough yet to go home and make this work at the violin.

Jennifer: But in those intensive hours you spend in rehearsal and after I met Barbara I thought, oh this is the independence I need. This is … Because I live in a fairly isolated place. There weren't a lot of people doing that kind of … In fact there was nobody. Our Alexander teacher was a visiting teacher. So that was what changed it for me.

Jennifer: And I went home and I spent the next maybe six months just eating up the information, reading everything she had written about it. And contacted her and said, "I really need to study this further. I want to train with you." And she was training people at that point. I wasn't the first by any means. In fact, I was one of the last handful of people that trained with her before she retired. So it was lucky that I just kind of got in under the wire. And fast forward a year later and she said, "I'd really like you to write the book for violinists."

Jennifer: I said, "I would love to do that." And then that took five years. And was really

Jennifer: I said, "I would love to do that." And then that took five years. And was really pleased when it was finally published because it was one of those works that comes from your heart from decades of being in pain yourself and like you said, just not wanting that to happen to other people. Wanting other people to have this information before they were injured.

Noa: What I found interesting in going through your book is, it seemed to me that body mapping is kind of like a complimentary approach to Alexander.

Jennifer: Yes.

Noa: And I think in your ... I don't remember if it was before we started recording or just now that it seemed this was the missing link for you that helped you put it into action for yourself, and really feel the changes on your own.

Jennifer: Yeah.

Noa: And could you say more about that or kind of explain how that helped you?

Jennifer: Yes. Yes, definitely. Well initially, Barbara's intention was that it would be used alongside the Alexander technique. In fact, her first book she wrote about it, it's called How To Learn The Alexander Technique. And it is basically her body mapping book.

Jennifer: Barbara credits Bill with really discovering it, that one day he was watching a violinist play really tight bow arm and she'd had some AT work with him already, but he realized that she just didn't know where the joint was that she was trying to bend from.

Jennifer: And he asked her, and sure enough she pointed about half an inch too high above where the actual joint is. So he gets the arm model out and he shows her how easily it moves there. She finds it on herself and bingo, she had a really free bow arm. It's not always that quick and simple, but that's when the light bulb moment happened. And he took that idea home and they worked on it. And she really took it and ran with it and developed it from there with her writing. And then developing the course, and then establishing the organization, which we now train other people for.

Jennifer: A simple way of putting it is that we applied anatomy. We get very specific about where the bones meet, what shape they're in, how they're designed to move, and we also have cataloged over the years the misconceptions that are really common in each instrument's pedagogy, not because necessarily that anybody's ever said anything to them that's been misleading. Sometimes it is that, but oftentimes it's just you're vulnerable in certain ways, in different ways with different instruments. Whatever physical demands are made on the body for that particular instrument you're bound as an experienced teacher now, I can go looking for a pattern that that instrument tends to bring out in people.

Jennifer: It has in recent years kind of taken on a little bit of a life of it's own where we have a

lot of success teaching people just through this applied anatomy approach, and an understanding of the patterns and what particular piece of information about the body is going to be most important to help somebody undo those tensions and move more freely. And quite often, especially with younger people who haven't been doing it for decades in a really limiting way, quite often you can see and within one hour see kind of miraculous things change. And they go away going, "Wow, I had no idea I can move that way and it could feel that easy. Or that I could sound that way because suddenly I'm not fighting myself and my body."

Jennifer: So it did begin paired with the Alexander technique. It still works beautifully paired with Alexander or Feldenkrais. I'm now in a partnership back home with the local Feldenkrais teacher and we're giving workshops together for non-musicians for anybody who's hurting. But certainly we have this other area of specialty which is we can read a body with a specific instrument in hand and know what to look for.

Noa: Can you say more about that, because this might sound like a super obvious question, but how is it that our having a misunderstanding of where the joints are, how does that actually affect our playing or how does it … Is it muscle-related or more joint-related? How is it all …

Jennifer: That is a great question. If you go to neuroscience you see … And I'm going to describe this in very layman terms, but the maps that are on the cortex of the brain dictate our functioning. And we have a vision map dictates how we see. So our movement map also is up there. And let's just use an example. If children, as I was back a generation ago, when in grade one everybody was told to sit up very straight. That kind of arching of the lower back that happens when people think that they need to sit up or sit with good posture, that's a cultural myth really because it's really hard on a spine and it tightens the muscles of the lower back in order to make that happen.

Jennifer: And if people feel that that is the right way to sit, because they were told that from a very young age, they're going to take that into their orchestra playing, let's say, as an example. And the longer somebody holds themself that way, the more the map starts to actually alter neuronally, the brain kind of says, well look, if you really want to sit this way, well I'm just going to rearrange some neurons up here, and so that this kind of starts to feel right to you.

Jennifer: The map is now a little bit askew. It's not really representing the true design of the body, which if I was to just go down that road a little further, when we teach people to sit well, one of the main things we emphasize is that there is a back half of a spine and the front half of the spine. The front half of the spine is where the nice cushiony pillows that we call discs live between every vertebrae. But there are no cushions in the back half of the spine. It has a different function. It is not meant to bear our weight in the way that it ends up doing if we're trying to do that, "sitting up straight" or "sitting with good posture." The map

will start to alter a little bit to reflect our misconception that this is the good and right way to sit.

Jennifer: One neuroscientist described it as if you've got a toboggan at the top of a snowy hill … This resonates well with me as a Canadian. And you've got two pathways going down the hill, and one of them has been traveled many, many, many times by other tobogganists. It's deeper and your toboggan is going to want to veer over into that path. And maybe the one over here that's only been gone down by one toboggan is not as deep. It's going to be harder to convince your toboggan to want to … Your sled to go down that path.

Jennifer: And he says it's a little bit like that, that once neurons start firing down a certain pathway, it becomes grooved, figuratively speaking. And so that's the way that the neurons are going to want to continue going down. And in real layman's terms, that's called a habit, a movement habit. That's what we would term a mis-mapping. And then by showing people the truth about the body and asking them to take that into an experiential kinesthetic experience, and start being very diligent about moving that way and sitting that way in orchestra rehearsal, then gradually we start to return the map to something that's more reflective of the actual physical bony structure design of the body.

Noa: So it's about moving in the most biomechanically efficient way to maximize.

Jennifer: Yeah. We say moving according to the true design of the body, rather than according to popular misconceptions.

Noa: I know that sitting is something that we tend not to think about until we have to do it for a really long time and get uncomfortable.

Jennifer: Yeah.

Noa: Is there something you could say that transmits over audio and not video in terms of how to sit more effectively, like in orchestra for a long period of time?

Jennifer: Mm-hmm (affirmative). When somebody is having a … It's usually lower back pain or sometimes hip joint pain that tells us that we need to address the sitting. The example I just used about not arching the lower back, while that's a very general piece of advice, but when we go to map the structure beyond that bit of information about wanting to deliver down through the front part of the spine, and we get the model out and we show them how big it is. And we get their hands on it. And we say point to it in your own body.

Jennifer: So if people listening end up pointing right at the midline of where the side seam of their clothes comes down and they point their fingertips in over the top of the pelvis, their fingers if they could travel through the flesh, they would run into the front of the spine.

Jennifer: That's how deep the spine is. Our intestines cluster around it, around the front of it, and yet many of us think of it as being something that's only in our back. And that's part

it, and yet many of us think of it as being something that's only in our back. And that's part of the reason people end up also in that kind of trying to lean down that back half of the spine. That's the first mis-mapping we usually deal with, is just getting them really clear on where the spine is in the body. And how huge it is. And that it has these nice cushions that we can send weight through. But then we need to also delve into what the sitting bones actually look like.

Jennifer: So we pull out the spine model and we examine the fact that first of all, some people think that those sit bones are parallel to one another. And we have to get them very clear that they're in a V shape, and that the portion of the sit bones that we are … Is a much more efficient way to deliver weight through, is through the wider part of the V. So I'm pointing my fingers now, and I realize people can't see it, but the point of the V is closer to the front of those sit bones. And the back of the V widens out. And so if anybody listening just wants to sit on their hand for a moment, if they're in a chair, they can feel the bony protrusion that their fingertips are feeling and they can walk their fingers along it. That's called palpating.

Jennifer: And we have people do a lot of that through the body just to find out where the shape of the bone is. And what we can see when we look at images of the bottom of the pelvis or the sits bones, is that the wider part just like the feet of a music stand, the wider those legs are the sturdier it is. And as soon as you start to get them narrow together, you have a teetery music stand.

Jennifer: So it's kind of a teetery place if you're sitting up straight, if everybody tries that, then you end up on that front … Yeah, kind of ridgy part of the sit bone that's much narrower, but like a knife edge almost. And it does hurt. But if you release back a little bit, not into a full slump by any means, but onto that wider, thicker part of the sit bone, then you're delivering weight through something that's far more stable. And therefore, you need to use less muscular effort. Well, let me put this more accurately. You will start recruiting some of the deeper, what's now more popularly known as core muscles to support yourself, which are designed to support us rather than the external muscles, which are the moving muscles.

Jennifer: But many people are recruiting those to hold themselves up, and now suddenly they're not as available to us to move arms freely because we're already recruiting them to try to sit in this so-called good posture. That's a quick run through how we might talk somebody through. And it's tricky with words in a medium like this because of course we rely heavily on visual images and visual anatomical models. And we want them to see it. We want them to feel it in their own body. We want to say, what you see in that image, is that how it feels in your body? What surprises you about that image?

Jennifer: What is it that's new to you about that? And we can then trace what their mis-mappings are and eventually somebody will say, "Oh, it's because when I was four years old I heard somebody say X , Y or Z." And they're able to track it back to a moment in time

sometimes.

Carol: Yeah, just follow up with so many people come and ask me about sitting well in chairs for chamber music and for orchestra. And I don't have this in my room at Julliard, but I used to actually always have one of those gymnastic balls to help people to figure out where their pelvic balance is, and to find that so they don't fall over. When they don't have access to that, what do you recommend for violists, violinist, cellists to look for in a chair or to establish how to sit in it based on how big they are and all of that? What would be your practical recommendations for that?

Jennifer: Well, I've just in the last year, spent a lot of time looking at chairs because I wanted to order some for my young string orchestra. I found that certainly you want to have options of different heights. And you do … This is I think fairly common knowledge that we do want to have the hip joints slightly higher than the knees. If you end up on a surface where the knees are on the same height or higher than the hip joints, then you're definitely … You're not going to be able to set easily on balance. The edge of a chair is really important. There are some really nice designs now on the market where they ever so slightly curve down in a way, which means that it helps people to sit on the sit bones, the pelvis itself rather than on the back of the leg.

Jennifer: And if you try that thing again about going into really the old fashioned good posture idea where the lower back is arched in kind of a sway back, you feel the edge of the chair coming to push up into the back of the leg. And that's where a lot of people are starting to send weight through. But in reality, if you look at the profile of a seated skeleton, you'll see that the leg bone is inches above … The bone itself is inches above the surface of the chair and therefore inches above the actual bottom of the sits bones where we're meeting the chair. And that kind of leg freedom that we want to be able to have a nice seat on the sit bone but still have legs very free to move. And because where we used to be four-legged, I suppose, the freer legs are when we're sitting the freer your arms are. The limbs affect one another.

Jennifer: So that's become very important to me that it's a flat surface that you're perched on, but where the leg is hovering over the chair, that it starts to slope away a little bit. And that gives extra freedom and really drives home to the brain the difference between the sit bone that we're making contact with and the back of the leg. There's one model of chair on the market right now, which I really love that when people do want to sit back and take a little break from being so much on the edge, the back of it is a convex shape, which actually supports the bony structure of the spine rather than encouraging other parts of the back to be leaning so much on the chair. So people are getting a lot smarter about chair design, especially for musicians. So there are some nice options out there now.

Carol: That's great. And what's your feeling about feet on floor while people are in chairs while they're playing? And high heels for women even sitting in chairs and that sort of thing?

Jennifer: Yes.

Carol: What do you think of that?

Jennifer: Yeah. Great question. Well I'll deal with the high heels first. And I'll just quote Barbara directly. She used to say, "There are lots of musicians who have … All the opera singers who were in costume and who are walking around, they have to wear high heels. It's part of their character. They have to learn how to do it." She and I certainly recommend too that we start finding balance delivering through the leg bones and through the center of the foot before you put high heels on. You figure that out first in bare feet or flat shoes. And then once you know what that's like and how the musculature has kind of reorganized itself a little bit released in the places it needs to release, and core muscles starting to help support a bit more, at that point, then you probably go in high heel as you want.

Jennifer: So the same holds true for sitting, but I wouldn't want to train somebody to find balance in high heels. I would definitely want to start away from that and let them get fancy later. Feet flat on the floor. I love the feeling of having the leg bones themselves being supported by the foot flat on the floor, but that's not to say that we don't … We really encourage expressive musically appropriate leg movement either in standing or in sitting. I remember being inspired by Shauna Ralston, the Canadian cellist where she would … She's very expressive physically and frequently this leg would just be almost flailing over.

Jennifer: The one that doesn't primarily support the cello would be. She had very, very free leg movement when she sat. So there's all sorts of ranges of that. But as long as the legs are free from the hip joint and we're not sitting on them, and a student knows that it's a part of their whole body and our whole body should be supporting the musical intention, is going to keep the upper torso free. Whatever we're doing with our arms is only going to be enhanced by that, by looking for that freedom.

Jennifer: Since we're talking about sitting, I'll add to the discussion that I have recently discovered that there's another slight variation that some people experience and have a hard time finding balance in sitting. One thing I need to preface it all with saying is, that we usually start from the top down like Alexander did. If the head is off balance, it's so heavy, it's 10 to 15 pounds. And so if it's not over the rest of the body structurally, the sit bone information won't do much good until you've got some really …

Carol: You have to have your head screwed on straight.

Jennifer: Yeah, nicely said. That's right. Although screwed on is not right.

Carol: Yeah, yeah. No, I know.

Jennifer: That's lovely. Yes, it has to be on top of the body. It can't be hanging off in front. And that does happen to a lot of musicians when we go looking at the score. But having

And that does happen to a lot of musicians when we go looking at the score. But having prefaced with that, recently I've discovered that it is sometimes possible for one of the pelvic bones, which attaches … It forms a joint with the side of the sacrum, which is the lowest portion of the spine, that fused bit. And but there's enough give in some people in that sacroiliac joint that occasionally a pelvic bone can get a little bit jammed or a little bit torqued or a little twisted chronically. And people will actually start to feel that their sit bones aren't even. That if you ask them, they'll say, "You know what, actually one sit bone is taking more weight than the other." And so we can get to imbalances that way as well.

Jennifer: It's not always just about front to back. It's sometimes side to side as well. But any of that feedback that we need in order to get that refined about what we're feeling in our body kinesthetically really cannot be felt on a couch or a soft arm chair because there's just not enough feedback. You end up just getting sucked into the material instead of being able to kind of be perched on it.

Noa: And I'm assuming too, tell me if I'm wrong, but the idea isn't also to identify the ideal position and hold it static, but to have some movement around that kind of balance point.

Jennifer: Exactly, exactly. Yeah.

Noa: The analogy that I really liked was the idea of, it's been a long time since I've gone bowling, but I still remember that bowling balls are quite heavy.

Jennifer: Yes.

Noa: And the analogy of, if you're holding a bowling ball, your fingers are in the holes and it's directly over your forearm where your bone is supporting the weight of it. It doesn't feel that heavy, but as soon as it's 30 degrees, 20 degrees, [inaudible 00:25:36] degrees out, and then the forearm's no longer vertical, you feel how heavy that is. So the head's like a bowling ball.

Jennifer: Exactly. The forearm muscles have to take over for the … You've lost the mechanical advantage of that weight delivery in a vertical plane. And it's exactly the same with the head and that's why people's neck muscles get so tight and sore. It's one reason, because if that head is carried forward, then we're now … You can hear how my voice just changed too. When it returns to a balance again, the muscles can release because they're not holding on for dear life onto this bowling ball.

Noa: Now that videotaping is so easy and instant, I wonder if you can say a little bit about how that would work in terms of … Because the other analogy that I really liked in your book was the comparing of developing kinesthetic awareness of our body to developing a keener ear for intonation. And being able to kind of like how I on my own just sort of figured out, wow, my thumb's really tight. Or my shoulder's doing this. And not realizing how that could free up my muscles to move more efficiently. I wonder if you could talk about how those two things could work together to help us figure out on our own where we're being

those two things could work together to help us figure out on our own where we're being efficient, where we're being inefficient and pulling ourselves back.

Jennifer: Yeah. Yeah. I'm real glad you raised that point because even though my history is coming from fairly severe injury and that's the driving force behind my helping people, there's loads of other musicians out there who are just a little frustrated by feeling limited and maybe haven't realized yet that a lot of the limitation they're feeling is coming from the fact that they are moving against their design in small ways. Maybe ways that aren't extreme enough to feel injured, but that it's certainly limiting them. And they wonder why they can't do something as freely as other people. Why isn't my staccato as free? I'll use that as an example because that was my … That was a huge moment for me when I remapped my bow hand thumb. Barbara talks about when there's a lot of tension in a thumb, the three bones, it is comprised of three bones in the thumb. And the bottom bone comes down and meets the wrist bones, but when a thumb is not moving freely, generally it starts to get pulled into the hand a little bit.

Jennifer: The [inaudible 00:27:46] muscle on the palm gets over-tightened and the thumb starts to look as if it's just sprouting off where the webbing of skin is there. And people frequently use it with only really movement from the upper two joints instead of what Barbara dubbed the "three jointed thumb." So when I started remapping my thumb and I realized how incredibly long and graceful a digit it was … I used to think of my thumbs as being kind of ugly and stubby and short. And it turns out, wow, it's actually doubly long from what I thought it was. And I picked up the bow and started really thinking about that sensation of softness and that muscle. And bringing the thumb onto the stick from the base joint and swinging it from there. It was nearly instantaneous. I had a spiccato that was so easy and I loved it and it sounded great.

Jennifer: And this is … I was in my mid-thirties with that revelation. So I had been playing for well over two decades with a really tight spiccato, which I had always hated. It just hated it. Playing anything in the quartet even as a professional it's like, oh God, here I go again. Feeling like I'm just bad at spiccato, I'll never be good at it. Turns out my thumb was tight. And I was thinking of it as being short and as soon as I realized where the origin of the movement could come from, within about a month that muscle, which had just been this enormous … I'm sure you've seen students of yours with this. That muscle is just hard as a rock. And it's like this big. It's just way too overdeveloped. And that's what mine looked and felt like. And within about a month that muscle had turned into what it is now. It's just soft and malleable, and the thumb was moving from the right place.

Jennifer: So that's a classic example of a mis-mapping that I had never had pain in my thumbs. And in my vibrato on the left side also really improved when I remapped my left thumb. That was one of the quicker mis-mappings I had. That really was about a month, and it was very, very exciting that it had that much of an impact on my playing.

Carol: Since the viewers can't see it. It was so beautiful to watch how you were moving in

your hand and it led me to just another question and watching this freedom of movement and what your experience has been with different body types, especially so many musicians are hypermobile.

Jennifer: Yeah.

Carol: And they can actually move in ways that they think are comfortable and free and great because they can.

Jennifer: Right.

Carol: That if you do it long enough, the body's actually not structurally created to enjoy that.

Jennifer: No, yeah.

Carol: But since they can, they do. And I'm wondering what your thoughts are on that, just having watched how you just moved and showed us your mapping of your thumb?

Jennifer: Right. Well, and it's interesting that it came up about the thumb because we do see that hypermobile thumb all the time.

Carol: Yeah. And many of us have extra flexibility in our hands. Those of us who do what we do.

Jennifer: That's right. It's great that you raise it because yeah, that is a really common thread that runs through injured musicians histories as being hypermobile. I don't have it so much in my hands, but my shoulder joints were incredibly hypermobile. And that's where my original injury was.

Carol: I kind of have it everywhere. It had something to do with my problems.

Jennifer: Yeah, yeah. And it's ironic because growing up I was always told, "Oh look at you, you're so flexible." Isn't that wonderful?

Carol: Exactly. Isn't that wonderful? And you're like, ow,

Jennifer: You know what? It really hurts when it goes there. Or you don't even know what's going there when you're playing, but you're hurting and you haven't made the connection that, that's the reason why. When I work with people, let's just stick with the thumbs as an example for a moment. When I'm working with people with hypermobile thumbs, it's exactly the same principles as what everybody else needs to do. But you just have to be doubly diligent. And I tell them that. You're just … Sorry to tell you this.

Carol: Because you're double jointed, double diligence.

Jennifer: Yeah, there you go. That's a wonderful mantra. Yeah. You have to be doubly aware of how you're using them all the time. Not just when you pick up your bow, when you reach for your water bottle or your glass of orange juice or your salt shaker. When you open doors, you just have to remap that thing so that it feels bad to go into that double jointed place. And eventually it will.

Carol: I actually tell my students they can actually be practicing the viola when they're brushing their teeth or carrying their viola walking to the subway or whatever it is.

Jennifer: Exactly. Yeah, exactly. Yeah, yeah. That of course does come from an Alexandrian way of thinking is that it's something that you don't just do in a lesson. You go home and you practice how you move all day long. And if we do, do it that diligently, then the map will start to change much faster. And it really will start to feel bad and wrong to go into those hyper-flexible places. Teenagers especially, I find who I have a studio at home of a few teenagers who … And one of them is incredibly hypermobile. It's also in the larger posture of the whole body that the demeanor that teenage girls especially often, yeah, there's just a lot of posturing that they relate to their persona. And sometimes I have found you just need to wait for them to be ready to be who they truly are and accept that they don't have to have these cultural postural things going on because that is such a strong … It's everywhere in our society and we are up against it like 24/7.

Noa: Is that because we see it so often we end up kind of modeling that?

Jennifer: Yeah. Well just as an example, I'm thinking that this has changed and I am so happy. But in my generation as a teenager, certainly we were still very caught up in the world of fashion. And you'd watch fashion models walk and you'd think, oh, that's what it means to be a really attractive woman. And so here they're walking in stiletto heels and moving from places that are not major joints of the body that the whole waggle that goes on in the pelvis is just really hard on the lower spine.

Jennifer: And the leg joints are being neglected and everything is compensated for by muscle. And so, but teenage girls will … I still see some who are trying to emulate that because it's society's idea of what is attractive. You can plant all the seeds. And I do. I don't not teach it to them, but I've had people come back who'd studied with me as a 16, 17 year old young woman, really not ready to take it on, but knew enough about it that when she started hurting at age 22 she came back to me. And then boom, we were out the gate and things were fixed up within the year.

Carol: That brings me one other thing that I found. So I think about it a lot, that you alluded to in the book about familial patterns of movement.

Jennifer: Yeah.

Carol: And also then the trauma that's stored in the body. And it's such a fine line because

Carol: And also then the trauma that's stored in the body. And it's such a fine line because maybe that person is not emotionally in the situation where they can let go of that thing. And it's actually not safe for them in this situation to do that. And I wonder how you deal with that as well?

Jennifer: Yeah, right. Well, the first thing in dealing with that in my trajectory as a teacher of teaching this material, it took me a few years to figure that out what you just said so beautifully. And I had to learn how to be patient with whoever was in front of me and understand when they were ready and when they weren't. And what level of readiness they were at. Certainly if there is somebody in front of me who I know has had some emotional trauma, the first thing I do is do my darnedest to convince them to make sure they're seeing somebody who's a professional in that field. And can help them deal with the emotional end because there is no separating what's going on emotionally.

Jennifer: What I love about this work and particularly how Barbara taught me to breathe, is that there is a physical tool there that can be used to in the moment if panic or anxiety is rising, let's say, that there … I was also breathing very poorly and I was using all sorts of incorrect muscles going back to things that I'd heard about in a yoga class once that were … And it's very possible it was being demonstrated well, but the words that she used in my brain took me down the wrong road.

Jennifer: So when I learned how to breathe well, it was a huge boost to my confidence that, oh …

Carol: Right. It's empowering.

Jennifer: It's empowering. That's right.

Carol: It's empowering to learn how to be in your body and know you have actually agency.

Jennifer: You have control over it. Yeah. And you don't just have to be set off into a panic and then the breathing is out of your control and it just spirals downwards from there.

Carol: You can learn to manage it through this work actually too.

Jennifer: Exactly. So there's that emotional element, which we rely on heavily for somebody who we know has … I'm not going to start counseling them by any means. I don't have those tools, but I can certainly put them on the floor and show them how to breathe better in their body. And the other important kind of emotional end of it, particularly if there's been trauma associated with performance anxiety, is the inclusive awareness aspect that Barbara teaches so beautifully.

Jennifer: I've never read anybody in my mind who says it better than … She's a wonderful, compassionate human being and a wonderful writer. So her use of words is, it just resonates with most readers. So in the back of my book, I included her article on …

Carol: Right. It was beautiful.

Jennifer: Yeah, isn't it beautiful?

Carol: Yeah.

Jennifer: And it's available. It's an article she wrote called What To Do About Performance Anxiety. And it's on the body mapping website for anybody who's interested in just going to bodymap.org. And it's a very, very kind of, she takes you by the hand and walks you through how to learn, how to change your quality of awareness so that you're not getting sucked into the page in front of you or the text with, and lose complete sense of the world around you. Because the nervous system responds very poorly to that.

Jennifer: She used to talk about the caveman out gathering berries with the saber tooth tiger hovering in the neighborhood. And if you get completely sucked into, oh, I'm going to collect the biggest and the most berries of anybody in the clan, and you completely forget about your surroundings. Well, you're not going to make it back to the clan. And the nervous system starts sending off these signals. And if we continue to ignore them like a lot of people do, anxiety just gets worse.

Jennifer: So having an awareness not only of your surroundings, you can always have a focal point when you're playing, but if you for instance on stage lose an awareness of the audience, then there's kind of an unknown out there and it feels scary. And if you are able to walk on stage and instead of feeling like you are in the spotlight and you are the focal point, if you make them the focal point for you and you kind of go, oh beautiful purple over there and red and green and you just take in the visual beauty of that masked humanity, it's not a personal thing like Johnny and Bobby and Susie. It's something wider and bigger in general.

Jennifer: Then suddenly you're in this whole relationship together and you don't feel like you're the special one up here with the weight of the world on your shoulders. I am speaking from personal experience because I suffer terribly from performance anxiety before working with Barbara's approach here. And it just really changes how you view your job as a musician. It changes how you view an audience. It puts you all in the same boat. This was my kind of window into it for the first time, and it really changed how I walk down a street and how happy I feel because I'm not sucked into my unhappy thoughts all the time. I'm actually looking at the trees and the birds. So it's definitely worth reading for anybody who's interested in finding a way into that.

Noa: I wonder if I can go back real quick to the breathing thing because the idea of mis-mapped muscles or structure affecting our breathing never occurred to me. I don't know that I ever really thought about breathing much because it wasn't as central a part of producing sound is as it would be for a singer or a wind or brass player. Could you say a few things about mis-map breathing that might be helpful to singers or wind or brass players,

especially under pressure when they start becoming I think overly self-conscious about the mechanics of breathing.

Jennifer: Right.

Noa: And then can't do it as effortlessly as they would normally.

Jennifer: Right. And again, it comes back to words. And we never ever in any way mean to correct teachers' terminology. Nobody's saying incorrect things. It's just we need to be really accurate in our language so that the student like me who happens to take words and go down the wrong road with it, we can prevent that as much as possible.

Jennifer: And so in singing pedagogy, there's a common adage to breathe from the diaphragm. It's a fairly old one, it goes back centuries as far as I can tell. You read about it. And the diaphragm is hugely important. There's no doubt about it. It does 75% of the muscular work of breathing. The thing that Barbara kind of put together for us is that there are very few sense receptors that go to the diaphragm, and therefore we don't have the same kind of voluntary control over it that we have over our rib movement. The diaphragm will always work with how the ribs are moving. And the intercostal muscles that live between each rib, we have a lot of voluntary control over. So if we get really good at learning how to move our ribs, the diaphragm will move in tandem with it. The problem with thinking about the diaphragm first is that because of where it is, it's actually not just in the front.

Jennifer: It's this huge muscle that runs around the entire circumference of the ribs, front, sides and back. But people always gesture at the front. And then singers and wind players often confuse that with the other external layers of abdominal muscles. And so to try to make something happen with diaphragm consciously, they start contracting. You can hear me doing that in my voice. They start contracting other abdominal muscles, which are meant to be free to move the torso. And if we start gripping them, the diaphragm actually is completely restricted. So one of the things I do, I have a slide when I present, and we use lots of images. So there's a PowerPoint slide that we all use. And one of the images I've chosen to use has a picture on one side of a drawing of somebody pushing their belly out muscularly. So I have them push it out as far as they can and then try to breathe deeply.

Jennifer: And of course everybody finds out like, ugh, I can hardly get any breath. And then the other one is of the abdomen of an actress from the 1960s in a bikini. There was an image from a movie she was in with the belly sucked in as far as it can go in that effort I suppose to look as thin as possible. That was the fashion at the time. And then I have people try that and try to breathe deeply. And of course the diaphragm can't go anywhere with that either. So just being really clear on doing anything muscularly with those muscles is just not … It's going to only make the diaphragm's descent impossible. And where we really want to go consciously to train free breathing movement is to the rib movement. And so I will stand behind a singer with my hands on either side of his or her ribs

so I will stand behind a singer with my hands on either side of his or her ribs.

Jennifer: And this is Barbara pure right from her. She would say, “Push my hands away from each other with your ribs when you inhale.” Just giving that little bit of direction of what direction should they be moving in. We map it all. We talk about how they’re higher in the back and lower in the front, and they pivot from the joint with the spine and they move up, they swing up from the spine, like bucket handles on a bucket. And that alleviates a lot of the mis-mappings that live around ribs.

Jennifer: But just getting them to feel that with your hands on them is very useful. They can do it themselves. You can put your own hands there and feel that inhalation and then allowing the ribs to return on an exhalation as far as they can go. And that just starts to get the diaphragm moving really beautifully. And even if you’ve trained that in very consciously, it doesn’t matter how nervous you are, you have that as a tool ready to use when you’re in performance.

Noa: When I was growing up, if you wanted to Heifetz play or Oistrakh, you went to the library, you got a videotape and then you had to pop it in, and then you had to return it, otherwise you get fined. But now with YouTube, we can see a video of anybody playing anything for the most part it seems.

Jennifer: Yeah.

Noa: How, because I’m assuming not everybody, not every great players may be playing in a way that is appropriate for all of us. How do we tell if someone is a good model for us to try to absorb their body movements or the way in which they move?

Jennifer: Right. That’s a fantastic question because you’re absolutely right. Some of the greatest artists, not many of them, but there were a few out there I’m thinking a generation ago, were doing what they were doing in spite of their bodies in some instances. And still the musicality that was in them was just so strongly had to be expressed that they found their ways. But frequently, one person I won’t name, but I’m thinking of specifically who had a great international career but it did turn out, was in pain most of their adult life and was taking painkillers for it.

Jennifer: So to answer your question, how do we know? The first thing you go looking for is a sense of ease on the face. There’s a lot of machinations going on in the jaw. That’s a sign that there’s unnecessary muscular work going on. And the same goes of all the joints of the body. If there’s momentum in the movement. If you can see that an arm is kind of maybe thrown with some momentum and then bounces off with a rebound, you’re pretty sure that most of the joints are working pretty well in order for that to happen. If the movement looks to be muscled into the piano or the bow stroke is a little muscly looking, then that’s unnecessary muscular work. And there’s probably a bit of a tug of war going on somewhere in that person’s body. And again, it in no way reflects on their artistry. Some people find a way to do it and bully for them because this information is relatively new. If it had been

way to do it and bully for them because this information is relatively new. If it had been available a hundred years ago, I'm sure people would have been using it.

Carol: Although, that brings up to me an interesting point. I'm thinking we're finishing up writing this … It's the centennial of Karen Tuttle's birth in 2020.

Jennifer: Oh wow.

Carol: So I'm working with my colleagues to finish up a book that we're putting out in the new year.

Jennifer: Great.

Carol: And so much of what she ended up doing, she just heard Primrose play, thought he looked and sounded amazing. And even though she was a violinist at the time, she said, "I want to do that." And he said, "Okay, if you switch to the viola and moved to Philadelphia." She was out, she heard him play in Los Angeles I think it was. "And move to Philadelphia, then we can do that." And then she found out very quickly, and this was a whole mystique back then where people who played beautifully, they didn't want to take it apart. They were a little superstitious about it.

Carol: And so pretty soon he started sending everyone to her because she figured out how he did it.

Jennifer: How he was doing, yeah.

Carol: Because he wasn't going to tell her because maybe it wasn't anything he actually consciously wanted to talk about. He was a great musician, wonderful teacher, but she actually figured out the nitty gritty physical part because she needed that for herself.

Jennifer: Yeah.

Carol: And that's what started her on helping people.

Jennifer: Yeah. It is often an analytical mind that …

Carol: Yeah.

Jennifer: Somebody who's either in pain or wants to play desperately enough like somebody else. Yeah.

Carol: Right. No, she was in pain and that brought her to … She saw someone who was playing so organically and beautifully and she called it truth when she saw him play.

Jennifer: Yeah. I think that that is literally, because I think we all recognize when we see the universal truths of the body and movement. I think it literally is a truth.

Carol: It is.

Jennifer: It's the truth of how a bone is shaped if somebody hasn't distorted it. They're moving according to that principle, that universal principle.

Notes

> Special co-host Carol Rodland has also been a podcast guest – for more on her own experience overcoming playing-related pain, and how she learned to play with more ease, check out her episode here: Carol Rodland: On Learning to Work with Your Body, Not Against It

Connect with Jennifer

If you would like to reach out to Jennifer with questions or to find out how you might work with her, you can contact her here: jennifer-johnson.co

You can order a copy of Jennifer's Body Mapping book (for violinists) here: *What Every Violinist Needs to Know about the Body*

Additional resources

For non-violinists, there's a list of Body Mapping books for additional instruments here: Association for Body Mapping Education's Recommended Reading

And finally, if you're interested in exploring Body Mapping further, the Association for Body Mapping Education's website is here: Association for Body Mapping Education

About Noa Kageyama, Ph.D.

Performance psychologist and Juilliard alumnus & faculty member Noa Kageyama teaches musicians how to beat performance anxiety and play their best under pressure through live classes, coachings, and an online home-study course. Based in NYC, he is married to a terrific pianist, has two hilarious kids, and is a wee bit obsessed with technology and all things Apple.

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