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## **Myofascial Interventions Part I: Instrument Assisted Soft-Tissue Mobilization and Mechanical Percussion Massage**

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- [Jessica] Our presenter today is Dr. Scott Cheatham. Dr. Scott Cheatham is an Associate Professor in the Division of Kinesiology at California State University, Dominguez Hills in Carson, California. He is the owner of Sports Medicine Alliance. Dr. Cheatham received his Doctor of Physical Therapy and his Doctor of Philosophy in Physical Therapy. Dr. Cheatham is also a Board Certified Orthopedic Physical Therapist and a Certified Athletic Trainer. He also holds several fitness certifications and is a Certified Ergonomics Specialist. He is a national presenter for various organizations and has authored over 100 peer-reviewed publications, textbook chapters and several home study courses on the topics of orthopedics, health and fitness and sports medicine. He is the co-editor and contributing author of the textbook titled "Orthopedic Management of the Hip and Pelvis." Dr. Cheatham's professional responsibilities include being an Associate Editor for the NSCA, Strength and Conditioning Journal, Journal of the Canadian Chiropractic Association and a manuscript script reviewer for several other peer-review journals. Dr. Cheatham is an education and research consultant for various health and fitness organizations. Thank you so much for returning to physicaltherapy.com, Dr. Cheatham. At this time, I'm turning the microphone over to you.

- [Scott] Okay, great. Thank you, Jessica, and I want to thank all the participants for being here on a Friday morning. At least for me on the West Coast, I'm out here in California and then early afternoon on the East Coast. And so I really hope everyone's staying safe and hanging in there through these challenging times. So as Jessica mentioned, we're gonna dig deeper everybody, we're gonna really dig into these Myofascial Interventions that are so popular. I think just kind of big picture, the focus of this three part series will be on practice-based evidence. A little bit different than evidence-based practice, you guys think about it. And what I'm saying is with

practice-based evidence, I wanna dig into more the practical aspects of the myofascial interventions. And really kind of provide what I've learned along the way doing all my research on most of these interventions, but also to kind of blending the new research. But also too, basically, I've done survey studies on most of these interventions that we'll talk about over these three series. And through all the data that we acquired, my team and I, we've seen a lot of practice patterns. And so, the term practice-based evidence is so important because we need to be able to kind of translate the research to our patients. And as you guys know, this segment of our practice, whatever you are, athletic trainer or physical therapist, chiropractor, any type of manual therapist, we use myofascial interventions basically with every patient.

So we're gonna dig in a little bit deeper. And for part one, we're gonna discuss Instrument Assisted Soft-Tissue Mobilization or IASTM. And then towards the end, we're gonna, towards the end of our lecture, we're gonna get into all those new mechanical percussion devices, or they call them like the Theragun or the Hypervolt. We're gonna kind of dig into that. And because those are the hottest things. I don't know about you guys, when I noticed that Best Buy had those guns for sale, I was like, wow, they become really popular.

So we'll dig into some of the newer stuff too. And obviously, with these new interventions, the research is kind of weak on different levels. So we'll try to blend all levels and hopefully give you guys just a nice, just a good two hour talk and a good perspective. So as we kind of go through this slide deck here, we'll be kind of going through. And as you guys can see too, just what the general disclosure is. I do some independent research with several other companies because I'm doing some IASTM research and stuff. So a lot of the images that I'm gonna show or a lot of the pictures, they have permissions, but they're from the different companies. So I don't have any ties, any of the companies. I use all the different tools, all the different products and stuff. So ,I try to do my best to try to give you guys an eclectic approach. There isn't

really one preferred tool or any biases, because as you guys all know too, I'm like you guys. I have a thriving clinic as well as being a teacher. But I use a lot of different multimodal approaches to each of my patients. So I'm not tied to one paradigm or to one thing. So, a lot of the talk here will be, I've used some products in our research like RockTape and TriggerPoint and stuff. You'll see that with the Rollers. But that's just because they provided that to me.

So a lot of my perceptions and thoughts and the things I share, are gonna be mainly non-bias because I use a lot of the eclectic tools. So I wanted to be upfront with that, because I know sometimes with a lot of the products and stuff, there might be other professionals who touted as the best but to me, there isn't one best that fits everything. So we have to pick the best tool for our patients. And so I wanna be cool with that upfront to make sure that everyone's comfortable knowing that in this presentation. Now for me to speak on IASTM, I've done different certifications and stuff. As you guys know, the Graston Technique has been around for a long time. I finished the whole Graston curriculum and I thought that was great. I've done other ones, like other competitors like RockTape, Technica Gavilan and some of the other CE courses and stuff.

So, over the last 20 years of practice, I've been using these tools and I've also done several related research studies that we'll present today on that. And then also on the mechanical compressions, I've just started doing more studies on those tools. But then again, they've emerged the last couple of years. So just to kind of give you guys my background. And so, we basically have three learning outcomes for this presentation. The first one is, as we wanna delve into in the beginning of this lecture, we wanna talk about what are the current scientific theories behind IASTM and mechanical percussion. But on a bigger picture, I think we need to have a discussion on all the myofascial compression interventions. So basically, and we'll talk about them. But all those compression interventions, what are the current scientific theories behind them

that we're seeing in the research? And we'll talk about that, okay? And then also too, we'll talk about some of the best practice patterns for that throughout. And those will be embedded throughout the lecture and stuff. And then also we'll discuss common indications percussion. We'll kind of review some of that, 'cause there's a couple new things that are interesting. And also contraindications. So it will give you guys kind of a ballpark for here. So, at least for these two subjects, we're gonna dig deeper and kind of give you guys a full rounded evidence-based review, and some clinical best practice patterns for each of them.

And also to throughout the lecture, wink wink I will highlight some of the potential questions that could be on the quiz. So, if you got a little notepad handy, why don't you keep that and you can jot down some notes. Okay, and again, we just talked about kind of the general disclaimer, okay? That's what I talked about before, so we're gonna move on. Okay, so with Module One here, when we talk about Myofascial Science, one of the biggest clinical question that come up in my speaking in my teaching is, well what's the basic science behind the Myofascial System? Well, as you guys know too, just talking just plainly clinician to clinician today, when we look at the myofascial system we know it's multiple layers of connective tissue that includes contractile and a noncontractile component.

If you guys follow some of the most recent research by Slap and Tom Myers and you know that whole group and stuff. They're finding a lot of more information using all the different scoping techniques and the different imaging and stuff. Well, the a lot of the research and the empirical of that they're finding is basically, the myofascial system is a living organism. It's kind of like a mosquito net, if you think about it. Or kind of like a net or a spiderweb that goes around the body. Well, there's contractile fibers, they're called the neural fibroblasts, right? That's one thing they call them the myofibroblast. I've seen that different ways in the research. But also though too, we have to remember that it's not just the skin that we're interfacing, that's our first protection. But whenever

we compress this very highly sensitive sensory organ, which is the different layers of the myofascial including the skin and all that. There's many afferent receptors that are from the skin all the way deep down into the muscle itself, which we know is like the spindle or the GTO. So, the first thing that I think that we need to appreciate is that myofascial mobility, fascicle construction, all that stuff that we hear, that's all great and we've used it over the years and we're taught it, but once it comes down to our clinical skills, we'll use our manual therapies to kind of per se release it. But the question is, is this new science that we're learning and that we're finding out, should we be approaching the myofascial system a little bit differently than our traditional methods that we've been doing? And so that's kind of the first kind of big picture thought I want everybody here to think about.

Because obviously, when we look at fascia movements, if you look at the diagram here, from A to F, we can see here too. We can see here from A to F, that the fascia helps with force transmission, pretension. We know it's rich in contractile cells, proprioceptors, nociceptors, pain receptors. We know it's an interconnection between the network and all that. And we know that it provides stability. There's also fluid obviously involved in it, so it provides sliding and gliding among compartments. So there's a multi-level process.

So for us, just to simply say hey, we're gonna do a myofascial release, that to me, years ago when I was trained in a lot of myofascial therapies or I did my fellowships and stuff, when you look at all that stuff, sure, we were trained to do that, but I think it's a more comprehensive treatment process. I don't know about you guys, but I'm just kind of thinking like, okay, this is a lot deeper when you actually start getting into the research and you stay current with it. And I think the "Journal of Body Works" and "Movement Therapies" is a great journal, where Slap and all these great researchers are constantly putting out updates, the myofascial system. And since the last few, five to 10 years that I've been following them, it's pretty cool to see how we've kind of been

developing these theoretical thought processes and not just going back to the old simple adage. Okay, if I roll on it, I can press it I push it, oh, it's released, okay, great. Now go do three sets of 10, right? And so we have to, I think appreciate the complexity of the myofascial system more. And as you know, too, as we look at some basic anatomy, here on this slide, we can see that the superficial fascia, deep fascia, the epimysium, those layers from anatomical studies and stuff are still current. We know we haven't changed that. But it's the interconnection we've seen with it. I mean, if we're looking at the superficial fascia, all the way down as you can see some of the layers are reflected down in this anatomical, but through this whole thing here, all these different layers, we can see though too, that we've appreciated them from a macro level. But what about from a microscopic level?

And I think that's interesting to kind of look at, because I think we're starting to realize more and more that the nervous system has a lot more to do with our treatments than simply releasing fascia. So again, just kind of some thoughts there. So then that leads to our next question is, what are the current scientific theories behind myofascial dysfunction? Well, when we advance the slide and we look at this, a lot of different professional organizations, different practitioners, look at this kind of like this cumulative injury cycle.

And to me, and again, if we had everybody who's here in the lecture, kind of chime in, you guys would probably have your own version of this. But in general, we can see that a lot of our patients or our clients have repetitive pattern overload, right? The text neck, the postures for sitting, repetitive exercise activities, like a cyclist, swimmers and all that. So, whatever falls into a repetitive pattern. Well, that starts develop some type of tissue trauma, that we're thinking that it leads to some type of inflammation. And I don't think we're going down the whole tendinopathy, tendinitis road. The current thought is there some type of inflammatory process that goes from repetitive injury, some type of inflammatory, that's gonna obviously cause some type of nociceptive

guarding right? We're gonna have a guarding or muscle spasm, whatever way you wanna call it. And then theoretically, some practitioners still think that there's some adhesion development, right? Some type of scarring because of this healing, kind of inflammatory process, the three phases of healing. And then eventually that leads to altered neural motor control. And I think we see that a lot though, too. I think we see a lot of this in our movement-based testing, right? Everything simply from the overhead squat, even in our older people. The bird dynamic gait index, I mean, we can list out all, all these neural motor tests. But I think, a lot of clinicians still feel this way. And then eventually a lot of professionals researchers believe that we eventually lead to all those muscle imbalances, those synergistic dominance patterns. And then we just keep going through the cycle all the time.

And then by the time the patient gets to us, we're trying to develop the best strategy as clinicians to go ahead and break that. So again, this is one of the many common theoretical patterns that are out there. Again, I'm sure a lot of you out there can develop your own or cite other sources and stuff. But just kind of in general, just a talking pattern. This is very important that we see this with kids. Kids in backpacks, if you guys remember. That was hot for a while. That would be a repetitive loading, et cetera.

So there's a lot of stuff that's out there. But I just wanted to kind of bring that up to the group to say, hey look here's some of the more current ones. Well, then the next level would be that obviously, if we look here we would get some type of myofascial restriction and sorry about if some of the images were transferred over. But with the original PowerPoint, you can see that. But obviously with some type myofascial restriction, you get posture changes, alter coordination. So you get these overlapping type of pattern that may occur. And then from there, we can see that eventually this leads to some type of trigger point issues, okay? If we look at that, and so we can see that, we develop these highly sensitive hyper irritable spots. And again, the theories

behind Watt Traval and her team have done. I mean, I think the way Traval and then. And even Tom Myers, how they kind of mapped out the myofascial system and they've kind of mapped out trigger points and stuff. Is still pretty darn accurate, at least in myopractic. But the thought is, what is truly a trigger point. And that's a whole another discussion on what's the theory inspite that, versus the act in the mouse and just kind of bunching up and the pH changes and all that. So we know, though, that the trigger points do exist 'cause we treat it clinically and we know that there's a hyperirritable spot. So that's kind of again, this cascade of events that kind of goes through this cumulative injury cycle, okay? So that's kind of again, one of the many theories out there on what occurs.

And so that's kind of the basic science behind it. Well, we'll then, one of our biggest things is once we kind of dig through all these theories of how people get injury, right musculoskeletal injury, or we'll just call it MSK stuff, then we have to go back to the science and say, okay, what are the theories behind myofascial compression? Well, we have all these theories. And we call it the Myofascial Soup Bowl. Myofascial Interventional Soup Bowl, right? We're saying okay, well, if you can do a myofascial manual therapy, right? You can do manual myofascial release, you can do a foam roller, you can do tools, right?

You can do the guns. You can do a lot of other myofascial, copying, et cetera. Well, there's all these theories, as you guys could see, there's all these theories of how that it's affected and stuff, okay? Now that the fix of thixotropy is basically the change in the fluid dynamics of the myofascia. So if you think about maybe like jello and jello starts to kind of melt or butter, a stick of butter begins to melt. That's what this term kind of means if you guys have heard about it before. This is a popular term that's been around for a while. And then obviously, you have all the changes to the central nervous system, arterial function. So there's a lot of these theories that we believe. And also a lot of manual therapy practitioners believe on hydration and rehydration of the tissues.

So again, these are all theoretical that are discussed among professionals. And then if you take one of these conic classes, which are all amazing, but they teach you a lot of this stuff, but unfortunately, there's not a lot of evidence yet, right? And as we know, with a lot of the stuff we do, there's not a lot of evidence. So with all this soup bowl, we got to kind of filter it, right? We have to kind of clean it out. And these are the two theories that keep reoccurring among all the different myofascial interventions. One on the left and if you guys can see my cursor here is called the Mechanical Theory. And what that is, is when the local myofascia gets compressed, okay? And again, it could be with anything, it could be with a spoon, it could be with your elbow. When it's compressed, that stimulates mechanically the myofascial tissues themselves 'cause they're being smashed, right? I mean, they're actually pushing down.

So that stimulates a chain of mechanisms or events that may include changes in the viscosity of the thickness. And that's called thixotropy. Reduce myofascia restriction. It can also work on trigger points. There's also fluid changes. You also get some cellular responses 'cause obviously you're pushing the tissue back and forth. And also too it might help with fascial inflammation. And so the mechanical is typically to your local area. So for example, if you're gonna be doing some type of intervention to the quadriceps, the thought would be is, that it would be limited to the quadriceps area.

And so the local changes that occur are gonna be from the mechanical effect of the tissue compression, okay? But also though too, we can't forget that all those mechanical receptors that are completely all the way through the skin and the three layers of the myofascia are also gonna be sending afferent information to the brain. So, that all the receptor is gonna be firing. So when we're doing all these external techniques locally, mechanically, we have some mechanical effects, but also though too, as we go to the next branch, we have some neurophysiological effects, okay? And I think that's important to highlight here is because the neurophysiological effects are gonna be locally to let's say, the quadriceps in my example, but also though too, it's

gonna have a regional effect. Now more and more studies coming out, especially with foam rolling, especially with IASTM and all that. A lot of these authors within their long and laborious discussions are suggesting the same thing. They're saying, well, if you can press that quadricep for that myofascia, you're gonna get local kind of tissue relaxation effects, right? You might get some pain reduction. But at the same time, we're theoretically thinking that you're gonna be sending a lot of afferent signals up to that brain through all the receptors. The mechanical receptors, nociceptors. You have the joint kinesthetic receptors, propria version, you have all these different things. We also have the Golgi tendon organ, right? And the spindle that are obviously gonna send information. Well, going along basic science, they're thinking that all this information is going into the brain.

Well then the brain is going to respond with some type of afferent action or response. And we have some preliminary data coming out of some of the foam roll studies, like they've rolled the lower extremities and they found post-rolling changes in total body movement patterns like the overhead squat. So there's some suggestions that even though locally, mechanically you affect it, you're still stimulating that nervous system. And so you'll see even with the tools today, and also more so in segment two, when we talk about foam rolling, the big question that comes down to the bottom here is, are we stimulating some type of parasympathetic effect? Now, I want everyone to think about that for a second, okay? Because you're gonna see, and I'll try to show you what I'm thinking. And that I've seen clinically.

We're seeing that if you stimulate through myofascial compression, the myofascia for short bouts, let's say less than two minutes. Okay, if you guys are writing notes is a good one. less than two minutes, it could be a roller elbow tool, whatever. You still get some of these changes. Like we're seeing decreased pain, we're seeing some type of what we call stretch tolerance, some type of excessive joint mobility. But we're not seeing a lot of decreased performance or decreased force in the muscle. But for some

reason, though, if you follow the research and you've seen clinically, if you keep rolling or massaging after two minutes or more, the body seems to relax a little bit more. And it kind of makes sense, like when we've all gotten a massage before. I mean, all right after five, 10 minutes, you start to relax. So one of the big questions is that, when we talk about dosage and exercise, prescription and exercise programming, how long do we roll? Well, so far, we're kind of looking at in general, that we have kind of like a two minute kind of window theoretically, that if you go more than two minutes, you might be stimulating the parasympathetic. And then if you go less than two minutes, you stimulate some local mechanical changes. But you're still gonna kick on the sympathetic. So I don't know yet. I mean and again, we don't know anything. You guys know that. I mean, we're all learning every day.

But that's some of the theories. So if these two theories hold, right? Mechanical and neurophysiological, shouldn't we be approaching the myofascial intervention differently? Shouldn't we be looking at maybe trying to open that neural motor gate? So shouldn't myofascial release, myofascial mobilization, myofascial massage, whatever you want to call it. Shouldn't that be one step and opening up a more favorable motor pattern, more efficient movement, helping the patient psychologically to feel better? To feel a psychological release? So I don't know if we should be looking at it differently.

But the two theories are telling us that we need to maybe look at all these interventions, not in their simplicity, but in their complexity. And really try to appreciate to say what, I'm gonna use myofascial interventions to open up a neural motor window, a psychological, psychomotor window, whatever you wanna call it, to help me get them to their goals. And most patients who see us are seen us for a purpose. And if we look beyond their goals, then we kind of lose sight as a clinician, don't we, right? So if their goal is to garden better, is their goal to run a marathon, whatever their goals are for rehabilitation or sports performance, or whatever, maybe we should include these

wherever along the continuum of care is to open up that window. To open up, I call it the neural motor window or the psycho neuro modal window, right? 'Cause we know confidence has a lot to do with it. So maybe we have to look at it that way, versus just saying, oh, I'm gonna do my treatment, they're gonna be with the aid for a while, and then I'm gonna have them roll out. Well, that's great and that's gonna have an effect. But what signals are you sending to the brain? Are you guys as clinicians, or even myself. Are we sequencing our interventions properly to open up those favorable gateways? Okay, now, for me, I'm blessed because I was able to have a concierge practice. So I'm cash-based. I can spend as long as I want with my clients. Well, I tell you, the busy clinic I used to own, compared to what I'm treating now, is 100% different. I find because I have the luxury of time, I can sequence my interventions to open up those gateways.

And I believe in my practice, and I have some data, at least personal data, that I'm getting better outcomes. So I don't know, so it's something to think about if there's time involved, but how do we sequence this? And how does these theories feed into myofascial release right, or myofascial compression? And then how can we sequence it to open up those pathways beyond what we're normally used to thinking about, okay? So those are just some thoughts for me. And so remember, wink wink, these two theories may be on the quiz. So please write that down, okay? I think that's important, okay?

And so again, let's kind of dig into those theories a little bit. We also have to remember too, And this is just a quick, I wanna thank Graston for allowing me to use this photo. But we can see here too, if you take a tour or whatever, and you can press the myofascia, well, you're gonna get signals all the way down deep, but then all the way up to the brain. So again, tissue compression, receptors fire. It goes all the way up those spinal tracts and we can get all into the spinal tracts and stuff. But I would put everyone to sleep, right? They're gonna go up to that thalamus and then obviously get

processed and then head on down with some response, right? So again, we got our typical basic science track. But again, this slide is just to remind everybody give you guys a basic science review that there's a lot more complexity, complex processes that occur when we compress the myofascia. It's not as simple as, oh, I'm just gonna release it, okay? And then obviously, too. I wanna impress upon you guys. And the next couple slides are more for your guys as reference, okay? Hopefully you guys can get a copy of this slide deck or if you guys wanna email me I can just send it to you with permission from our hosts here. But when we look at skin receptors, just remember you guys when we look at the receptor fields or the region of the body, there's different receptors have different what's called receptive fields. So, if you roll out on the foot, you roll out on different parts of the body, you use tools on the shoulder. They've mapped out different parts of the bodies that stimulate to different pressures, vibration, tension.

So just remember you guys the receptors of the body definitely sense touch pressure, vibration, temperature, and pain. And I think it's interesting to understand because the deeper you press, the slower you press, you're gonna be stimulating different receptors. And the science behind the receptors have gotten pretty darn good. And I know, I mean trust me, I like doing research, but some of those studies can put you to sleep.

And it's like, wow. But once you dig deep and you keep it at the clinical level, you got to realize I'm gonna go to the next slide that the skin receptors go all the way down into the fascia. And so things like the more common ones that you guys have heard before, like the Merkel discs or Mechanoreceptors. The Pacinian corpuscles were very popular, Ruffini and the Meissners. These are the four famous ones that we've seen over time and we learned in school. But again, I wanna show you guys that some receptors are for light pressure. Some receptors are for deep pressure, okay? Like the Meissners is for light touch, okay, and also sustain pressure. But I wanna highlight

something that's important that everyone needs to understand is that when our hand or our elbow or our tool is going over the tissue, there is vibration that occurs throughout the myofascial all the way down. And this vibration is from the friction of the external object compressing and dragging along the skin, okay? So you get some friction there, you get some shearing forces and all that, that we've always talked about. But there's vibration, there's a frequency that occurs. Well, the different frequencies stimulate the different receptors. And if you guys look though, too, we can see that like, let's say the Merkel discs have a slow speed, right? A vibration speed, and somehow faster.

So again, if you're rolling or you're doing like, let's say a sports massage where it's very quick, you might fire the Pacinian corpuscles more than the Meissner corpuscles, okay, et cetera. Now the whole reason I'm even bringing this up is part of especially in part two and part three, we talk about vibration therapy, okay? We talked about the vibrating foam rollers, and we've done some research on them and I use them clinically. While I'm telling you if I got someone who has injured tissue, I'll stick the vibrating foam roller on the agonist tissue and do reciprocal inhibition get it to relax. And I'll talk about some of the stuff we've seen in the research and some of the stuff we do clinically.

So remember, vibration therapy is part of like whole body vibration. If you guys remember the power plates? Yeah, that's all based on the science. So through the vibration that we cause externally through the skin also stimulates all those receptors, okay? All those afferent receptors. And I think we need to understand that because a lot of times, we can combine these myofascia modalities. Like for example, I can stick, lets say I'm gonna do the quad and I'll kind of use that example throughout the lecture today. I can put a vibrating roller on someone's calf, and then get the vibration to the whole leg while I'm doing deep tissue to the quad. And to me, in my practice, I use that a lot. Over a couple minutes, it's the vibrations seems to be relaxing to the client. And if

they're in the acute stages or their post-operative, it takes their mind off of the deep tissue, right? It's a distraction, plus, it's comforting. So we have to remember that on the receptor level, we can use local vibration or whole body vibration, right? That's the power plates, to stimulate our myofascial or our neural myofascial system. And so that's one thing I want you guys to understand because this science right here is gonna be embedded throughout this whole three series. Because again, when we talk about rollers, or how about later on when we talk about the mechanical percussions, okay? Those guns or massage guns are hitting your skin very rapidly and super fast. Well, that's going to have a vibration effect. So again, I want you guys to realize that these four main receptors are not only detect compression, tension sharing, but also vibration.

So again, let's kind of consider that as we talk more superficially or more macro to all these interventions that we've talked in all these myofascial interventions. And so again, if we dig down deeper and again, this is just for your guys' reference, I try not to have too many fix slides, too many slides here but you can see though, that the muscle spindle GTO, we have the different fibers and stuff. We can see here just some more detail that they respond to tension stretching link vibration. So again, I just wanted to take it home that in even the alpha motor reflex, H reflex and all that. We have a lot of receptors that are very alive.

So when we're attacking the myofascia because we're presuming clinically or we have observable findings the myofascial is restricted or tight, we should approach it more from a mechanical and a neurophysiological theoretical process, instead of just saying, oh, I'm gonna do myofascial release, okay? So those are some thoughts there. So again, when we talk about mechanical compression, here's kind of a summary, the myofascial compressed, whatever intervention you wanna use, it stimulates the local tissues and afferent receptors locally. The central nervous system processes the information. The CNS responds with local and global afferent response. And then that

leads to these clinical changes. And if you look at all the research, and especially if you follow like the IASTM research and all that, these are the big four that we've seen. Joint range of motion changes, right? Pain modulation, movement efficiency, and then also performance, okay? There has been a lot of on like myofascial release, myofascial adhesions and all that. But these are the four big outcomes that I've seen in my literature review and the research that I do. And again, you guys, there's plenty of others, there's a lot of other outcomes that they've used. One thing I didn't dive into is patient related outcomes.

Obviously, they're gonna use the NRS or the numeric pain rating scale, right? They're gonna use some quality of life scales, sure. Those are all around. But again, we could spend hours talking about it. But as far as kind of, like, quote unquote, objective findings, these are the big ones that we can observe, okay? So again, when we look at myofascia compression, we wanna have our documentable observations for insurance and for our protection, but also to we need to realize that it's a much more complex process and stuff.

So here's kind of in summary, and again, we're almost done here with the section. In summary, we can see that when we talk about pain modulation, when we compress the fascia, we're stimulating specific receptors, okay? And then we get a global pain modulation. Well, if you look at the research, people are still hanging on to the Gate theory, right? Diffuse noxious inhibition, that means you're kind of adding irritation or some type of parasympathetic nervous activity, okay? Local effects, same thing. We go through changes in local stiffness, stretch, tolerance and range of motion. Now clinically, though, when we talk about stiffness, you can use like an algometer to push down. But we talked about that the tissue softer. Does that make sense? So, like if someone's guarding and you massage for a couple minutes, you're gonna feel that's a little bit softer and your thumb can penetrate deeper into the tissues. That's how it's kind of defined. Also, stretch tolerance means that you can, let's say, if, we did the

quadriceps, you can go into knee flexion or bring the knee towards the tush a lot easier and you're gonna feel more tolerance. So that means the patient's gonna be able to feel less discomfort at a greater range of motion, okay? And then obviously, we have the global effects through that. So again, I wanted to spend some time on the myofascial stuff. But again, I want you to keep in mind that the myofascial science is always progressing, we still don't know a lot, but those two theories mechanical, neurophysiological seem to be the hottest topics right now. Okay, so now let's get into our kind of our common myofascial interventions. Now if you guys look, these are the most common most popular myofascial interventions. Today we're gonna dive more into IASTM and mechanical, okay?

That'll be the rest of our lecture from here for like, basically the next hour in 20 minutes, we're gonna get into it, and then in the other two sections, part two, part three, we're gonna be diving into all these other ones. And again, there's other myofascial interventions out there. We're just covering the most popular ones that all different clinicians use, okay? So here's the bottom line we just talked about scientific two theories, okay? Now here's something to ask yourself to based on the evidence, okay?

The myofascial compressions may not release myofascia, break up adhesions or promote tissue healing. We don't know yet, wWe haven't proven that, okay? And so obviously, we've all worked clinically when someone's post-operative, and we're working on the scar and we can feel the scar breakup, sure. There's a couple of exceptions to this. But when we look at the research, we haven't really shown this. So again, clinical evidence, empirical studies clinical evidence, and also lab evidence. So again, just kind of think about this as we go through and try to within yourself and within your practice answer some of those questions. All right, so I-A-S-T-M. Well, you guys, this is one of my faves because I use the tools lot and a lot of the manufacturers, okay, have actually changed the way that they're teaching it a little bit. We'll talk about that. But if you look in the literature, oh my gosh, there's tons of terms, I-A-S-T-M,

instrument assisted soft tissue treatment, instrument assisted cross fiber massage, instrument assisted neuromobilization, or they call it ASTYM or Graston. So there's a lot of approaches. A lot of manufacturers make their own tools and stuff. So at least for the lecture today, we are going to, okay? We are going to just call it IASTM. So just understand that there's a lot of overlapping terms. Now, here's the bottom line when it comes to issues, okay? Researchers and clinicians often describe the specific paradigm, but only do the tool technique. Now did everyone get that? So again, we've done two systematic reviews, one we've already published and one we're in. Well, we've looked at all the research independently.

And if you look, everyone, a lot of these researchers have said, well you know what, we did the Graston technique, but they didn't follow the four steps in the Graston paradigm. To me, that's a major issue, because the whole thing is that they describe the paradigm, but that is misleading to the clinician or the consumer, because they need to either describe the instrument itself, which is basically myofascial compression, or describe the own paradigm, okay? The one systematic review, we published, we only found one study that actually followed the four step recipe, that Graston and teaches, okay?

And I think now it's maybe it's one to five. So in one of our clinical commentaries, we propose very simply, that just to kind of describe the tool technique itself, is that IASTM is a skilled intervention that includes the use of specialized tools to manipulate the skin, myofascial muscles and tendons by various direct compressive stroke techniques. Now, it may sound kind of funny that we actually have to get down to this microscopic kind of definition. But if you look at the majority of the research from about 2000, to about 2012, there was over 20 case studies, and they all say Graston, but they never did the whole protocol. So there's a disconnect between what, okay, let me rephrase this. There's a disconnect between the continuum education we take, because they teach us that multimodal approach to what's in the research. Well, what's happening is

that these manufacturers will take the research that only did scraping and use it to support their tool technique. So whatever manufacturer you go to, and I've took in most of the Con Eds from all of them, I've done some sort, they'll teach their philosophy or their way of how to do IASTM, and then they'll say, well, we're evidence-based. And I'm like, wait a second, how can you be evidence-based when you're teaching a four step recipe, but the research, if you actually dig deep, has only shown that myofascial compression is what's working, or that they've only done it. So again, I think as consumers, we need to appreciate that we should describe either the paradigm or the tool technique itself or to simply say, hey, I did IASTM, with Graston tools, okay?

So again, to me that should be hopefully with the group who's listening. That should be a big important thought because we go to all these Con Ed, we pay all this money and then they teach us their kind of recipe or paradigm. And then all the research that they're using is not using their techniques, okay? So there's a huge disconnect between just straight myofascial compression. Who cares about the stroke that you do with the tool and to use in a four step paradigm, like Graston, that has to do with the tissue warm up.

So they activate the tissue they do IASTM, then they do some type of corrective once it's activated, and then they do some type of like cool down with the modality. So it's a whole kind of four phase process. Well, to me, that's a lot more complex, and that replicates more clinical practice than simply scraping the tissue or compressing the myofascia. So again, just something to think about as you guys go through this. So, when we talk about instruments, though, wow, there's a ton of them, okay? When we talk about tools of the trade, we have several major manufacturers. And again, like I mentioned to you guys, I don't have any commitments with any of these companies. I'm just showing you the main ones out there. we had the Graston Technique. Also Gua Sha, you know Gua Sha if you guys haven't heard before. That's an Asian medicine

tools. And they're the whole thought behind Gua Sha and the tools. And again, Gua Sha has been part of the whole thought process of acupuncture and Asian medicine, where they actually take like, some type of stone or some type of plastic or some type of other material and they scrape the skin to create that redness or that petechiae, right? Whatever how we're away people kind of say that word. Some type of petechiae which actually creates tissue trauma. Okay, and so, Gua Sha tools are still used for IASTM, and they're a lot more economical than some of the major brands, okay? So when we look at Graston and Gua Sha and HawkGrips, those are the main ones. But then we also have some other companies that we'll look at too that have some interesting tools, okay? So when we talk about what is the function of the instrument during treatment, okay?

Well, we have to look at what we're taught on our Con Ed but a lot of it is based on James Cyriax method of the cross friction if you guys remember, okay? Is that cross friction kind of restarts that healing process and inflammation, that whole thing. So a lot of IASTM, the theory behind the use of the tools has been, besides how it helps us mechanically, et cetera, it's based upon the Cyriax methods. Also, though, too, a lot of the IASTM providers do kind of teach and believe that it provides more of a mechanical advantage by allowing like deeper tissue penetration, you get that vibration feedback that we talked about. You can detect alter tissue, reduce stress of the hands, treatment time, et cetera.

So, there's all these kind of these clinical level evidence or thoughts that occur. But we don't have any evidence, any clinical evidence, right? What I mean is by subject studies, right? So when we talk about clinical thoughts, that's fine. But we don't have any research basically that has shown any of this stuff yet. So that's kind of interesting. So one thing I wanted to dive into today is also what's unique about the different instrument characteristics? Well, and this is where I wanna dig in deeper that we'll see. Well, when we talk about instrument anatomy, I think this is good to touch on for this

lecture because a lot of the continuum education companies or if you see this at a conference or you talk among professionals, we seem to lose a little bit about the anatomy of the edges. Well, most of the companies now have single beveled edges or double beveled edges. And I think that that's important because when we talk about a single beveled edge, that means it's very sharp, and it's theoretically going to compress the myofascial deeper, but the positive and negative is that if you're doing some type of, compressive technique with it, you typically can only go one way. So if you're using let's say, for example, like the Graston tools, they have six tools, right?

They have quite a bit, but you have to use the different tools to scrape one way, okay? But now, since than the last 10, 15 years, other competitors or other companies have came out with what's called a double beveled edge, where a lot of them believe that it penetrates the superficial tissue, okay, a lot more efficiently. And that you can work in sensitive areas, and then also it's a two way treatment. If you're doing your different strokes like your fanning strokes or any of your strokes, you can go both ways and you don't need to have a bunch of tools right there that you have to clean afterwards and carry along with you and stuff.

But the problem is in what I think is both is we have to go back to say, well, regardless of the beveled edge, the harder you push on the myofascia, the more chance there is to bruise somebody, especially with a stainless steel tool or any material. So that's kind of looking at the first anatomy of the edge. Now if we get a little bit deeper though, we can see though, too, that we have different shape tools, okay? Now one of the biggest things that have come out too, with two great manufacturers or all of them is Graston has like their name on it that you can hold on to. But like HawkGrips and Tecnica Gavilan, they created more of these like hatchet marks. And so they have these multi-level grip surfaces, because obviously, you guys know if you're using the emollient, once the tool gets slippery and if you're wearing gloves or whatever, it's a mess, right? And so a lot of the other manufacturers have created some type of hand

grip to use with the emollient. But the problem is if you were looking at it, especially with everything that's going on right now, we need to make sure we really clean our tools before using them, right? And that's, even more so. And that should just be a standard of care, but some of the stuff is difficult to clean because all the little crevices within these little hatchet marks and stuff can hold bacteria. That's one thought and so really cleaning, these can be a little bit more of a challenge, which you might need a soft brush or something to clean them. And we'll talk about that a little bit later, okay? And then also too, when we compare the multi-surface grip of the hatchet marks, compared to like, the smooth surface almost like Graston, Graston does have their names you can hold on to that, but for the most part, the tool's very smooth throughout probably 90% of the tool.

And well one thing is they're saying well, it doesn't really irritate it's easy to clean. But the negative is there's gonna be a lot of less grip. So it's very interesting when we look at the anatomy of the tool. Now though, and I think this is important to understand and definitely if you guys are looking to purchase tools or look at just different things, I think this slides pretty important too. Now when we look at the material, I think that that's interesting, because most of the more expensive manufacturers, and again, they're all really good. All the main manufacturers have come up with very similar tools, they're very good quality.

But most of them are stainless steel, okay? And the stainless steel is fine, it's very hypoallergenic. The least the beveled surfaces are smooth and all that. But the negative is some of the tools you may not be able to grip the skin well. So what that means is, is when you put on the emollient and you're doing either a singled or beveled edge, you're gonna be scraping the skin. Even though you're gonna be compressing it and that stainless steel digging into the skin is gonna cause some capillary breakage sometimes if you go too hard. And so the stainless steels good but those beveled edges, in my opinion and working with all these and stuff in the lab and also with

patients is that, some of the areas of the body like let's say the gastromaniac, the caff, you can easily break capillaries for some reason in that area by using the stainless steel edges and stuff like that. So, again, the more sharp the edges, the more potential you have for kind of pinching the skin or kind of creating a little bit more microscopic trauma or damage to that. Now, another tool that has came up more recently, is called the Fascial Abrasion Technique, FAT. And they created a textured surface. And as you can see by these tools, and again, they're a good group of people, they felt that with these shape tools, that the textured surface will actually grip the myofascia and cause more shearing of the myofascia, okay? So think about a smooth surface scraping through.

Think about a textured surface gripping it, okay? Almost like a little bit of sandpaper. And then that's gonna cause more of a myofascia shearing intention, and so you're gonna get less trauma to the tissues. And I thought that was kinda interesting because, I've used a couple of them with patients. And I'm telling you, it's pretty neat because I feel like even with the emollient I'm able to grip the tissue a little bit more. And I can do my different strokes or whatever you wanna do. And so the textured surface brings a whole new kind of thought process to the treatment.

And so, something for you guys to think about if you're looking to purchase tools, the difference between stainless steel and textured, is kind of a new thought process. So, again, I think that in some ways, both tools work well and that's why I use all the different manufacturer brands and stuff, okay? And so, when we look at material two, RockTapes, another company that comes out with stuff. But they've also created along here, this is one of their rock blades called the Mohawk. Well, they've also created different plastic, different plastic, kind of pieces that snap on where you can stimulate the different mechanoreceptors. So again, there's some really great products out there. But again, something to think about when we go back. Smooth bevel stainless steel, textured surface, using plastic to kind of grip the different tissues, you can see how

they have different, pointy kind of teeth here for stimulus and then you also have the different jade stones and plastics. And again, these are all hypoallergenic. But when we talk about tool anatomy, I want you guys as a group today to really look and say, wait a second, I know the stainless steel tools are great, they can clean easily, but what about if I use the textured surface or something that has plastic, can that help me a little bit quicker? They're all hypoallergenic and we can wash them all that's fine. But or what if I use a jade stone? So sometimes in your practice, you might be able to have something that's very portable, and that you can use different things. And so for me, I've used the different, sometimes I like to use the different tools and stuff just to see how it goes. Because, as we do that myofascia compression, we wanna do what we can to open up those gateways that we talked about. So again, this is just a quick primer on that stuff. And then when we kinda finish up too, we cannot forget the shape, you guys.

And I think that that's important to understand. Because a lot of the tool manufacturers, if we look at Graston, if you wanna to go through the different Graston strokes and techniques, you pretty much have to use all six tools, right? Well, HawkGrips just came out with like a new tool, that shaped in kind of the theory of all their different tools. because HawkGrips has like six or eight tools set. Well they're saying that they've eliminated like, I don't know, six tools or something like that, with just one tool, okay?

And then you have Tecnica Gavilan, that's another manufacturer that kind of has us like three different tools. Does that make sense? So again, the shape of the tool allows you to do the different strokes you need, okay? The different strokes you need for different body parts. So I think if you guys as practitioners, you need to look at your practice, honestly. And you need to look at all the anatomy of the tool that I'm trying to present to you guys today and say, okay, if I'm gonna drop 1200 bones, right? 1200 bucks on a set, I wanna pick something that's easy to clean, that will help me travel with me, and

then I can use it with every patient, okay? And I think that that's the big thing because again, all these manufacturers are great. They all have great tools, they're all have done their science and stuff, but it's how you guys apply it as clinicians. That's the big thing, okay? And so, if we look here, these are just some summary slides. If we look at like the Edge Radius. This is coming from one of our friend's publication here and he kind of drew it out. We can see that the larger the radius, the larger the surface area of the penetration, okay?

We can see that. And then two, we can look at here, the different beveled edges that we mentioned before. We can look at the top picture, where we can see that a single beveled edge will have a different effect on the myofascia than a double beveled edge versus a more blunt instrument, okay? Now, if you look at some of the manufacturers, you're gonna see that some of the manufacturers might have a very sharp edge and a very sharp beveled. And some have a more blunt. And again, that's the choice of the manufacturer.

But again, when you start digging into the tissues and stuff, like a single beveled or you have a sharp instrument here. In my opinion, there's a higher chance of causing deeper tissue trauma by the scraping effects of that, okay? And we've seen that. So basically, the more blunt the tool is, the less theoretical trauma you get. And again, this is a consensus that I've seen over the years with many practitioners and many researchers say, look, you got a more blunt tool, it's not going to shear and really kind of cut into the tissues as much as a very sharp instruments. And so that's something important to think about as you guys choose your tools. Because, again, you can go on Amazon, right? And there's tons and tons of tools. So again, I think it's important to keep that perspective from there, okay? And so, when we talk about the bottom line, and that's for this section, again, just in summary, as clinicians, we got to look at the material hand grip, the weight of the tool, especially how to clean it these days. I think we've been renewed lately that we got to really keep things clean. Instrument shape and size

because, again, you buy a six tool set, you got to carry around those six tools. well, a lot of these companies are starting to come up with tools that have all these different shapes that can replace several tools, okay? And then also you need to look at the bevel and the radius. I think that's huge because some of the sharper kind of tools and all that stuff can also be effective and stuff, okay? All right. So now we're gonna get into clinical variables in a second. But we are halfway through our lecture. And I want everybody and I can't see you, but you guys can probably, let's all get up and stand up. Everybody, if you can stand up for me walk around a little bit. Hopefully you guys can still hear me. I got my headset on, I'm going to stand up. We're gonna do about 10 seconds to kind of move in.

And I'm gonna stand up and talk for a little bit because we've been in the chair for too long. We got to move we got to activate, stimulate, get that myofascia movement. Okay, good. If you're standing around, good. Maybe you can stand and look at the screen. Take a couple minutes yourself kind of move around, maybe do a couple squats. Kind of activate, don't inhibit, right? Our tissues have been in the chair for too long, okay? Kind of move around a little bit. Take a little break. If you guys need to take a little break.

We're gonna do about another 20 seconds of some movement and then we'll get started. I just got a little swig of water myself. Okay, all right. Let's get back to it, everybody. All right, I may stand for a little bit. But if you wanna stand and move around, you still can stretch things out. Get things activated. Okay, here we go. Let's move on. Okay, so now, as we look to, what are the common IASTM treatment variables? And I think this is another important topic, because think about it, that's why we talked about the science, right? Of just kind of the general overview of the myofascial interventions. We talked about that. So we know that we're looking at a mechanical effect, we're looking at a neurophysiological. We just looked at IASTM tool anatomy, right? We also talked about what they're calling and the research, okay? So

we're kind of looking at all this stuff. Well, let's talk about treatment variables. Well, one thing to think about is the size, is the treatment variables, is the instrument size, okay? Here's what's coming from a lot of the manufacturers that I've worked with and all that. Well, larger tool less intense versus a small tool, broader, longer edge, less intense. The bevel, single edge, double edge. Shape, concave is less aggressive. Do you guys see that? Concave is less aggressive, Convex is more aggressive, okay? So and that's one thing I think we forget when we're tooling and all that, okay? Is that if we go convex or concave. And we know we have our convex, concave rule with our, arthrokinematics and all that. But when we talk about convex, you're really, stretching and shearing the tissues. So understand with the different strokes that these companies teach you and give you.

The convex side is the most aggressive, okay? All right, let's move forward. From there, obviously, the speed of the stroke, it's the faster is less intense, longer is less tolerable, okay? The length of stroke, okay? Target tissues, you slap the tissue get a deeper penetration makes sense. And then the treatment time, the longer it's increased intensity. But think about this though, too, we've talked about this. And again, these are the variables that are taught among all the major manufacturers. So basically, as you guys know, I've worked with most of the major ones. And I've taken a common theme among all of them.

This is what they teach you guys in class. But if we're going back to our theories, well, the faster is obviously gonna be more intense because you're stimulating more the mechanoreceptors, right? Okay, the longer stroke could be less tolerable, because maybe you're stimulating the whole muscle, but maybe that is affecting more mechanoreceptors. So again, in your own practice, see if you can take these two effects, right? Like the neurophysiological effect and the mechanical effect and see how it correlates with your, whatever you call it with your treatment. Does that make sense? So, kinda check on that both to see how these tool techniques correlate with

these new scientific theories and stuff, okay? And then again, I'm gonna quickly go through this. We have the brush/sweep and fan in strokes that are at least aggressive. Obviously the deeper strumming and the J-stroke is more aggressive. You can do a swivel and a scoop, which is more, and basically you are compressing the myofascia more, okay? And then from there, obviously, this makes a change. If you're digging into the tissue at 30 degrees, you're digging in, but then obviously if you can press more and more, it's more aggressive. So again, the harder you push, the deeper the angle, the type of stroke, those all stimulate the mechanoreceptors, but also there's a chance of getting trauma too.

So we have to do that. So, bottom line is we have to go through our checklist. Again, this is just a repeat of what we're doing. We have to go through the checklist again and make sure you're choosing the right tool for what you wanna do, okay? Now we're gonna quickly go through this section. Because again, I can put you guys asleep, , for like late morning nap. But when we talk about precautions and contraindications, unfortunately, you guys, there's no research on this. There's no testing. So we put out a clinical commentary in International Journal of Sports, Physical Therapy, IJSPT, that actually publish this stuff.

But most of this stuff comes from actually comes from Graston. And it comes from some of the chiropractic research and some of the clinicians who worked with Graston when the beginning. So these are all kind of like what we call relatives. Does make sense? They're all kind of relative precautions and contraindications. But I want you guys to kinda look deeper at the list, because on the quiz, wink wink, there's gonna be a couple questions on precautions and contraindications. So let's make sure we know that but also to Graston. When I went through the whole Graston sequence, I just finished the whole Graston thing maybe about a year ago. Dude, they're great people. But they added some interesting precautions. Herbal supplements. Yes, okay? I thought that that was interesting. Also though, too allergies to metals, emollients and

latex. Now obviously emollients and latex we know. But I didn't think about this for a while, but yes, someone could have an allergy to stainless steel. Okay, so that's where the choice the textured surface versus the Gua Sha, plastics or whatever, can make a big difference. So, a couple of these precautions can be pretty interesting to understand, okay? Now obviously if you look at the list when you guys are looking at the thing, we can yeah, those are a lot of them are common and stuff like that. But I thought a couple of those precautions were interesting, because some of the stuff, at least until they brought it up to me, I didn't really even think about it much. You know what I mean, so it was kind of interesting. So again, kinda go through this, do your inventory and check. Now, same thing with the contraindications, I think, as you guys can see with this list, and we're not gonna get into too much 'cause of time. But as you can see with the list, very common contraindications, we're all kind of in the same boat as far as treating patients.

So when we do our exam, we're gonna screen them for this. We're gonna give them complete disclosure, et cetera, et cetera. So, nothing surprising here with contraindications, but I do wanna highlight two things and if you guys are writing notes is important, okay? One of the biggest precautions is what? Petechiae, bony landmarks, contraindications, severe petechiae, ecchymosis, okay? Now keep that in mind because we talked about that, because a lot of the companies are getting away from creating the redness, okay? And we'll talk about that in a second, okay? And I thought that that's important that I wanna highlight for that. So again, most obvious concerns. And this is my list that I added to all this. These are the big bullet points that I put that you need to be kind of obvious and stuff. Now for the quiz, you need to know two precautions, and two contraindications. So that's easy to look up when you guys take the quiz for CEs and stuff. But on this slide, and this is slide 57. It's kind of the most obvious stuff that I always look for, okay? And again, you can add your list and we could spend a whole hour adding to this list. But these are the most obvious that we should kind of always keep in mind, okay? Not that much more to talk about here.

But this is what we need to talk about, okay? Red, red, red and now, if we're following Gua Sha, this would be okay. All right, and I think that, that's important to understand. If we're following Gua Sha. Okay, Asian medicine that's okay. But we need to proceed with caution because if you look at this to me and I've been told this by also orthopedics who've seen in some like that, this is capillary breakage, this is damage. This, a lot of people think especially like when you cop and all that, that the old, the venous stasis and the old bloods coming to the surface. I don't know, okay? And so, I think this is now considered almost more of a contraindication you guys, and I think it's really interesting.

Because when we look at this, if you look here, the medical literature, the medical doctors you guys are studying to document injuries from aggressive IASTM treatment, okay? Now, understanding that we know that redness does occur as a side effect. I know I've done it on people as soon as last week when I had to see a patient, I'd be real careful, but I had to see a patient who was post-surgical. It was definitely a necessity. And so I did to a different, it was multiple stuff, but to one area, I did do a little bit of some soft tissue that might have been some redness and I had to tell them about it, okay?

And so when we're using tools and stuff, we wanna be as careful as we can, because the medical literature now starting to document this is almost as if intergenic, is caused by the professional, okay? And I think that's important to understand because when we look at this, and If we bruise someone up really bad, that could result in some type of litigation or legal issues, if we're not careful about that, okay? Now, if you think about it also my evidence comes from me being here in California. I'm an expert for the PT Board of California, and I am also an expert witness and I provide, depositions and professional opinions. Well, I did finally get a case late 2019, where someone was using one of those roller sticks on a patient who was on blood thinners. The physical therapist didn't check and bruise the person up really bad because she broke

capillaries. And then that resulted in major blood loss through the lower leg, okay? And there's a lawsuit, this is coming out of Arizona. So again, we're starting to see that we need to be a little bit more careful with our myofascial compression interventions. And in segment two, I'll talk about the lawsuit a little bit in more detail. But I mean, obviously, most of it's gonna be confidential, but I can talk about what's public. And I think it's interesting because we're starting to see the literature reporting. And then I have a case where I have a myofascia intervention, where they're actually a lawsuit. So again, we need to be more careful. So that's why more and more researchers are saying, hey, look, use IASTM, use a myofascial compression intervention to open up a gateway, to try to stimulate the next phase of your rehab, okay?

Don't try and use it as an end all, okay? Use it as a mechanical or neurophysiological effect. So again, just kind of a thought that I wanna propose to you guys, because again, I use all these tools in my orthopedic sports med practice all the time, but you just gotta be careful and you need to document, document, document, okay? All right, anyways, so bottom line is one thing we also we also do too, is and I wanna kind of show you guys a quick funny video and then we'll get moving, is that, we need to educate our clients first before treatment. We also need to respect cultural beliefs because again, when we talk about the redness and all that, people like pain, sometimes.

People like those deep massages, the Gua Sha, the cupping, they like all that stuff and we have to respect it. So I wanna show you guys kind of a funny video that was supposed to play at the same time. And I'm gonna play it here, it'll be a little separate here. I'm gonna play it here in a second. Let me kind of adjusted here. But when we look at cultural stuff, I think it's important to understand, okay? When we look at cultural, this is a shaman, okay? one of my friends, he is a physio. This is one of his patients going to a shaman and getting manual therapy. So again, I just wanna tell you guys just it's meant to be kind of a funny video that in different parts of the country, a

lot of people, there's a lot of religious practices, there's a lot of cultural practices just like this. This is from the greater India area where a lot of people go to these shamans and they get treatment and so we have to respect what people believe and all that. And again, this might seem kinda crazy, but hey, if they believe in stuff like that we have to respect that. So again, I just wanted to kind of show you guys it's a fun cultural video, but we just need to understand that we have to educate our patients and especially here in the United States. Our treatments are gonna be different than it is in different countries. So again, I just wanna show you guys just kind of a funny video, I'll pause it. If we could switch back to the PowerPoint now. Again, I just wanna show you guys just kind of a funny video and just impress upon you guys, though, is that in the United States, we deal with a melting pot of patients. So we need to be able to respect cultural beliefs in education.

So I have a lot of patients where I live, I have a big Asian population stuff and a lot of them believe in the Gua Sha. A lot of them believe in getting that redness and stuff. So I have to educate them on that. So again, we wanna be culturally sensitive. And we wanna do that. But again, I just wanna show you guys kind of a funny video that wow, around the world, people are treated differently. And but if it works, hey, more power to them, okay? All right, so quickly, let's go through this. And then we'll move on to some of the more fun stuff. Instrument hygiene, okay?

Real simple, I'm gonna go through this kinda quickly bulletproof so we have time to finish up the lecture. You need to use an intermediate level disinfectant, okay? There hasn't never really been any type of published cleaning tool hygiene out there for IASTM, okay? In our clinical commentary we did for ITSPT, you guys, it's on PubMed, if you guys wanna check it out. We suggested it, but if you go by the FDA, EPA recommendations, you need to use a minimum and intermediate-level disinfected, okay? Especially with the COVID going on right now. We need to be able to go through this safe treatment process, okay? Real quickly, this is what we're suggesting. This is

what we put in our publication. Step one is obviously wash your hands, 20 seconds clean off. You need to wear some type of personal protective gear if you need to, okay? We talked about inspecting the body region. Maybe cleaning the skin off with a low level sanitizer or even the ISO propyl alcohol. Then you do your treatment, recheck the area, clean off the skin, sanitize then go and clean the tools, sanitize the tools, and then also wash your hands again, throw away everything. Pretty simple, we've all done it all. But again, a really good timely reminder. We need to clean the tools, okay? Also to you guys, please don't forget wet time, okay? Wet time is so essential and we'll get to it right here. Okay, intermediate level Clorox and Lysol brand wipes. Yep, they work. They kill at least what we know this we brag. They kill the COVID-19, the H1N1, HIV, all that stuff. They kill it all. Or 70% Isopropyl alcohol wipes, okay? The wet time is important. Lysol and Clorox tell you to keep the surface wet for four minutes, so that the anti-germs can kill.

Does that make sense? So we forget that a lot of times we just wipe it down quickly and we go if we're in a busy clinic. So try not to forget that. And then lately, especially you guys know too, we're in this crisis right now, but in general, if you wanna wear gloves at minimum, that's huge, okay? So go back to your personal protective stuff. Just, again, a couple quick reminders as we're kind of dealing with everything, but a lot of you guys are still seeing patients 'cause, PT is essential for some people.

And so when you're doing that, though, make sure you clean but give yourself time to keep the surface wet and really, really clean, okay? So those are just some thoughts to everybody 'cause I care about everybody and I want everyone to be safe, okay? All right, research. Here's what we got, okay? I'm not gonna bore you guys, too much on the heavy research. But with the research, we can look, we have the different levels of evidence, right? Level one, two, three, four, five. We're familiar with this, let's get into it a little bit. Okay, now are there suggested IASTM guidelines, okay? When we look at guidelines, we again, we published that clinical commentary that if you guys wanna see

and we talked about the guidelines, and we're going to be talking about them all through this presentation, okay? All right, now as we move on, what was the body of research? Well, when we do a lit review, and this will be pretty quick, when we do a lit review from 2000 to 2018. We can see that we came up with the evidence level, the systematic reviews were good, but if we look, we have mixed methods all the way through, okay? And this is the issue that I told you guys before is that this is as in 2016 when we published it. Well the three systematic reviews from 2000, 2018 found basically the same thing, mixed methods, everyone's calling, every research saying they did Graston but they didn't, they only scraped or they did different things. So that produce weak evidence.

Also, we had 25 plus case studies, okay? So it was crazy. So the research then was very weak, even though we're using this popular tool, okay? So I think that that's interesting to understand. Now, as we fast forward now to more recently, we've seen more recent reviews come out. And again, we're still seeing a mix in the literature. Okay, we know when we look at 2019 studies, that's when we put out our clinical commentary, which is also a lit review, but also in Nazari and Seffrin, those two groups, Nazari found negative outcomes with range of motion, pain and function. So basically with their search or their clinical question, they found that there wasn't good evidence. But Seffrin countered that and found positive outcomes for range of motion in uninjured people. Pain and function in injured people.

So again, we're getting this mixed reviews in the research because researchers are not sticking to a common nomenclature language and also they're doing all their own studies. So we're not replicating anybody's studies. Plus, though, when it comes to these systematic reviews, you guys remember, I've done a bunch of them. It all comes down to the clinical question, okay? So Nazari and Seffrin, they asked similar critical questions, but their criteria was different. So they're obviously gonna look at all the research differently. So for you guys, as clinic clinicians in practice-based evidence,

you just need to stay current with the research, but pick the studies that are best for your practice, okay? Pick the research that's good for you. But again, when we talk about evidence-based and practice-based medicine and all this stuff, I need to be able to present a list of latest research for you guys. So you understand that things are not perfect in this world. We don't have a perfect system of research, but at least the best we got, in my opinion, there is enough research to support IASTM as a whole. That's me personally as a clinician and as a researcher. Just big picture, okay? All right, let's talk about some emerging evidence. Okay, now, here's some other questions. This is another question people ask, is well, what's the latest IASTM studies on the big four, right? Range, emotion, pain function and performance or musculoskeletal injury? What are those big outcomes?

Well, when we look at the recent research from 2019 to today, we see a lot of studies showing positive outcomes with range of motion, pain modulation performance and movements. Now performance, we talked about field tests, like let's say the, like a power test, like the long jump, high jump, okay, some type of agility, maybe like the T-test or something. And then MSK pathology, which is on plantar fasciitis. So we can see, though, that all these authors have different methods, different sample populations and stuff, but they're reporting favorable outcomes.

These are all clinical studies. That's one thing I like about the research now, is we're getting away from the 10,000. 10 thousands of case reports that everyone turns out great, right? I know, I don't think I've read a case report that had like a null hypothesis, would that'd be great? The Journal of things that just didn't work out. I think we would learn more from that sometimes. Just in my opinion, but, so again, that gives us a thumbs up for a general grade level two, for those research, okay? And then the next thing is what is the evidence that IASTM produces a local mechanical effect to promote tissue healing. And again, remember, the two myofascial theories that are out there, mechanical, neurophysiological. That's what we're trying to answer with this question.

Well, when we look at it, we can see we've got a couple studies that are suggesting that things are occurring. Okay, well, when we look at some of the old traditional research, we when we look at a mechanical effect, we got to go back to the original studies from Loghmani, okay, Gehlsen and Davison, okay? Those people mainly used rat studies, they use rat models, but they found though when they did IASTM over the rat skin. Remember that, they replicated *in situ* live treatment that they were able to see increased fibroblastic healing proliferation, right? Okay, also, they found that there was healing factors and vascular changes. And if you look at the image below, this is from 2013, Loghmani, show that we could show blood flow changes. So again, even though these are on rat models, there still is some empirical evidence that we're stimulating some type of neurophysiological response, okay?

And remember the physiology would be the growth factors, healing factors, vascular changes, okay? I think it was Gehlsen in 1999, who actually used some live humans. But since then, though, we have not replicated these on humans as of yet. So that's a limitation that you need to consider, okay? That you need to consider as you look at this research for your clinical practice, okay?

All right, next one, what is the evidence IASTM produces a neurophysiological effect, such as sensory and vascular changes. And that's important because with the neurophysiological effect, what they're saying is some research is saying, well, if you go faster if you go slower, if you go harder, that's gonna stimulate the nervous system or the nociceptors, or those free nerve endings, those pain receptors somehow. And I think it's important to kind of look at that. Well, we address that, we did a study in 2019, where we actually wanted to look at that. And again, this is a preliminary study. It's kind of like a pilot study kind of in a sense, We wanted to do a specific soft tissue technique we use a RockTape tool 'cause they donated it. But what we did was is we wanted to look at a light pressure, kind of like a pacinian corpuscle, kind of a little bit rapid fast and see if that changed local two point discrimination. Okay, and then also

pressure pain threshold where we use like a plunger or algometer to the tissues. And what we did was is, again, this is a pilot study so we did pre-test, post-test, and we looked at 25 healthy individuals because we haven't looked at injured tissue yet because we don't know how the engine works, okay? And if we look at this slide, this kind of gives you the methods were day one, we did all the baseline testing, then we took them through a DOMS protocol, okay? I'm kind of a mean researcher I guess, but we had them do 100 jumps from a box, and we were testing their quadriceps. So nonetheless, as you guys can imagine, we had some pretty sore subjects. But they were all young and healthy, they can handle it, no, I'm kidding.

So then we also are IASTM technique we just did a light pressure technique where we just use the tool and we validated this with a scale, okay? The stroke was 120 beats per minute at a 30 degree angle, okay? And we use a metronome. So we try to be as scientific as we could and we controlled it and the examiner was blinded from the person who treated and you guys could read all the mumbo jumbo all the deep stuff it's published online. So you guys can read that. But basically the outcomes is we wanted to look at how it affects pain.

And basically in short, we found is that between baseline and 24 hours, we saw changes in two point discrimination and pressure pain threshold. Now, if you look at slide 83 here, again, my apologies if it's a little too deep, but I wanted to give you guys a little bit more information here, so you don't have to read the whole study if you wanted to just to get a quick one. But we can see though, that our P-values were pretty significant when it comes to 24 hours, but things bottomed out towards 48 hours. And so that was interesting because on one level, first of all, this is just preliminary. We just grabbed 23 people, we took them to the DOMS protocol, we looked well from zero to 24 hours. We found that it changed. But then towards 48, things started leveling off for all pain receptors. So we're thinking that, this two minute treatment time, two minutes are less, or that the nervous system changes so quickly,

we're starting to realize is that maybe even after 24 hours, the nervous system is gonna reset itself back to some type of theoretical baseline. And that's what we're thinking too, because we're seeing that in the other research like for example, here's a sidebar foam rolling. A lot of the researchers, not us, but a lot of the other researchers are saying that the effects of foam rolling up in any of the post treatment effects only last 20 or 30 minutes and then it goes away. So even with this treatment even with DOMS and all that, we're thinking that somehow the nervous system is resetting itself after 24 hours or the body is just kind of healed itself from the DOMS right, 'cause remember, currently the DOMS is thought of as like a grade one muscle strain, right? Kind of a little bug and who knows, right? But that's what they're anticipating. So that's one thing to think about.

So, just kind of in summary, we have many limitations. We just got started on this, you guys. So I mean, not a perfect study by far. And RockTape again, just donated it. So we could have used any other tool, no big deal. It's just kind of the way it was. But we're gonna be doing other studies. But besides all the limitations, at least we can start looking at the nervous system and start saying, okay? At least we have one study that's mainly suggesting some type of neurophysiological. But then again, he goes, I don't know, right?

I mean, but it's something to think about. Because clinically, I use IASTM, to open up that gateway to more efficient movement or whatever I need. So again, it's one tool in your toolbox. But again, we're starting to see some evidence to say, hey, look, start treating the myofascia system as a more complex system and get away from using the term myofascial release, because what releases. There's no evidence that something releases. Now someone might get a psychological release, like, oh, I feel better, but there's no evidence to say that myofascia loosens, right? We're just changing things, we changing stiffness, we're changing whatever we need in there. So again, just some thoughts here and again, very preliminary study and stuff. And again, we have other

researchers, Ge, I'll call him Ge et al. Even in 2017 found similar outcomes like we did. Looking at, but they did a 10 minute change, okay? And they also found statistically meaningful changes in the same thing. So basically, we replicated their study, okay? So we replicated their study, but we just use a DOMS protocol. So again, my research group, we're trying to be as pure as possible, right? So at least we have two studies now that have similar methodology, right back and forth here and that we're able to get somewhere. So again, just some thoughts on that and even Gulick in 2018 found similar things too, with TriggerPoint So we're starting to get some research coming out, and Gulick is a really good researcher, if you guys wanna follow him. He publishes a lot in "Journal of Body Works and Movement Therapy."

Awesome guy. Or, excuse me, don't go like, and so, awesome, female. and so, we have to look and just realize that so many other researchers are suggesting similar things. So again, just some thoughts there too. And then obviously back in 2014, Portillo, Altern mainly coming out of the athletic training literature, actually did a scraping technique and they found tissue temperature changes that suggest some type of changes in blood perfusion. That's the other evidence. But again, tissue temperature suggests it, maybe so maybe not, I don't know. But again, they call it Graston, but they only did the scraping, okay?

The good thing though, is they did a high level Doppler that actually showed the changes, which is pretty awesome. So again, one more study showing about that, okay. A couple last things here. Myofascial question interventions. Okay, are they interchangeable? We did, we did a private study that got published. We did two minutes here. And again, just kind of get into it. We looked at, again, Rock Tape donated stuff. We also have a bar from HawkGrips, and we have TriggerPoint. So we have all the different manufacturers. And basically what we found out was, is that when it comes to range of motion, this was a student related study that all three produced similar outcomes, okay? Real simple, we're gonna touch on this later on in segment

two. I just wanna highlight to you guys that when we talk about rolling and tissue flossing, we're gonna see that there's some crossover, okay? That's just more of a highlight. Again, future research. We are currently, will it stopped right now, but we're currently doing a instruments study comparing the different instruments. We're doing an instrument hygiene study and myofascial interchangeable. We also have a huge survey that's in review right now. But I didn't have time to report on that. So we got some emerging stuff that hopefully we'll be able to share with you guys over the next year or so, okay? All right, let's get up and take a quick stretch break. And we'll talk about the bottom line. We know that IASTM has our big four changes in range of motion, pain modulation, increased function increased performance. Unknown as we don't know, what releases myofascia, what breaks up adhesions, and what promotes healing, okay?

All right, hopefully everyone stretched out there a little bit, kind of get up for a second. We are gonna talk now about mechanical percussion. Unfortunately, this is a quick segment. And then we'll get to Q&A, because, guess what you guys, no research. This is pretty funny where all these machines went to market and everyone bought them, but guess what, no research. So no one knows what to do. And so even the researchers. So here's common terms, mechanical percussion devices. That's what we started saying. We do have a survey study we did and we'll talk about it in a second.

They call them percussion devices percussive massage guns, or they just use the name Hypervolt, Theragun Proposed description. Mechanical percussion devices are myofascial compression interventions that use mechanical devices to provide a rapid deep tissue massage to all the tissues. So that's as in short, that's what we're proposing. So when we look at it, think about this. Mechanical percussion can be considered then similar to manual percussion, you're slapping the tissues, you're compressing the tissues. So again, Hypervolt was very nice to give me permission to use these images. But you can see that the rapid compression right there, okay, and so

with the rapid rate of compressions stuff, you're kind of doing similar stuff right now, but guess what, we don't know, because we have no research. So again, this is what the current thought is from all the manufacturers. I'm starting to work with Hypervolt a little bit. And they were telling me that this is what they're thinking. I've talked to Theragun chiropractors, and all these cool people, they're still figuring out. Right now, I guess there was like the up until the pandemic, I think there's like six or eight studies coming out soon on this stuff. So again, pretty interesting, pretty interesting when we look at it. So when we look at the devices and stuff, what are the functions? Well, we got the big three right, we have Hypervolt, Theragun, Tim Tam. They all have similar things.

But if we look at the devices, most devices have three speeds, okay? With the different hertz settings and other brands sometimes have nine settings and all that. They have all these different applicator tips. So again, we don't really know when these set the tissues, what happens and stuff. battery power, I think you guys agree with me, I think the Hypervolt, is probably the most popular. It does have a long battery life. But then again, the new Theraguns are pretty awesome too. So again, there's some cool stuff out there.

Again, they're thinking the instrument function, like the instruments here are gonna be similar to IASTM, okay? And I wanted to put that slide in there again, that mechanical percussion, is kind of following along with the whole Cyriax, kind of breaking things up. Deeper tissue penetration and all that. So they're considering that is kind of similar. So I'm not sure but what that slide that's what a lot of people are talking about. Again, no published studies, but we did just get this accepted. We did a survey because here's what here's what me and Dr. Baker, Dr. Rusty Baker from University of Idaho. He's a big myofascia researcher. We both looked at mechanical compression, say, look, we both use this in our practice. But the problem is, if we do research, we're just gonna do research in our perceptions. What are clinicians doing? How are they actually

practicing it because once we figure out what everyone in the field is doing, that should guide our research. That has been why I've done surveys and all these other interventions that you'll see in segments two and three, that we look at this. So with this study, we basically looked at practice patterns with PTs, OTs, chiropractors, massage therapists, everybody. Because it's brand new, we got 400 people 400 plus, which is a decent sample population. Most of them are physical therapist and certified athletic trainers. But when we look at it, we can see some interesting stuff and I'll take the pointer. If we look here, let me see if the pointer comes up. It should come up in a second. But if we look here, we can see that obviously the Hypervolt and Theragun are the most popular Okay, people use a standard round ball the most along with the ball right there, okay?

So again, these are just common practice patterns. It's basically the only research we have, we can see that most clinicians for pre-exercise, if they're gonna use it for pre-intervention, are using levels, kind of basically one and two, and they're using about 30 seconds to three minutes, okay? they're kind of in there. And then they're moving the gun back and forth, at a rate of about two to five seconds. So, again, I think it's pretty common to what we do, okay?

And then when we look at post-exercise, it's gonna be the same thing, speeds one and two, maybe one, two, three. Surprisingly, there's about 20 to 30% of the 400 so that they don't use any guidelines. They just turn it on, kind of interesting, right? So that was one thing that came up. And then mostly, we're in that 30 seconds to three minute range per muscle group. And then we're looking at two to five seconds, that's very similar to foam rolling, you guys, okay? Very similar, okay? Then when we look at here, I don't know if you guys can see the pointer or not or whatever we'll try. But if we just look at the table, we can see that the medium speed for pain modulation, and low speed has been used the most. We can still go back to 30 seconds to about five minutes now treatment for pain. So clinicians are going a little bit longer than the pre

and post. And then the device is still being moved anywhere between two to 10 seconds. So people might be hanging out a little bit longer for pain, okay? With the device, and then for myofascial mobility. That's another question we asked again, too simple. We're seeing the medium speed 30 seconds to three minutes sometimes to five in that range. And then they're still moving anywhere between two to five seconds. So again, we're seeing this common pattern of two to five minutes, right? Two to five minutes, speeds one and two, not the super high speed, whether it's hitting it fast, and then they're moving it pretty slowly up and down. Treatment rationale, most people thought about using it as a therapeutic treatment, okay? Out of the 400, those are the questions.

And then from there, a lot of people also use it, that it works pretty much on a lot of the things we always think about. Enhanced myofascial mobility, pain modulation, increased range of motion, enhanced recovery, prep, movement prep and all that. So, we're starting to see that these enhance effects are kind of go in line with other myofascial interventions. And again, most of these are theoretical, okay? And we're almost done here. And we're gonna look at peer review. So most of the stuff that has influenced people with these mechanical percussion devices are social media, manufacturer's instructions, continuum education. Pretty interesting, huh? But the big category is collaboration.

So again, a lot of these tools have gone press from different media outlets, colleagues, friends, they're just popular, but we really don't know how they work if you think about it, okay? Next thing is when we talk about clinical measures, yes, pressure pain threshold seems to be the big one, people look at pain, and also patient reported outcomes. Those are the big ones along with range of motion. So those are the big ones there that people are looking at. And they do some movement-based testing. And then obviously, I know the tables off a little bit here, but live instruction was the most important to consumers. So just kind of in summary, pre-exercise speeds, one and

two, 30 seconds to three minutes, two to 10 seconds. And again, that goes all the way down. And for the rest of them post-exercise pain and myofascial mobility, all go from speeds one and two, 30 seconds to five minutes, two to 10 seconds going up back and forth. So again, not really any type of scientific tool patterns like that is an IASTM, people just go back and forth. But what was interesting is about 15 to 30% of respondents don't use any guidelines, they use their own preferred methods. So again, just some thoughts here, okay? So indications and precautions, we're gonna quickly go through this.

Real simple you guys, follow the general myofascial interventions. We don't know anything at this point. Just be careful, okay? You're really compressing things. Again, this is just a repeat of the general precautions. General contraindications, and yes, you can get petechiae, I've seen it where someone was using a harder plastic tip coming from the Tim Tam and they created some bruising and some light stuff. So that's why it's still kind of the petechiae or the bruising still holds for a precaution and contraindication. Also too though, the big ones is obviously anterior abdominals right where the spleen is. And all that stuff, lumbar spine kidney region, you got to be careful. Over the cervical spine, ears eyes, right you know all the crazy stuff but you guys I've been in the gym and I seen some people doing it right on the nerve roots and I'm like, oh my gosh!

So I gave them my card, right? Yeah, always give me your card for future business. Yeah, so people are doing crazy stuff with this stuff. Just be careful. I you guys final thoughts, IASTM. You know what, honestly, I think the research has improved. We've done a couple preliminary studies. We still don't know too much. But just remember describe the tool or the paradigm. To me that's a hugest thing. Pick the tool that's best for your practice. If you get a chance, go back to the tool anatomy section here. Look at the tools, there a lot of money and just be careful. And also keep in mind as we get to part two and part three of this series, that IASTM is interchangeable, and I'll prove

that to you guys. So again, you can do a skill tool technique, but you can also reinforce it with foam rolling as a home program. Because again, if you compress the myofascia, you get the changes, okay? So evidence grade level for me, it's a B minus, it's gotten better. I taught this class about two years ago and this is our update to this and I gave it a C. So we're getting better with the research. Mechanical percussive devices. I love it, I use it, I don't know anything, I know it works, I use speeds one and two. But right now the evidence is enough because we don't know what's going on. The only published research that's gonna come out will be our survey up until this point. So again, there's plenty of manufacturers for both IASTM.

There's tons of manufacturers, and a lot of different ones for mechanical devices and stuff. Just please choose the one that's best for you, to me, they're all great. There's no one that's preferred over the other. And that's how we roll, sound good. So you guys, here's my email, I know we have a good 300 plus people, thank you for attending. And if you look here, here's my email. If you wanna take a snapshot of that with your cell or something, please send me an email if you have questions, 'cause hey, I have an open schedule, right? I'm just kidding. But I'll be willing to answer questions and stuff. If you have other personal follow-up questions. So on that note, we're kind of expanding the questions I'm gonna go through. We have about nine, 10 minutes left. And we're right on schedule.

And so now we gonna go through some questions that some of the participants had and see if I can help out a little bit, okay? So, Roberto asks a great question. Could hormonal imbalance be a factor too? Yes sir, I agree. I think the hormonal imbalance or neuro endocrine stability issues, I think that that's gonna be huge, yes. I think when people are stressed, I think the whole cortisol cascade, et cetera, can really have a lot to do with it. So, I think pain, emotional stress, drama, those all have an effect on the body, of course it does. So again, as you guys know too, in my opinion, and I again, I don't know everything, I don't know anything. But when I treat my patients, I got to

treat the head first. I got to get them to buy into the treatment. I gotta get them wanting to get better. And so neuro endocrine is totally tied into, doing things. So I think that that's huge. So yeah, so there's my answer to that. So Tim, Tim had a good kind of comment, question is, I'm a proponent of various myofascial techniques and see beneficial results, yes, you say clinically, but with what you were saying about the lack of any research evidence, how do we justify spending all the money on tools and classes in the age of evidence-based treatment? And Tim, oh, my gosh, thank you, great insight. I agree, I'm torn like you because I'm a clinician, and when I'm in the clinic, treating my patients or going to their house because I have a small gym, and if I'm treating them, I'm gonna do what I need to do. That's within my scope of practice to get patients better. I realized as a clinician, that there's limitations in the research, but it's not gonna stop me from purchasing tools or doing what I need to do to get my patients better.

So I think this is the only and the best system we have in the United States and the world, is that we have to realize that no research is perfect. And that our job as clinicians is to translate the evidence to our clinical practice. And so I agree with you, and I wish I had better answers. But as a clinician, I do my best to do what's good for my patients with the standard of care, but also try to integrate the evidence, but I do realize a lot of the stuff that I do are proven clinically, I see clinical changes, like kinesiology, right? We will get into that later, right? That's a whole nother argument. I see the changes in the clinic, but the research sucks on it, right? It's terrible, so that's what I look at from there, okay? Nicole had another one. What are the reasons behind the precautions for heart disease and body art? This is interesting because when I talk to Graston people and the people who kind of created these, I guess the thing for heart disease is, if you are scraping the tissues, you're creating possibly some type of sympathetic up regulation and you might put more demand on the heart, okay? That's the thought, okay? Body art is that you're scraping the ink that's in the tissues. And that could cause some type of irritation to the soft tissue. That's the two things that I've

kind of heard Nicole. So again, excessive demand on the heart 'cause you might be creating a sympathetic response from the treatment, okay? Second thing is body art. You're scraping the ink and maybe that can cause some type of, I don't wanna call like an itus of the skin or whatever, but some type of irritation. Those are the ones that the Graston people recently put in. And that's our thought process. So again, relative precautions. Right, Karen asked a question. A contraindication listed is cancer, is that referring to active cancer or untreated?

Great question. I think that's on an individual basis. Because if I've used these tools on cancer survivors, and they've had the post-treatment scarring for like breast cancer or whatever. So it depends. I think you got to work with the doctor on that one. But they listed there just to probably kind of like cover their tissues, honestly. So I think any type of active cancer proceed with caution. That's just my opinion, okay? So those are those are my thoughts there, Karen. I wish I had more but it's really on a case-by-case basis, and you got to work with the oncologist to make sure because most hopefully most doctors are pretty well versed on PT stuff, rehab, kind of stuff like that for that, okay? William had a great question. Does Indiana, I'm thinking Indiana have malpractice lawsuits?

That's what I'm thinking of what William was asking. I don't know I haven't worked any cases in Indiana. Most of them come from different states. But if you wanna send me an email, William, privately, we can answer that with a sidebar if you'd like. So hopefully that answers your question, thank you. Karen has a question. Do you obtain a signed written consent prior to IASTM? I do not, because I'm in the concierge and I've had patients for years and years. I do get a verbal and I explain the treatments and all that. That's another thing to wear. When they sign their intake forms. I do mention in my written waiver when they sign it, that there will be manual treatments that include, et cetera, And I list out some of the manual therapies. So I have a written general waiver, but I also get signed, I do still verbal consent. And I put in my charts that prior

to treatment patient, educated on IASTM. Patient educated on risks and benefits patient has agreed or consented. So I usually use the term consent. So that's what I'm doing currently. I haven't run into any issues with that at this point. Okay, Nikesh, has, could you elaborate more on contradictions been severe pain. What about trigger points on trapezius which are common and tend to be acute and severe, also about chronic pain as contrafication prior stem. Okay, a couple things too, is when we talk about all the tool manufacturers and what they do is when they talk about severe pain, they're saying that severe pain could possibly be enterogenic, produced by the tools. So one of the contraindications is, is that severe pain would be, a level of pain that's so bad that the patient can't handle it.

So I think that's what we're looking at, because we know that trigger points and all that are gonna be painful, but one of the thoughts is that if you're gonna be working with a very high painful area, maybe you do a skilled manual therapy first to kind of loosen up the tissues and then you get into the tools, okay? So that's kind of the thought that people are thinking clinically. Now chronic pain is a whole nother classification because when you're working with chronic pain and stuff like that, IASTM may not be the best tool. Now if you if we look at the foam roller research, we see that people with fibromyalgia can handle the foam rollers, but a sharp tool on someone who has chronic pain may not be the best intervention.

So, again, proceed with caution, and always go back to your logic and saying, okay, does, how will this IASTM intervention open the door for further treatment? That's in my opinion, because if it's not gonna benefit the patient, don't do it pick something else. I'd rather do indirect myofascial techniques in direct manual myofascial techniques than taking a tool and scraping over someone's painful area. So that's just kind of my opinion, great question. Again, shoot me an email if you want some deeper thoughts on that. Okay, James, I get much longer benefits from manual deep release techniques. I think some don't rely on manual as much as preferred IASTM. I agree, I

think any type of manual therapy can be very hard on the body. And I do agree that I can feel more with my hands and with the tool and I think that we need to pick our battles, in my treatments, I may begin with manual treatment, so that number one, the patient can trust me. Number two, I can get somewhere and then I typically transition to tools. So I don't necessarily dive straight into tools with patients. Or sometimes I may even have them foam roll and self regulate the pressure before I even get in there with tools.

So again, sequence your myofascial compression interventions, that's best for your patient, in my opinion, okay? James, great question, thank you, sir. Remainder, how are you? So do you recommend a minimum time to roll a particular muscle group? Ah, you got to hang out for part two, part two is next week. We'll get into that, okay? So I'm gonna I'm gonna leave that as a teaser, thank you. Okay, Kevin McAllister or Kevin. Any typical techniques you see as used often in your clinic, like the calf vibration roller the quad massage.

Yes, we're gonna talk about all that next segments. We'll talk about that all, I'm actually gonna show you guys some video of what we've done, how we combine interventions. So, let's hang in there please on that one. Since we're gonna focus on IASTM today, okay? Okay, Jessica, a question. Can IASTM be beneficial for a child with cerebral palsy? I don't know, great question. The light technique we did work pretty well but if you're trying to down regulate that central overload that's with CP, I am not sure. Sometimes though, too, is you know all the neurological changes with a kid and such an infant, they may not or infant or child excuse me child to prepubescent, they may not be able to feel very much. So you may wanna start with some manual myofascial inhibitory techniques and then get into tooling, okay? Because if they can't feel it, you might be able to bruise him quickly, okay? So just be careful. And I understand what you're saying, if you're trying to down regulate the central nervous system, proceed with caution using tools. Just in my quick opinion. But Jessica, you can always email

me and I can process that question a little bit deeper if you'd like, so thank you. Okay, Ingrid had a question. This was absolutely fantastic. Thank you, I appreciate that. You guys are great, and I hope everyone's safe. So I'm praying and hoping for everybody. Okay, Karen, do you use IASTM for myofascial dysfunction related to surgical scars? Yes, I agree, I do use it, but I wait. I wait my two to four weeks where the scar's healed and all that. Again, I may do a manual therapy first with my hands to loosen things up and then I'll get into tools or I'll do a combined treatment. Okay, I might start off with an indirect because right now I have a clavicular fracture. There was a kid who got hurt pretty bad. So he's another one that I'm seeing that's essential. He is so sensitive over the surgical area.

And he's just about three weeks. So that scars kind of healed. But I'm doing more indirect myofascial compression first, then I'll get into the tooling around the healing clavicle, 'cause there's a plate in there. So I think you got to kind of combine manual and tools with people until they get comfortable. I think the mistake people make is they go straight to the tools, and then that's when they flare people up. So again, just kind of be careful with that. Okay, Jose, how long can we use myofascial treatment?

When do we stop or when can we just bring tissues from chronic scar to acute? I don't know. So I think that as we were kind of finishing up here, we have some more questions. We'll try to get through the rest of these. If our hosts are okay, I'm okay to finish these answers. If you guys are okay to please hang in there. But Jose, I don't have that answer yet. We don't have any long-term evidence on how long we should treat, and also the acute variables, which unfortunate. Most of the time Graston and all these other companies are saying, when you feel a change in the tissues then you stop, okay? So there really isn't a recipe to say how long because it depends on the person. So again, please use your clinical judgment the best you can. I think that that's a big one from there, okay? So that's the best I can answer. Again, shoot me an email if

you wanna get deeper on that. Vera, can you please talk about test question number seven? Sure, of course I can. So give me one second here, that's good. Okay, what are the common patient outcomes use for IASTM treatment noted in the research? Okay, well, a lot of people use the numeric pain rating scale. Okay, the VAS and modified oswestry, number C. Excuse me, number C, sorry, just kidding. So yes, I would pick those three in here. They'll be good, so yes, I think a lot of them are using the research, okay? And again, I know we breezed over seven. Thank you for asking, okay?

Hopefully that answers your question.

Okay, Deidre. What about combining essential oils with the tools? Yes, I think anything. Work on those pheromone senses work on all that great stuff, yes. I think as long as it provides a sliding glide and it provides almost like an emollient, that's great. Check the client's allergies though. Make sure that if you're using a glycerin-based oil that it's okay with them. Okay, Deep Blue is great, one of the things you can combine and you can combine a lot of the menthol-based emollients right, sure. But you just got to clear it with the patient. Make sure they're doing okay. Also too, though, if you're during treatment, you got to lather it on some time. So make sure that that skin is slides and glides pretty easily, okay? All right, we're almost done here. We're gonna be wrapping up here in a second. So we can just hang on and hopefully our hosts are okay.

Can the scraping release artherosclerosis and form DVTs? Anton, fantastic question, I don't know. I don't know if it can actually penetrate that deep to do that, but again, it's vibration, isn't it? So that can go with that whole cardiac issue, right? I don't know yet. Basically, a lot of the IASTM companies threw it and stuck it to the wall with all these general precautions. Most of them are using the myofascial research, right? They're using massage research. So again, general kind of thoughts. Just be careful, so again, shoot me an email if you have deeper questions. William. Oh, the country of India, yeah. You know what, I haven't heard anything coming out of the country in India, thank you, William. Sorry about that. I didn't know it was Indiana or India. So again,

thank you for that. I don't know, good question. I have not heard anything from that part of the country. But again, cultural beliefs, right? We got to respect it. Asian medicine, lots of stuff there too, okay? Okay, William also said regarding the shaman and manual therapy treatment. Yeah, I think cultural beliefs. I wanted to show everybody that we have to respect cultural beliefs because your patients are coming in and they're gonna bring their culture in. We have to respect that. So that's why I kind of showed you guys the funny video that we may in Western society go like, oh my gosh! That's contraindicated, blah, blah, blah, blah, is it? I don't know, how do we know in that country, those people may benefit from it. So that shaman maybe impacting their lives so greatly that they believe in it, we need to respect that. So that's kind of what I'm looking at from that perspective.

Okay, Tina, any consensus on a comparison between unidirectional or bi-directional scraping. Anything to suggest better efficacy one or the other? We are studying that right now. Thank you, Tina, great question. Because we're trying to, because if you think about the beveled strokes of a of two, bi directional scraping up and down to me that can have a vascularity effect if you're pushing deep enough. Same thing as a lymphatic drainage massage. You guys know that. So we're studying the different strokes, yes, thank you.

Hopefully, if things get back to normal sooner than later, I'm praying and we're hoping that we can get back to our research and we can actually answer that question. Because then that's gonna determine a single or double bevel edge isn't that? That's gonna have a big effect on us. Also too, you guys look at the textured versus the smooth, right? Stainless steel versus textured, that's gonna all have an effect. So again, great question. Gosh, I wish that answers, thank you. Email me if anything, thanks. Okay, Andrew, what are some of the lower extremity conditions you like to utilize techniques for more muscular tendinous? I like looking at more of the muscular, but when I do it, Andrew myself, I like to do more of a neurophysiological point. I like to

do fast, slow then, I like to combine my manual therapy with the tools. So a lot of times I call it combing through the myofascia, where I'll take the texture tool, and let's say it's a quad. I'll go from the AIIS to the superior called the patella and I'll comb through the myofascial with the texture tool, or I'll get the my Hypervolts and I'll go through there. I'll do that for about two minutes to prep the tissue, then I will go into my manual therapy treatments, I'll do indirect, direct compression, I'll do schema compression, I'll do ART, whatever I need to do, I'll do that. Then I'll typically take a break in between, then I'll go back to either the tool or the gun, and I'll come through the tissues again. Then I may go back to manual therapy, I might go into a lengthening technique by stretching the myofascia, the tissues, then I'll go into activation, okay? So I always inhibit, lengthen, activate and integrate. Okay, it's kind of the NASM, National Academy of Sports Medicine.

That's how I kind of follow it. So I kind of use things interchangeably. I never stick to one tool myself, and I never use one manufacturer. All the tools work differently so I have different ones from there. Okay, thanks, Andrew. Pamela question, can you go over test number six question? Sure. What are the four therapeutic benefits of IASTM? Well, the big one is gonna be number B, improved range of motion, pain modulation, improved field performance, and obviously mobility on movement-based tests, okay? That's the big one, okay?

Movement-based tests. So, would you educate the patient first about the treatment and educate them on the indications and contraindications? That's what when that's asking, yes. I always try to disclose in a general way of saying, hey, look, I'm gonna use this tool on you. It can cause redness, it can cause some discomfort. But if you're okay with it, we're gonna try it and I give them that. But I don't go through every single thing, because with the indications and contraindications, I've already screened them for that. So if they have a heart condition or if they have osteoporosis or whatever, I'm just gonna really relate to that only to their condition, okay? 'Cause I don't wanna scare

them listen to what I'm saying, you could have this, you could have that. So I try to be as open as possible, but not scare them with a bunch of medical terms, okay? So I try to find the balance. So far so good. But again, Lynette it's a good question. Most of the time, though, I start with manual therapy, I touch them that I want them to feel safe with me. Then I get into tools and rolling and stuff. So I always touch the patient first, okay? Get their consent, get their written consent, do my hands on manual therapy, then I work into tools and for some reason for my practice, it tends to help. I don't know it's not perfect, but so far, so good. So again, shoot me an email if you have any deeper questions.

And then well, Zashree, how are you? I'm from Indiana. I was treated by such a shaman, that's awesome. Yes, great results and we don't have litigation. Awesome, yes, that's why I showed that video. Because my friend is a super educated PhD, A,B,C,D really good buddy of mine from India, he studied all over and he's done every certification you can imagine. He goes to some of them, he goes to different ones. They have these magical powers, he loves them, exactly. So remember everybody who's still here listening.

There is a placebo effect, yes. There is a placebo effect and I think that's important to do, so yes, placebos great. Or they're doing something right that we don't know. Right, exactly, so awesome, be open minded. Thank you, my friend, appreciate it. Okay, next one, Naoko. Thank you for your time in this course, but most importantly, incorporating standing and standing at breaks, yes, we got to move. I'm so sick of sitting, I wanna get out more. I'm with you, yeah. Okay, thank you so much for the feedback. And again, you guys, thanks for attending. Thanks for taking a Friday. Please be safe and we are officially done with this. So I'm gonna leave it to Jessica and everyone else to close out. And again, you guys, thank you be safe. Please send me an email if you have any deeper questions. Thank you.

- [Jessica] All right, thank you everyone for attending today's e-learning course. And thank you so much, Dr. Cheatham for sharing your expertise with us, this is some great knowledge. This does conclude today's course. Please join us again for future courses on physicaltherapy.com. Make sure you like our Facebook page and follow us on Twitter for our latest courses. You can also see a list of upcoming live courses on the physicaltherapy.com website. And as Dr. Cheatham said part two will be next Friday. Everyone, enjoy the rest of your day.