MIGRAINE WORLD SUMMIT

INTERVIEWS WITH WORLD-LEADING EXPERTS

TRANSCRIPT

PHYSICAL THERAPY MODALITIES FOR HEADACHE & PAIN

ALI LADAK, PT, DPT, PhD

Introduction (00:05): We've seen in the research that individuals that have had migraines for a longer period of time — or what we would consider a chronic migraine — and/or that had a recent change in the frequency or intensity of their migraine — so now they're having more migraines, or they're more intense — that is a good time to say, "OK, why is this happening?" And we know that anything that goes into chronicity tends to have more contributions from multiple systems — you know, that's just how the body responds. That is always a great time to look to adjunctive management, like physical therapy, for primary headaches.

Carl Cincinnato (00:46): Physical therapy is a complementary therapy that can be helpful in a wide number of painful conditions and physical complaints. In this interview, we explore the role of PT in the management of migraine and other related conditions. To help us explore this topic is associate professor Ali Ladak, who has a doctorate of physical therapy and a PhD in health sciences. And he specializes in headache. Dr. Ladak, welcome to the Migraine World Summit.

Dr. Ladak (01:12): Thank you so much for having me, Carl. I really appreciate it, and I'm really excited to be here.

Carl Cincinnato (01:17): For those who've never experienced physical therapy, how can it help with migraine and other painful or disabling conditions?

Dr. Ladak (01:25): Sure. So, one of the things about PT is, it's very dynamic. So, it goes from, you know, the kind of traditional sense I think everyone thinks of when you think of physical therapy — for like, orthopedic concerns, like pain, back pain, things like that. But there are multiple realms. There's neurosciences, you know — that deals with strokes and MS [multiple sclerosis], movement disorders. And there's been a lot of expansion of what physical therapy can provide in adjunctive management for medical stuff as well as for health care. So, there are physical therapists in cardiovascular care, in pelvic health, and in all settings now — you know, in the ED; in the ICU; most recently, a lot in terms of people recovering from COVID. So, it continues to expand from that traditional sense into things like migraine now. So, it's really exciting and it's very dynamic.

Carl Cincinnato (02:35): Why is it expanding all of a sudden? I mean, I'm surprised to hear that physical therapy can help with COVID. Are there new applications being discovered?

Dr. Ladak (02:41): I think so. There's a sense of where physical therapy used to be, and it was very much ... very instructive from the referring provider, and the stretching, manual kind of modalities. But there are multiple places where physical therapists have really kind of built out a niche for themselves, especially as medical providers — referring providers — are highly specialized themselves. There have been these areas and gaps opened up for physical therapy. A really good example is vestibular rehabilitation, where there just wasn't a lot of great information; that role has expanded in the last 10 to 15 years. And physical therapy has really taken ahold of the rehabilitation and some of the diagnosis management. And so that's an area that has become very dynamic. And with that, there's been expansion of a lot of other places and a lot of other systems, which has really been helpful with post-COVID recovery.

Carl Cincinnato (03:49): What type of manual therapies are available?

Dr. Ladak (03:52): Sure. So manual therapies that can be sometimes passive is where there's either a high-velocity thrust, like when people think about chiropractics; or they could be some

very gentle things, like working the soft tissue, trigger point release, as well as just alignment and helping the bones move the way they should if they're not moving. And so those are kind of the more traditional ones. Sometimes the approaches are slightly different. So, there could be things like myofascial release where, besides just the skin and the muscles, you're thinking more about a lot of the connective tissues around the body. There are therapies like craniosacral; dry needling — which is a physical therapy modality, but it's not in all the practice acts in America — so in Pennsylvania, that's something we don't provide because it's not in our practice act.

Carl Cincinnato (04:56): Do any of those modalities — I should say, those manual therapies that you just mentioned — myofascial release therapy, craniosacral therapy, dry needling, trigger point therapy — do any of those have any good evidence to support their use in migraine?

Dr. Ladak (05:11): Sure. There was a structured review in the early 2000s that looked at all the physical and manual modalities, and they found that there were some — massage, things like yoga and stretching — had some really strong basis. The main gist of that was that physical therapy seemed to be — out of everything, including acupuncture, chiropractics, things like that — showed the most efficacy, and it was mainly due to the fact that it mixes all those ideas together. And so in the end, the individual, you know ... It's like a very active approach, and it has fitness and a lot of other things compiled in it. So, recently there was a large core study that showed that exercise — under the exercise umbrella, you know, cardiovascular as well as some progressive strength training — showed some really strong evidence to help individuals with migraine. So, you know, those are elements that are used in physical therapy. And that's why it can be really helpful.

Carl Cincinnato (06:20): So how does a physical therapist decide which treatment they're going to use for the patient? Is there one treatment that's better than all the rest that they typically default to? Or does it really come down to an individual sort of assessment?

Dr. Ladak (06:36): Sure, that's a great question. So, for primary and secondary headaches, when you're looking at migraine just in general — and then all the complexities of migraine, presentations of it — it's very highly variable in how it presents. And so, the best method of approaching it is really looking at it from a multisystem perspective: looking at the migraine in itself — or whatever other primary headache it might be — and then looking at it in terms of what other systems might contribute to that migraine. And when we do that, and we make sure that we're looking at it in terms of priority and that it is very individualized and it's targeted, that seems to be the best approach. And the idea that we take, and how we kind of approach it, is that we use the history and subjective to create, like, certain phenotypes and look at them to say, "OK, what possibly is happening here? Is this just the migraine? And does it have contributions from multiple systems? Or are there multiple headaches that are kind of overlaid on top of each other that might have some sort of negative effect? Or, you know, what simply are possible triggers?" Then it really comes down to just confirming it and making sure that it works for the individual to help kind of modulate either the frequency or the intensity of their migraines.

Carl Cincinnato (08:09): How do you know if you are someone who would benefit from physical therapy if you've had migraine for a while? What's the — for a lack of a better term — what's the trigger to send you over to the physical therapist?

Dr. Ladak (08:22): Sure. That's a great question. So one of the first things that you said, Carl, is really important to consider: that we've seen in the research that individuals who have had

migraines for a longer period of time — or what we would consider a chronic migraine — and/or that had a recent change in the frequency or intensity of their migraine — so now they're having more migraines, or they're more intense — that is a good time to say, "OK, why is this happening?" And we know that anything that goes into chronicity tends to have more contributions from multiple systems — you know, that's just how the body responds. That is always a great time to look to adjunctive management, like physical therapy, for primary headaches. Other times is when the migraine might be refractory — it might be refractory to pharmacologics and other medical approaches. So, is there something that can be done that isn't realized yet? And so, there are some great articles that came out in recent times suggesting some of the screening properties or certain elements that might be helpful. And then there are some challenges to that because, unfortunately, with the neck — when we're thinking about the neck and migraine, a lot of people think about that — there's a bidirectional nature, unfortunately, when we're talking about the trigeminocervical nucleus. So they could have pain or very traditional signs of cervical involvement or neck involvement, or they don't, and we don't know until we do the assessment. So, when it's done right, it can be done in one “eval” to kind of explore that — explore some of the symptoms and challenges, really looking at it from a history and subjective point of view, and then making a decision.

Carl Cincinnato (10:19): And one "eval" is one evaluation — so basically, your first consultation?

Dr. Ladak (10:24): Yes. That would be the first time coming in. We try our best, when someone has a lot of complexity or a lot of systems — so here, when one practitioner ... we're taking all of the information that's given to us by our neurology partners, by the patient, and then we're looking at systems like the neck. There could be orofacial or jaw challenges, facial challenges — kind of more in the orthopedic realm. But then there's also ocular-motor, like vision and how the eyes move. There can also be vestibular contributions. And we can look at it from a perspective of peripheral versus central. There's a lot more information around autonomics.

Dr. Ladak (11:14): And then when we're looking at orthopedics, just beyond the neck and jaw, there are multiple things that can contribute — like if they've had a shoulder injury in the past, or breathing inefficiencies — you know, like the costal cage and all those — or diaphragmatic breathing could change lot of things, especially if there's accessory breathing. So that's where we kind of chase down things. We have to look at it and it may take that initial consultation, maybe one more. But what we try to do is make sure we get an answer as soon as possible for that individual to make sure it's not like six months later and we're like, "Oh, I'm sorry this didn't work out for you." We want to let them know pretty immediately if there is some sort of impact from a different system, and if we can provide some sort of support to their migraine or any other headache that they may have.

Carl Cincinnato (12:10): So, let's talk a little bit more about the treatment. And you mentioned earlier about the jaw, the neck, and vestibular systems — these are all things that a lot of people, I know, are going to be wanting to learn more about from a physical therapy perspective. So, we'll dive into that, but just starting a little bit more broadly: Can physical therapy be used to relieve an acute migraine attack?

Dr. Ladak (12:32): It can be very individualized, but we can find either a position or a very small movement or a postural correction that may also serve as an abortive.

Carl Cincinnato (12:44): So, I've heard of — and I've tried this myself without success — but lying down on your back, over a bed, and then tipping your head down so your head is below

your heart, and then having the blood flow to your head. Is that an example of a position that may change, I guess, something that may help with migraine? I think ... you know, for me, that never worked, but are there other examples of things like that that could be helpful?

Dr. Ladak (13:09): Sure. So, there are definitely some aggressive positions and things like that that we've seen in the history ... or that work with individuals. Honestly, ours are even more simple — like, there are a lot of people that like to lay on foam rollers and all these things, and really go into extension, or put their bodies in a little more of a stressful position. One thing that we know is that migraines, and especially when an individual migraine might be building, things are very sensitive. And so, a lot of the time, people know how to make their migraines come out or at least make things worse. So, you know, what we try to do is make sure that we're finding something so simple that can work. So, honestly, one of the positions that seems to be very helpful for some individuals is just laying down on your back on a semi-hard surface, knees up, knees bent so that feet are flat, and hands behind the head — which seems almost like a "hanging out" position. But what we find with some individuals that have a very forward position, and that the chest [pectoralis muscle] and pec minor might be involved, is that just this simple kind of opening and the idea of this forward head coming back into a relaxed position can help a lot of individuals. So it can be that simple. It can be maybe a very small postural kind of reset, or something to do with the neck, or if there are other contributions from other systems, it might be looking towards that. So, it could be extremely simple, but effective to those individuals.

Carl Cincinnato (14:49): I've personally found that clenching is one of the most stubborn habits to break. It's been very, very difficult for me. So, I think there's a few people that experience that as well. So any tips you have would be more than welcome to receive.

Dr. Ladak (15:04): That's tough. So, you know, there are great things, like — we talk about meditation, cognitive behavioral therapy, stress reduction — can be extremely helpful. But then again, going back to the source — clenching begets clenching. So, unfortunately, if you clench and you have lots of jaw pain and challenges, then you're just going to clench more because you're in pain. And so sometimes actually going to someone that specializes in orofacial management or TMD [temporomandibular disorder] for the jaw can be helpful to break the cycle. You know, some individuals find if they manage how their jaw is feeling before they go to sleep at night, then that might reduce their nocturnal clenching. So, there are those things as well to consider because it is a very, very hard habit to break. I know myself, like when I'm writing papers or I'm doing stuff, I do it too. And I should know better, but you know, it just naturally happens.

Carl Cincinnato (16:02): How do you know if your neck is a factor in migraine? We have been told by other experts on the Summit in previous years that if you scan someone's neck, you'll almost always find something that could be causing a problem. But in 90% of those scans, the person's fine. And you can't tell based on someone's scan whether they have pain or not when you're looking at the neck. It sounds like you need to be a bit of a detective when you're examining someone that has migraine and neck issues.

Dr. Ladak (16:29): Yeah, absolutely. I honestly love those studies that show that the imaging of an individual really doesn't, unfortunately, translate to their pain experience, or their symptoms and experiences. So, you know, that's a great point to bring up. So, the idea is you have to really be a detective. Some patients — it's amazing, honestly — I keep coming back to this idea of history and subjective. And so, one of the greatest things is that you might go to an individual

that specializes in headache, right? That might be physical therapy, that might be neurology, that might be psych, whatever it may be. So, we may spend a lot of time looking at things and we might understand headaches well, but that individual that's coming in is an expert on themselves, and they're an expert on their headaches. So, one of the greatest things that we can do in health care and medicine is listen to people. Because when we listen to them, they give us the clues and then we can take it and run, because that way we're seeing what that individual might be going through — and that's one of the best ways.

Dr. Ladak (17:37): Beyond that, there are some screening properties that can be really helpful. So, there were a couple of studies that came out in the past couple of years, and some of the attributes are if ... You know, some people have a lot of trigger points. And so, a physical examination of just checking and saying, "Ow, that hurts," or that they — you can feel the physical construct of the face. As well, they found that individuals with forward head in standing — so, unfortunately, in our world a lot of us have a forward head because we're all at the computers. Sitting isn't necessarily an attribute but standing — a forward head position in standing seemed to have that idea that the cervical spine, the neck, was involved. So, it's hard to say. You know ... posture can contribute to some challenges. It may put some added stress to structures and may provide that. But it's really hard to, kind of, show in the evidence. So, I believe, clinically, it definitely can, but it's more anecdotal than what the research shows.

Carl Cincinnato (18:45): So, if someone is hypermobile or has EDS — Ehlers-Danlos syndrome — what are the implications for physical therapy treatment?

Dr. Ladak (18:54): Sure. So ... unfortunately, there are a couple of comorbidities that seem to travel with individuals with migraines, and EDS can be one of them. And so, when we're looking at individuals with EDS, this is why sometimes these kind of generalized stretches or manual modalities — like high-thrust manipulations, things like that — really need to be considered and be part of a very extensive evaluation. Because if an individual is hypermobile or they have EDS, they're already moving way too much. So even though they may feel tight, or they may have some certain challenges there, that might be the body trying to self-brace — it's doing that because there's nothing really to hold onto. And so, if we introduce stretches or manual care to those individuals, it may treat the symptom at first; it may make them feel good, because, "Hey, I'm really, really tight here" — that causes relief — but down the road that may increase the hypermobility or have a negative response to things. So, unfortunately, in our clinic here, we've seen people that have gone to places where maybe that was the idea — of stretching or manual care. It had a fairly positive response at the beginning, but unfortunately, it progressed things. And so now we have to take a very different approach. And so, with an individual that already has migraines and a lot of challenges with EDS, they might have a lot of spontaneous dislocations or instabilities in the body — that might have more implications to them, and might just add complexities to it. So, you know, that's why it's always good to take all of those things into consideration before treating an individual with migraines.

Carl Cincinnato (20:53): Are there other types of conditions or headaches that can be helped with physical therapy — or even something like POTS [postural orthostatic tachycardia syndrome]? Can you tell us what POTS is, and what its relationship is to migraine, and how ... what the role of physical therapy would play?

Dr. Ladak (21:08): Sure. So, when we're looking at POTS, it's looking at like — it's a tachycardic syndrome that has to do with a person's position, right? So, it's an autonomic disease process. It's, you know, very ... A lot of people know that one where you stand up really quickly and you

might feel kind of funny, right — that's more about orthostatic hypotension, right, where your blood pressure comes down. The response for POTS is where actually your heart races — it goes up — and a lot of individuals who have POTS definitely have challenges if that's a comorbidity that kind of travels with migraines. And so, it might be one of those things, again, that might contribute to migraine frequency, intensity, or challenges because that individual can't move. You know, so that's where physical therapy has a whole, kind of, branch to manage and treat POTS. And so that's something that we borrow from and we kind of integrate when we're looking at individuals with primary headaches, like migraine, and secondary headaches, to consider. Is this a factor? Can we do something with it? POTS has a lot of implications around concussion, as well, and some people can have spontaneous occurrence of POTS where it really initiates from that injury, and it causes a lot of challenges. So, it's something that we definitely have to look for, and respect that it may have contributions or implications to how a person might do. So the migraine might be refractory because of some of these other challenges in the body.

Carl Cincinnato (22:55): New daily persistent headache is another type of headache that's proven to be very stubborn and sometimes refractory to resolve. It's one of those types of headaches that starts at a certain date and just never seems to end. Can physical therapy play a role for treating new daily persistent headache?

Dr. Ladak (23:11): Sure. So, we found that there is a subset of new daily persistent headaches. And interestingly enough, how we realized this pattern was how there was this expansion of individuals with new daily persistent headaches, especially in the pediatric population, around COVID. And so, this idea that ... What changed with virtual school was mostly it. So, we were like, you know, what's happening here? And so for a subset of new daily persistent headaches, what's really interesting is — there's a couple of great research articles, but only two that were shown that they, kind of, were on this hypermobility spectrum, you know, so they had more mobility; anecdotally, we found that if they have a growth spurt, that might be involved; a lot of students that kind of went virtual, we noticed that.

Dr. Ladak (24:12): And so, for those individuals, what we found is that they may have like a functional scoliosis, or a change in their alignment — not only at their head and neck, but throughout their trunk and their body. And so, addressing this full-body kind of stabilization seems to do really well. We have a very small subset, and we'd love to do more research in it — but we've had individuals who met this criteria that actually had an abolishment of their headaches from physical therapy when they were refractory for everything else. It's a small population, and there are a lot of considerations for new daily persistent headaches — but when they meet this criteria, it seems like there's an advantage if we can stabilize and strengthen them in a more whole-body way.

Carl Cincinnato (25:01): We spoke earlier about who should consider physical therapy. Is there anyone who should really stay away from physical therapy, where it would be contraindicated or dangerous?

Dr. Ladak (25:13): When physical therapy is done right and the evaluation takes all things into consideration, it can be as simple as telling someone, "Hey…" — you know, like we were talking about permission to move — “It would be great if you did some daily walks, or you did some very gentle fitness,” and things like that. Our clinical practice guidelines have shown more consistency of these ideas, like general fitness, helping connect and bridge people. So, I don't think ... You know, when it's done very responsibly, I don't think there's any individual that

wouldn't do well with at least a consultation with physical therapy to say like, "Hey, sure. You know, this is happening." We also help, like I was saying, we include cognitive behavioral therapy; we like to talk to individuals about sleep hygiene — other practitioners do, as well — sleep hygiene, healthy habits, things like that.

Dr. Ladak (26:07): One of the challenges around migraine is — because so many people suffer from it and it's very individualized — it can be really challenging to go and just start Google searching things or looking and finding something right for you. So sometimes it's just nice engaging someone that has a lot of experience with it, no matter what kind of role they play in that interdisciplinary team, because they might have some really great suggestions. So, nothing that I could think of that would be contraindicated, but I think there's a responsibility for the practitioners also to look out for those factors and identify those factors of hypermobility or POTS or things like that. So, of course sometimes mistakes are made and things like that can happen, but for individuals who are very thoughtful in their practice, those things could be identified and so it could be helpful for multiple people.

Carl Cincinnato (27:06): How do people find a physical therapist that has a specialty or experience treating migraine?

Dr. Ladak (27:11): So, that's a great question. It's honestly a big challenge right now. So, we at our clinic are trying to find ways to kind of push out a lot of this information to help other individuals because it's so highly variable. And honestly, within our curriculum — our school curriculum — it's not covered a lot. Some schools might have it as an elective, or maybe a unit. So, you can go to any physical therapist, and they might treat an element of things — like you could go and if it's your neck, a lot of physical therapists feel pretty comfortable with that. Or if it's orofacial or there's some sort of implication, you can go to someone like that, or vestibular, or whatever the challenge may be.

Dr. Ladak (28:00): In terms of this comprehensive approach, it's challenging. There are a couple of institutions within the United States, a couple places internationally, that are doing some research and looking to kind of build that out. But we're just in our infancy with this in terms of it being highly specialized. So, we're trying our best to get the information out there. We're trying to get more evidence and support for what we're doing. And honestly, societies like American Migraine Foundation and American Headache Society have been so supportive in our efforts. And so, it's always great to have this interview right now today. It's so great to get some of this information out there. So, we're trying to get that information out there; we're trying to have more practitioners that are sensitized to this. But we've got a lot of work to do.

Carl Cincinnato (28:53): Are there any final thoughts you'd like to leave with the audience?

Dr. Ladak (28:56): You know, the final thought is that there is hope. There are lots of considerations, and even if the migraine is refractory, or the headache is a challenge, there might be some simple things. We talked about priority: Sometimes it's the system that is a priority or things like that, but honestly, sometimes it's low-hanging fruit: Can we do something that's so simple that maybe we can knock the headache down a couple of points so that an individual can now get up and have a productive day, or push through things, play with their children, you know? So, it can be done on so many levels, but there's a lot more information coming out there. And so hopefully it'll support people that are suffering and get them some sort of relief.

Carl Cincinnato (29:44): Fantastic. Well, Dr. Ladak, thank you for all the research that you've been involved in and for sharing your knowledge today with us on the Migraine World Summit.

Dr. Ladak (29:51): My pleasure. Thank you for having me.