FICS ICSC Taping

Martin Isaksson: My name is Martin Isaksson. It is a pleasure for me to have this presentation for you. So, what we will go through today is quite a lot of slides. We have about an hour and twenty, depending on how quickly we can go through this material. It will be a lot of talk about taping. However, I will also talk a lot about fascia and the skin and how we can work with them to literally help us tune the brain a little bit better the way we want to. Okay. So let us get on to it.

Firstly, I would like to let you know that I work for RockTape Scandinavia. I am a master instructor, so I do a lot of taping and a lot of other things like instrument recesses of tissue, capping, and a lot of other things as well. But you are not required to buy any of their different types of tape or anything else. It is important for me to let you know that I do work for them.

This is from one of our hands on seminars that I and team started doing in Norway 2020. I like the simple thing that Mark Twain put up "Education is the path from cocky ignorance to miserable uncertainty". I will take you through maybe a lot of uncertainty at times but hopefully, you will see that there is a red line following the whole presentation. Just read the words.

WATCH VIDEO:

I absolutely love these videos. They really talk a language and talk a story about how well the nervous system communicates. If we can harmonize or balance that nervous system even more, to help our athletes perform better, I am all for it. What we will go through today is kinesiology taping. Some ins and outs about that and research and so forth. Go through some biomechanical taping in terms of dynamic. I will quickly talk about the rigid taping at the end. This will give you a smaller overview of what we're going to talk about. There will be a lot of other things as well. But we will get to that.

I like to talk about kinesiology taping in terms of Kenzo Kase as well. He was the founder of kinesiology taping method in 1980 which is a long time ago. He did really amazingly considering that was early 80s. I think what we've done today, we have taken that concept and just expanded it. I do not think the Kenzo Kase himself really thought that was his grand idea was that so I think he would be pretty happy when he would have seen what's happened in these days as well. I do like to put up literally one of these slides to show some appreciation of what he did.

When did it start? It started in 2008 Olympics. Kerri Walsh obviously had it on her shoulder and from that point It is just been growing. We see today on our regular patients. We see it on the early population on our kids. We see it on a range of different people and I think that is why we start to see pretty cool research coming out from it as well. Now, "Does kinesiology tape really

work or do we just 'throw it out with the sweats'?" This was a systematic review that came out in 2015 and we will come back to this specific research article. I do like It is headline on, "Do we actually use it or do throw it out with the sweat?" So, let us come back to that.

Skin has been considered the largest organ of your body for a very long time. I would say, research start to shift maybe the idea here. So, is it really the largest organ of your body these days? I am going to let you be the judge of that, but I am going to leave this as a cliff-hanger a little bit and come back to it. We have a lot of different mechanoreceptors in the skin and that's why we called it skin intelligence. Our skin is the megaphone to give our brain's attention. Obviously, it is a two-way street so whatever happens in your skin will be a tentacle or some form of satellite for your brain and vice versa. We can have a lot of everything from chills or whatever in your feelings in your skin. When we think about something, it is the same way. It is going the opposite if I blow on top of my skin, I will feel it. The skin is very tactile stimulus to our brain, and they do come from the same neurological tissue. As you all know from your Embryology classes, you have the endoderm, mesoderm, and ectoderm. We all know that the ectoderm is where we have the skin is being made and the brain tissue.

Skin is having a key to your brain as a largest organ on your body or maybe not. This is how we prime in our system through the skin, and we like to use them. If the skin is a liver, let us try to use it and let us try to prime the brain. We do not touch muscles, specifically we do touch the skin. If we dive a little bit deeper into this, what we will see is a lot of mechanoreceptors as you can see here. We have the epidermis and the dermis layer and the hypodermis layers. Then we have the mechanoreceptors coming in everything from your Ruffini to Merkel discs to also our hair follicles. Now, the sense of touch what we talked about is tactile pain, temperature, pressure, vibration, proprioception, interception.

I think everyone has heard about the first six. The interoception, however, I think is something that might be new to some people. If we talk about hair follicles: Why is that important? The reason why it is important is because it has a low-threshold mechanoreceptor in your arms which is really interesting. When I learned how to use kinesiology taping, it was always to talk about to make sure that the skin is always dry and clean. But we also talked about that you should shave it first. Now, the recent years that has shifted. We talked about today, making sure that you have a couple of millimetres of stab in that case, if you have hair skin. Do not use a razor, instead use a trimmer. So you keep some of those low-threshold mechanoreceptors which is in the hair follicle. That will only add to what you are already doing with the tape. If I can add to whatever I am doing to some form of tissue to be a sensory part to the brain, I am all for it as I said before. Do keep it. Do not shave it, use a trimmer.

So what are we dealing with? Obviously, software. We are not dealing with hardware here. We are dealing with software, we are dealing with the sensation to the brain. Fun fact, there is 72.4

kilometres of peripheral nerve in human body. So that is every cubic centimetre of skin organ has a nerve or portion thereof, supplying it, embedded into it. This came from Diane Jacobs at dermoneuromodulation.com. Really interesting website and quite an interesting way of thinking through how to work with pain. She works a lot with people with chronic pain and so forth. If you have couple of minutes to spare, do check out her webpage.

The satellite systems will help us to visual the vestibular and proprioception. Now, we do want to have something more to that to help our brain even better and that would be the exteroceptive and the interoceptive mechanoreceptors. If we look at proprioception, everyone should know of proprioception. It is the kinesthetics sense that enables us to sense the relative position of the parts of the body, so we have learned about posture balance, and motion and so forth. Exteroception pertains to the stimuli that originates outside the body. That would be, if we have something that is very hot or something that pushes pressure unto us or something similar. However, interoception is more defined as sensitivity to stimuli originating inside of the body.

We talked about free nerve endings. We talked about literally the fascia here that is located in blood vessels, organs, and connective tissue and so forth. Interoception is where we have our most of our fascia layers. Do we have it in the proprioceptive part as well? Yes, we do because it is close and we talked about Epimysium, so there are different layers of fascia but most of our mechanoreceptors in terms of the interoceptors are fascial in derivation[?]. What is mechanoreception? We know the connective tissue and fascia are highly innervated. The fascia network possesses approximately 10 times the sensory receptors as compared to its muscular counterpart. We know that these are Golgi, Ruffini, Pacinian, free nerve ends and so forth.

Fascia is considered more of a perceptual organ than a mechanical organ. Think about that. Think about how smart the body is and what it can do when we think about the word perceptual organ. Let me lieu you with that a little bit so that you can think about that because it is important when we go on a deeper dive into what fascia does. I just put the slide up to inform you about where do we find the different mechanoreceptors in the skin? Meissner [inaudible] Pacinian, Ruffini, Merkel, and free nerve ending are found in different places. However, they are also very different as mechanoreceptor. Some of them are slow adapting. Some of them are fast adapting, some of them refers more of a vibration type of receptor while others are more of a, if you think about grabbing a tool in your hand and you have an even pressure on the tool the whole way, so that's why you have a different mechanoreceptors will provide different stimuli to the brain which helps the brain to control it better.

I could probably talk a few hours about all these different mechanoreceptors in the skin and how they work. However, I am going to let you guys to do that on your own spare time. I do find it important so do go through it. Take the time to really think about what we do and what do we

want to do. The effects and benefits of kinesiology tapes specifically is pain mitigation, decompression, and neurosensory input. We are going to go through all 3 of those. Our relationship with pain is obviously complicated. Pain science has taught us that for a long time now. The old way of thinking from textbooks and some stuff that we have gone through in our school, in our college, the inhibitory interneuron, nociceptor fibers, and by an alpha-motor neuron and that inhibits the nociceptive inputs and that goes up to the brain and we feel less pain.

The Pain Gate Theory is a simplified into slow and fast. Slow fibers, C fibers which is the pain fibers are slow for the reason that they do not have myelin in it. Then we have the fast myelinated fibers and the Aβ neurons which comes from our muscles and tendons and so forth. They are fast acting and are really fast. By then increasing the input of the Aβ motor neuron fibers, we can then decrease the pain to the brain. That is how they thought what the mechanism was. Gray Cook's "Are you moving poorly because you are in pain, or are you in pain because you are moving poorly?" Pretty good talk, I reckon, I think I could talk about that for a very long time because there are so many things you can think about when you read that quote.

To lead from that, pain is an opinion of the brain. So, what do I mean with that? Depending on if you have an environment or a tissue that hurts, your brain will think about or scrutinize that into "Okay, am I sensing pain or am I sensing something that is completely normal?" Pain only lives in the brain. I think, we can all agree with that. However, how people see pain is very different. Some people feel pain very differently than others and that has something to do with our physiology and that has something to do with our behavior or the things that we have done before. The brain always looks for "Has this happened before? How did I feel? What happened?" and so forth. An easy way to think about this is, say when you were small, and you ran and then you fell or did something and you were crying and your mom came and she was just telling you that "It is alright, let me look at it. Maybe I can blow some or kiss it better." When she did that, you felt better. So that is such a beautiful way of explaining that pain only lives in the brain. If we can change how we feel about pain, then we can change the pain perception as well.

That's why I am saying that pain size has really changed the way we think about pain these days. It is a paradigm shift fueled by pain science. And we all know that the insula, which is in the limbic system, far in the brain is the judge of pain. So, it has a lot of other things, but it is connected to everything. So, the insula and the limbic system, where we have a lot of emotions, are literally connected to every part of the brain. That is why it can judge as well. Now, the interoceptive pathway, all the way from the C fibers for those people that are really interested in the physiology of this, you have the free nerve endings, the lamina, the prebrachial nucleus, the thalamus, and the insula. So, all the way up.

Lorimer Moseley, if you have not read any of his studies, or if you have come across him before,

really interesting. I highly recommend his stuff and if your get a chance to maybe YouTube him and stuff like that, you will find an incredibly interesting. He said, "To reduce pain, we need to reduce credible evidence of danger and increase credible evidence of safety." I do not think this can be said enough. If we want to help athletes and we want to help them to get better, we really must increase credible evidence of safety and make sure that they feel comfortable and okay with what we are doing. That would produce so much better results for you in your practice or with athletes on events or whatever you are doing. So, do think about that as often as you can.

Melzack more recently developed a more of a model of inputs and outputs. We can see the input is cognitive, emotion, and sensory. Output is pain, motor, stress, or emotion. In terms of sensory, if I can change any form of sensory, I can also change the output in pain or if emotion is triggered by something, that could also trigger an output as pain or some form of stress or anything else. Input is quite important that we start thinking about "Okay, what we can put in that's going to help our athletes in terms of sensory? Can I put it something like tape? Can I put tape on someone and decrease their stress or decrease their motor output or do I decrease their pain? Emotionally, do they feel safe in the care we are providing? In cognitive, how are they thinking?" We all know athletes can have a stressful mind and do think a lot about things that have not really happened. So, can we change that? Can we blend that into our work with them and talk about things that help them do better in that section?

Consider the whole human. The biopsychosocial model of pain or biopsychosocial model of care, I think, is a beautiful way of thinking when we are dealing with our patients and/or athletes. Psychology is important. The social aspects are very important. We all know that if we are very open and happy and like working or being there, we're going to have better results. We have all met those people if their medical doctors or whoever they are, they can have a very crappy attitude and we all know how we feel. It is very important what we bring into the conversation, what we bring into the treatment room with the athletes or the patients. Their bio will make some sense to us if they have biomechanical issues or anything else that we need to look at.

Evidence informed, I like to think of evidence as a research and patient considerations, healthcare environments, and clinical judgements. In my opinion, that is informed practice. That is way of thinking to be guided by science but not necessarily shackled by it. There are a lot of things that we have evidence for but there are also things that we do not yet. That does not mean that you cannot do it, that just means that we need to research that and eventually someone will put a hand up unto it. It is an important way of thinking at least.

WATCH VIDEO: Voice over: Pain perception in the human brain. Part of the survival value of pain is its association with learning centers in the brain. The brain circuitry associated with nociceptive and neuropathic pain involves areas consider to be essential in emotional learning, memory, and reward. The insula and anterior cingulate, together with the thalamus and basal

ganglia are most consistently activated in acute pain. The brain stem and the descending pain modulatory system also play a role, where activity is observed involved the anticipation and perception of pain. Clinical chronic pain causes increased activation of prefrontal cortical regions which implies that chronic pain disturbs the cognitive and emotional perception and processing of everyday experiences.

Hypervigilance and an impaired ability to extinguish aversive associations of fearful or painful events seems to involve interaction among medial prefrontal cortex, basal ganglia and amygdala which is consistent with clinical data indicating that chronic pain patients usually suffer from elevated anxiety, depression, and decreased quality of life. These observations demonstrate that the brain in healthy subjects is distinct from those with chronic pain indicating that chronic pain is at least partly a neuro degenerative disease.

Martin: Awesome video. How do we think when we come to the part of chronic pain? Most of us and I will put up my hand to this as well, when I started to practice and work a lot with patients with chronic pain, I thought it was to restore normal motion to whatever that was. If I restore the normal motion, that will feel better. Lo and behold, they did not. Many of those patients were not getting better. So, that was something I was quite interested to know why that is, and that led me to Lorimer Moseley in the first place. But if we want to think about nociception in terms of chronic, we got to stop thinking about just like what this article said. The shift is to stop trying to restore normal motor control in case of chronic nociception in patients with musculoskeletal disorders. The trick here is to start working with their pain and let the pain be your guide. What do I mean with that? That means if I can do the least amount of things to literally get them feel less of pain without trying to restore every single joint in the body to normal function, you've done something amazingly good for them.

Just as what this article is stating it. Let us try to work with nociception interactions instead and shift that and work with Okay, I can maybe do some light force technique. Maybe if you can adjust them just one segment. Leave it at that. Do not try to do too much because that is just going to make them a lot worse. Think differently when you work with patients with chronic nociception or just the normal guy that comes in with an acute trauma or disc or whatever that is. Chronic nociception is different so let us start treating it that way.

Here we come back to the article I have in the beginning. Now, this systemic view with meta-analysis focus on pain and also methods of taping applications. The conclusion of this was that KT is superior to minimal intervention for pain relief. KT as an adjunct is beneficial to pain relief. That is interesting. What we could see is that research is telling us that when we use it without other intervention, KT is good. However, KT should be used as an adjunct for treatment. I think most of us would use tape as an adjunct, not necessarily the only thing we do, and we could do even better if we use significant improvement when combining tape with corrective exercises.

So that is another great thing you can add on to whatever you are already doing in terms of exercises or rehab programs for your patients.

Subacromial impingement has been on discussion for a long time but what we could see there was that KT as good as steroid injection plus exercise for subacromial impingement at both 1 and 3 month follow up. I think that says it all, really. If we can just use tape and exercises instead of using that nasty steroid injection, I put my hand up, I am all for that every time. It is such an easy way to work with so please keep that in mind. Where we going to see most the benefits of kinesiology tape or most tapes are with the compromised population. If we are just looking at people who are already feeling great and doing great, putting tape on those people, will we see huge improvements and see huge differences? I do not think so.

Do I think that if we take a compromised population and do the same thing? Yes, I do think so. Just as this research report concluded as well where they could see that the application of KT is effective in improving both the isokinetic quadriceps torque and reducing pain in knee osteoarthritis. I think that is pretty cool. We talked about decompression and taping. You have all seen this and some people do look for this convolution in the tape and said that is what you need. Research has shown us that that is actually not what you need. It does not matter if you have convolutions or not. However, what they signify is that when you put the tape on the body, you create something that we call a lift. So, you lift the skin towards the surface.

If we want to learn a little bit more: how does it look like? We have the skin, we have the adipose tissue, the superficial adipose tissue, the superficial fascia, the deep adipose tissue, and then the multilayer structure of the deep fascia and then you have the loose connective tissue in the bottom and then the muscle. Let us go through and look at what are these things a little bit more. This is important. RCS and RCP, Retinaculum Cutaneous Superficialis, you see on the left side, and RCP, Retinaculum Cutaneous Profundus. Why is that important? If you want to understand why the skin is connected to the fascia layers, there you have it. This is what we call skin ligaments. They are extremely important. They will provide a framework for the fascia to connect between the fascia layers all the way up to the skin. If we do something to the skin, then that means we can manipulate the tissues underneath. That is the cool idea about it.

I am sure you have seen an ultrasound before so let us have a small tutorial before we go further. Now, that is the skin. The superficial fascia is that white line you can see all the way through. You have the deep fascia which is that white line and then down there, we have the muscle. Let us look at this, on the left-hand side, we have the VML, that is without tape. You can see, if I put my pointer here, you can see that those two layers, you cannot even see the difference between the superficial fascia and the deep fascia. It is like they are one single layer. So here is the adipose tissue, that is why It is darker. Then you have the skin on the top here. What we see here on the opposite side is that we see the skin and it is a little bit wider, and that is because we have the

tape on. You can see the superficial fascia is right there, and the deep fascia is right there, and here is the muscle.

So, look at this again. It moves like a solid block, and you can see quite a lot of movement in the muscle as well. The muscle moves quite a lot, and the skin moves quite a lot as well. Now, if we go over to this side. There we go. Here we can see the differences in the fascia. You see that? We do not have so much movement up here anymore. We can really see the differences. What we're trying to do here is we're trying to get the deep fascia which is there, and the superficial to actually move in between. We want to have movement between those fascia layers. That will create a better optimized signal for the brain because we want the brain to feel. We want the brain to know what we are doing. We want the brain to know proprioception and what is going on. So that is pretty cool. We can see it if we put tape on.

So here we have an untreated ITB on the left hand corner or left hand picture. Then in the middle, we see we have done some fascia release, and what we call a fascia release in this case, it is just some instrumented assisted soft tissue therapy. Then you can see on the right-hand corner or right-hand picture, we have a rock tape or a tape on the top. So, the differences here is there is the deep fascia layer, there is the superficial. We can see it starts to come loose a little bit here. But those two are hugely different. Here we can see It is just one single layer. We know through research, and this is why It is so important that if you increase the space between the fascia layers, you actually decrease pain in edema. For instance, of the soft tissue trauma, it was a histologically shown that KT increases epidermal distance and may reduce the sensation of pain in the main inflammation, that I think is pretty cool. That is why we use the tape in terms of pain.

If you increase the subacromial space, the KT obviously increases the AAP in healthy individuals immediately following application compared with Sham tape. So, AHD is acromiohumeral distance, so everyone knows what that means. Here is what they did, so you can see the tape job is very simple. You go from the anterior part of the shoulder model, chest muscle pectorals, and then you just follow the shoulder back and put it or lay down flat over the back of this shoulder blade, and that is literally what they did. Then they took an ultrasound to see if there was a difference. That was pre-tape, and then right picture post-tape. I would say that is pretty significant.

Which leads us into neurosensory. But I would say this is my favorite part with kinesio tape. If I can change something or if I can create something additional for the brain, in terms of movement or in terms of function, I am all for it. This particular tape job I used on an athlete not too long ago, he plays on the higher soccer league in Norway. He came back to Sweden for a visit. This is obviously before the pandemic anyway. He had issues with chronic instability of his ankle. Now I tried a few things and obviously he had been with a physio and done rehab exercises for years.

It helps a little bit but he never gets the feeling that he can actually trust the ankle. What I did well, I thought to myself, we have got to increase the proprioception and we got to increase the sensory components of the brain here. Whatever we can do with that ankle, the better he will be off. So did I adjust it, yes, sure I did. But did that change anything for him when he started working here? No, it did not. Did he have issues in his ankle? Yes, he did.

However, once I put the tape on, and specifically this tape job, and I tried a few different ones before this one, everything else did not make him feel different. This one however, got him 100% better. He could literally jump up and down in my gym room with no pain. He was thrilled. This is all I did. It kind of blows me away sometimes how much it can do for an athlete. I mean, try different things, if one thing does not work in terms of taping, try a different way of doing it. We are all different. We are all wired a little bit differently. So different things can work for different people.

This also comes from www.dermoneuromodulation.com, we have the hindbrain, we can all see that back there, and we have the higher cortical function. Now we have a body around this and our nervous system. Whatever we do to that nervous system is either going through the hindbrain, before it gets to the higher cortical areas. Now, why is it important? Well, if the patient does not feel safety if the patient does not feel or athlete. It is a nice environment, and you are good enough to let them feel like they can trust you, that stress level they will have will activate that hindbrain and you will never get through to that higher cortical function, which means that whatever changes you see short term will not last. This is a brilliant way of thinking about what we can do. Everything is important. How we move, what we say, what we do. Keep this in mind, please. Yes, that is what we want to see.

Now, Hilton's Law 1863. That is a while ago. Does it hold true? Yes, it does. 2009, and you can read about it in PubMed. There was a researcher that took it on to see if it actually is correct. It still holds true. So why is this important? Well, if we think about it through muscle, skin, and joint, the same trunks of nerves whose branches supply the groups of muscles moving and joint also furnish a distribution of nerves to the skin over the insertion of the same muscles.

If we work with the skin, that means that we can literally think about the nervous system as being that trunk or branches and so forth, all the way down to the source. So do think about this Hilton's Law when you use the tape and that's kind of a nice little research article for you there. So go ahead and look that up on PubMed. Pleasantly surprised that was. Effects of tape on the brain. Yes, this was a fairly small study, only eight subjects, they looked at with their functional MRI. However, what they saw, I thought it was pretty cool. So just patellar taping on the brain activity during knee joint proprioceptive tests using functional MRI. We can all see on the left picture, that we see those red yellow areas and the right hemisphere we see, the right picture, we see the blue areas. Now the yellow and red areas is the areas that light up and become more

activated when we put tape on the patella and on the right-hand side, we see the blue areas which is actually decreased activity. Now why would that be?

Well they postulate in this research article that It is actually due to that if you put taping on the lower extremity, you will see a decrease of sensitivity in your upper extremity. That is the only way they or what they possibly thought was the case here. If that is correct or not, I do not think we know yet. But it is quite an interesting idea for sure. What they did was they used a simple application of taping or covering 50% of the skin over the knee, and that had effects on the brain associated with sensation, coordination, decision making, planning, complex coordination tasks, and coordination to the unconscious aspect of proprioception. I would say that is pretty cool. Now, is this being all end all? Oh, absolutely not. But it definitely makes it interesting for the future to see what can come out in terms of when you use tape and the effects on the brain.

Another research article showed that if you put kinesio tape on a patient's ankle, now look at this chronic ankle instability, what we could see was improved balance with chronic instability for 72 hours after removal. I find that quite interesting because some sports, it is impossible or not impossible, it is prohibited to put tape on different body parts due to rules in that sport. An easy way to get around that, obviously, is to put tape on and then use before they go out on this event or whatever it is, ring or so forth, you take it off.

We can still see a difference. We can still see something positive even though we have taken the tape off. Chronic pain is a cortical dysfunction. That is, we have seen both in the video before that I showed you. But we also can see it in terms of we talk about nonspecific low back pain. So chronic low back pain patients, we can see tactile thresholds are impaired compared to normal people without back pain. What they did was in this study, looked at both the vertical line and the horizontal line. So tactile acuity, and you probably seen these two-point discrimination tool so you can use and what they saw was that people with chronic pain were harder to feel when you go closer and closer if you have one or two.

You probably seen this, it is almost like two little spikes, and you push them into the lumbar spine, both in vertical and horizontal, and you mark how far or how close you can get between the two spikes before they send one or if they still feel to. We can see that there is a difference between normal population and people with chronic low back pain. If you improve the tactile acuity, you improve the body representation, which means decreased pain and improved control.

Whatever we do in that region, we can use tape, or we can use a lot of other things but taping specific, then we can definitely see also decreasing pain and improved control. Try it on your next patient you have walking in your room with chronic pain, put a piece of tape on, see what they feel, see if it is different. Sometimes you might be surprised of how much it can do.

In summary, we can talk about decompression and lift the skin and superficial fascia and the deep fascia and so forth. What it creates is neurosensory stimulation, it changes the neural input, and that has a positive effect on both reducing pain and increasing or changing movement. How do we move? We thought in the old days was if we contract the bicep, the only thing that moves is the biceps. Like we can go and train biceps in the gym, the only thing you will train when you those curls is your biceps. Well, we do know that is a car analogy of thinking and it does not hold true for anything, even though we talk about different perspectives here.

We do know that more and more in terms of research that we might have to look at the body as a whole and see that there is a lot of things happening without us knowing. Our current thinking in terms of anatomy, I would say is the anatomy trends, where everything is connected to the soul of the feet, connected all the way up through the lower back, the midback, the neck, and all the way across the eyebrow. Anatomy Trains by Tom Myers. Great book, in my opinion. It is a very easy read, and it is a nice read. Can we take a lot of things from them, Myofascial Meridians and so forth in manual therapy? Yes, I think we can. See, if you have not read it, I encourage you to do so. This is the superficial backline that Tom Myers has been able to show us. You can see, follow us all the way up through, from the soles of your feet, big toes, and all the way to the forehead.

Fascia layers, which is obviously what we talked about here. The fascia layers that connect everything and we can see it in almost every single tissue in your body. First cliff-hanger I left you with was the longest organ of your body is the skin. Is it now? Now if you look at this list of things, do we still think that the skin is the largest organ? I have come around and I think that we probably are all looking at the fascia as the absolute largest organ. The fascia has the ability to do so many things. We will get to a video later that will show you even more how intricate and amazing the fascial system is. Fascia has the ability to change its tonus autonomously, independent of outside muscular forces. Dr. Jochen Staubesand found that using electron photomicroscopy, smooth muscle-like cells embedded within the fascia's collagen fibres aka myofibroblast. Staubesand also found a rich interfascial supply of sympathetic nervous tissue and sensory nerve endings. Now based on these findings, he concluded that it is likely that these fascial smooth muscle cells enable sympathetic nervous system to regulate a fascial pre-tension independent of muscular tonus. That is quite interesting, if we look at this video, let us see how cool fascia is.

WATCH VIDEO: Voice over: In order to make this new film easier to understand, we first need to review what the previous film strolling under the skin showed. It seems that the body consists of an inner architecture, a gathering of calendulas tissue in a novel continuous network, a web in multi micro fibrillar shapes, and in a pseudo fractal irregular organization, enclosing multi microvascular spaces from 10 to 100 microns in size. These structures not only participate in the

elaboration of form, but they also represent the framework of this form and play a major role in movement and gliding.

Ultrastructural studies have shown that this tissue is composed of these microfibrils that have a diameter of about 10 to 20 microns, and are made up predominantly of collagens type one and three. By intertwining, they determine the volume of the micro vacuole, which is filled with the glycosaminoglycan gel. By accumulation and superposition, these multi microvascular polyhedral patterns will build an elaborate form fibroblasts, in charge of maintenance fit perfectly into the structure and have similar dimensions ranging from 10 to 60 microns.

The adaptability of the space that is created is insured by the inner properties of the fibrils, the most important of which are attraction and retraction. But other properties also play a role such as the mobility of the fibers along one another, involving a de-polymerization phenomenon, deformation and re-formation, a function not previously reported, as well as division, a phenomenon which enables an immediate dispersion and distribution of the forces on the tissue space. Thanks to these three movements, but there may be other properties, the micro-vacuole can therefore adapt to all mechanical solicitations in the three dimensions of space while keeping its volume. The movement of one of these structures influences the other, and by connection, maintains form and tissue integrity, dissipating from the slightest to the most violent forces. Leads to this multiple micro-vacuum structure, all the distortions are made possible in three dimensions. Our bodies, our forms can then be described using this mobile in an architecture, which introduces a real structural ontology.

The movement of the tendon which without any influence on nearby tissue, ensures an optimal, almost frictionless sliding movement, as well as simple gestures such as pinching or stretching the skin with the ability to slide back to its original position can be logically explained. But this global observation of living matter, based on a micro fibrillar and multi micro-vacuolar inner architecture has its anatomic limits. This limit is the skin, the border between me and others, between two worlds, the human form and the outside environment. One is susceptible to aging, the other timeless. The skin constitutes the boundary between these two worlds. So now let us go and discover the skin in order to learn what has become of all these fibrils that we've seen going towards the surface of the skin.

Martin:. Those videos, I do have permission to use them in my presentation, but they are all over YouTube. So good, my two beautiful videos about fascia, I absolutely love them. I think it is so cool how fascia can literally work around and taking all those muscular forces or any type of force and just redistributed that through the fascia to be able to create those pretty damn cool things. As you can hear, I love fascia, I could just go on forever to talk about it. We have different types of fascia. You will see that the fascia in the lumbar spine or in the truck along the fascia is different to the skeletal muscles, the [inaudible] that surrounds every single muscle. We also know that

the internal structure of fascia looks different depending on where it is in the body. Tension and integrity and so we have tense integrity, it is the structures to maintain the integrity due to the balance or continuous tensile forces through this structure. Now this is a perfect explanation of what actually fascia is. When you watched the video, and then you think about tense integrity, you can really see how AB is connected and how it works.

We talk about fascia as a sensory organ. Stecco, these slides are more densely populated mechanoreceptor stem tissues situated more internally. If you have not read any fascial stuff, please have a look at Stecco. The Stecco family has put out tons and tons of research articles in terms of fascia and there is even a pretty good fascial international group these days. If you Google that, you will come up with that as well. It is great to be a member of that as well if you want to read a lot of the research coming out. I think this next one is pretty interesting for us. Scar practice is now believed that joints only provide joint feedback when at end range on motor movements and not during physical motions. Isn't that interesting? They provide feedback at the end range. Now where we go to middle of that then the parent physiological space. Who is giving the brain information here? It could be interesting. But I will look that up.

Proposed timeline and mechanisms for fascial, adipose and muscle changes in the multifidus muscle after intervertebral disc lesion. I put this up because I want you to see how a lot of this is bound together in terms of fascial and how everything works. I am not going to go through this 100% now but I do want you to look at this picture and think about everything you see here and then take that in the back of your mind when you have a de-escalation patient or so forth.

It is quite cool how everything is bound together and how much of that is due to the fascial and adipose and muscle changes we see. We know the fascia, It is alive, it senses, it transmits force globally. What is also quite interesting I would say is that we have different fascial membranes. The depression membranes can be divided into the aponeurotic fascia, and the epimysial fascia.

So epimysial fascia surrounds the muscles itself. What I find interesting with the epimysial fascia is that it actually handles 30 to 40% of the muscular force. Very interesting, in my opinion. So previously, we thought of everything is by muscle, it is the muscle that takes everything with the tendon. Well, we got to look what sits outside the tendon here. What is the epimysial layer is made up of, and how do they work? I think that is quite important to consider, when you look at how the body works in terms of changing the way or working with the body to create changes in those muscle layers. Aponeurotic fascia is where we find a little bit more superficial to that. They can have two or three parallel layers. They are a little bit thicker than epimysial layers, well, what is important with them is that they have very well vascularized and have well developed lymphatic channels. So here is where we can see a lot of that, if they have inflammation or some acute injury, that is where we will find a lot of that swelling.

High lauric acid matrix, or Howard acid rich matrix is also what we find in those layers now. High lauric acid is almost a lecture on its own and I do encourage you, if you do not know how it works in the fascial layers, I do encourage you to look that up and be well familiarized of what happens and how it works. Because that could actually change the way you think in terms of using different modalities for treatment of certain athletes. I give you all these golden little nuggets for you to look up on your own time, because if I go through them now, I am not going to have time. So it is that simple. Now, I think you want to listen to me for the next three hours. So that is why. Schleip is very interesting. Robert, he has done a lot of work with fascia, and he is just putting out research article after research article. If you really want to learn a lot more about fascia, please look at his work.

Tissue manipulation. If we look at this turning wheel here, we can see that if we do any form of intervention, whether it is big fat on the left-hand side, and then we can see that the tissue manipulation, soft touch and sheer tape. Tape is what I am thinking about here. The arrow, here they go. Stimulation of mechanoreceptors is that when we get to the end, then we obviously have the interstitial receptors and Ruffini's endings, the autonomic nervous system changes, the brain changes. The inter-fascial smooth muscles, so here is where we get that myofibroblasts change, and we get that palpable tissue response.

We have all gone through this with people when we work on them. We can see or we can feel in those tissues what happens. It is just to create an understanding of what actually happens when you do any form of intervention and what happens on the global and also their local blank. Reflective activation. What we talked about is if you touch or you tape or you do something that stimulates receptors, which stimulates brain, which in turn stimulates those myofibroblasts and what we see is that palpable tissue response. Now, does direction of tape matter? No, it does not. We can tape it from organ to insertion or the opposite or whatever you want to do, is it going to change anything? No. So to make it clear, stop talking about it because it has been so well researched now. We do not see there is a difference. Do we see any if we apply direction in terms of muscle strength or flexibility? No.

According to this study, and multiple others, there is no evidence to support directional taping at all. Facilitatory or inhibitory effects of kinesiology tape, do that exist? Have not been able to provide any evidence so far that we can say that, and nor do I think we do. Because the body will do what the body will do. If we will facilitate on inhibit, I do not think we can say either, because we can only stimulate the brain. Whatever happens in the brain, happens in the brain. That is going to be different from person to person. Effects of kinesio tape application direction on quadriceps strength. Now, regardless of application direction, there was a significant difference in quadriceps peak torque before and after kinesiology tape application. Do we have any effect on that? No, we do not. Does the amount of stretch of the tape matter? No. So I will say the only

thing you ever going to create if you stretch the tape is blisters and problems with skin irritation. If you instead work with the tissues and stretch the tissues instead, instead of the tape and just lay down tape, you will get a lot of better results. First, you will not get any issues with their skin unless they have an allergy. That is what actually has some research behind it. Does stretch have any research behind it? No, we have not seen any.

So MED, Minimally Effective Dose. The smallest dose that will produce a desired outcome. It is important to think of less is more. That goes for everything in my opinion but taping as well. Start taping small amounts and see if you can change anything. Do not take their whole body. Do not cover everything. Start with some stuff and see what happens. So kinesthetic guidance translates to behavior 30 times faster and then visual guidance and many thousands of times faster than auditory guidance. This was published back in 1971. If I can put a slice of tape on someone and I actually get kinesthetic guidance better, then I am on, sign me up. Let us look at this video.

WATCH VIDEO: Voice over: Not so long ago, many scientists believe that the brain did not change after childhood, that it was hard-wired and fixed by the time we became adults. But recent advances in only the last decade now tell us that this is simply not true. The brain can and thus change throughout our lives. It is adaptable like plastic, hence neuroscientists call this neuroplasticity. How does neuroplasticity work? If you think of your brain as a dynamic, connected power grid, there are billions of pathways or roads lighting up every time you think, feel, or do something. Some of these roads are well-traveled. These are our habits, our established ways of thinking, feeling, and doing. Every time we think in a certain way, practice a particular task, or feel a specific emotion, we strengthen this road. It becomes easier for our brains to travel this pathway.

Say, we think about something differently, learn a new task, or choose a different emotion, we start carving out a new road. If we keep traveling that road, our brains begin to use this pathway more and this new way of thinking, feeling, or doing becomes second nature. The old pathway gets used less and less and weakens. This process of rewiring your brain by forming new connections and weakening old ones is neuroplasticity in action. The good news is that we all have the ability to learn and change by rewiring our brains. If you had ever changed a bad habit or thought about something differently, you have carved a new pathway in your brain and experienced neuroplasticity first-hand. With repeated and directed attention towards your desired change, you can rewire your brain.

Martin: Principles on neuroplasticity. Repetition helps drive home the information in the long-term memory. Now, we love repetition as humans. Adaptation occurs according to the stress that is applied repeatedly. Now, if we want to change something and we want the change to be measured and we also want to have change that will last, well, why do not use tape? If we can get that message to the brain constantly because that is what It is trying to do, by working on all

those mechanoreceptors on the fascia and so forth. If we can drive home that message to the brain, so the brain can help change itself, that makes a huge difference for that athlete or that person.

I do not think that holds true for only kinesiology taping, I think that holds true for most tape. Regardless of if you use biomechanical tape like Dynamic or use kinesiology tape or even rigid tape to some degree. But what we're trying to do with kinesiology tape is trying to get that hand to become clearer. Putting a piece of tape on will help the brain to function better in terms of knowing where that hand is in space, by working on those mechanoreceptors.

Gray Cook and Mike Boyle came up with Joint-by-Joint Approach. If you have not looked that up before, I think It is quite interesting to look at, where it goes through different parts of the body as mobility and stability. Between two mobility joints, we obviously need some form of stability. If you are looking at, for instance, in this case, take the ankle as a mobile joint, if it is hypermobile, could that be due to something as simple as lacking in the stability of the knee? Yes, it can. Do I always look at the knee when I have ankle instability? Of course, I do. Do I say that it always is the knee? No, I do not. But those instability portions, I can say, for instance, that I have seen very positive surprises by using the tape on those specific spots. That could be one way of thinking about it.

There are contraindications which you can read on your own. I do not have to go through it. The biggest thing is adhesive allergies. That is the biggest thing I talked about most of the time. Caution, if there is a history of past skin irritation, and you can do a test patch if that is the case. Some tape manufacturers can do really well in terms of having an adhesive that doesn't seem to irritate the skin and some do not. Sometimes, you just have to play around a little bit and see what works. Kinesiology tape or I would say every form of tape we have used is not protocol-based. Not the way we teach and fix, and not the way I have ever taught in RockTape. It is more the fact that it is a framework, and you rule the tool. Whatever you want to do, you have a couple of things you can train yourself to, but how you want to play it is completely up to you. So let us go into Dynamic Tape. Let us see what Ryan has to say about it.

WATCH VIDEO - Ryan Kendrick: Hi. My name is Ryan Kendrick. I am the developer of Dynamic Tape. At Dynamic Tape, we never really set out to start a tape company. We were just looking for solutions for our athletes and our patients, clinically. We recognized that load was a key driver in a lot of our patient's problems. Be it tendinopathies, muscle tears, and those sorts of things. Also, loading was really critical in their recovery. But we also, at the same time, recognize that a lot of normal activity was too much load for them. Unloading completely also results in fairly lengthy recoveries and was certainly not the popular option with our athletes to cease their activities. At the same time, we had our neurological patients, where their function was really

heavily impacted by the load. It might have just been the load of gravity acting on their foot, that they had a foot-drop and weakness and they were catching their toe and had an increased risk of falling and those sorts of things. We were looking for something that we could put on the body externally to do some of the work to either take the load off or to overcome gravity or to increase stability by creating some compression, and we really could not find anything out there to do the job. We did not want to lock up the movement like a lot of existing tapes do. Movement is our friend, particularly when it comes to dissipating load. We dissipate load primarily through movement, but also very important for our balance, strategies, and those sorts of things that we're taping the lower limb, foot, ankle, and so on. We needed to preserve that as well.

What we came up with was a very strong elastic type that stretches very well in all directions so we do not lock anything up. But it has this very strong resistance and strong recoil that it acts likes a spring or bungee cord or if you like an external muscle to do some of the work. It is very much like what we use in our hand therapy without dynamic splints, where we have a big rubber band that we can resist against it with our intact muscle, and then it springs back to protect our operated muscle or tendon, for example. That is where the name came from, dynamic splint, this was a dynamic tape. Similar to a splint, but we could apply it anywhere on the body. That is how it developed, and it is been quickly adopted into all areas of manual therapy, physiotherapy, chiropractic, osteopathy, podiatry, etc. Because of that ability to manage load while maintaining function.

Martin: Ryan says tissues do not fail because of pain, they fail because of load, and I could not agree more. Load is obviously the driver of pathology such as tendinopathy. Load is obviously also necessary for recovery. It is an interesting play between those two. Dynamic Tape is used to reduce the load and to allow some of that functional stress to be applied without overloading an already sensitized tendon. That is why I tend to use Dynamic Tape a lot when it comes to tendon problems or issues with loading that the patients or athletes have issues with. Jill Cook and Purdam 2009 came out with a critical research article that I encourage everyone to read if you have not. When they look just on load and force transfer, and you can see the normal tendon in the middle there. You have the stress, something happens, increase or excessive load and it has become reactive and then reactive tendinopathy. If you appropriately modify that load, what will happen is that you will obviously optimize the load better, and the tissue will adapt in terms of the tendon will adapt, and then it will strengthen and that becomes a normal tendon.

It all works really well. However, if you do not do what you need to do in terms of appropriately modifying that load, well, what might actually happen is that then you will see a next level instead, and that is tendon dysrepair. Now, when it comes down to that, it becomes a little bit more tricky to work with. Tricky to treat and tricky to get better quicker, and now we are talking about a long-term problem. Once it gets down to degenerative, there is nothing to do. Research has shown this a few times, or all times, I have not read of any that has come back from

degenerative tendinopathy. It is very important to take it seriously and to look at it. If you did hear Jill Cook talk in the symposium, the fix had a few months ago, an excellent discussion about her thirty years of research of tendinopathy. As she said herself, that a lot of people think they can feel or they can take an MRI and say, "Well, this is what you have, and this is how it is," and she literally said that is impossible. You cannot feel which part or where they are in the cycle and you clearly can't take an MRI to even show that there's a reactive tendon or anything else. It is done by clinical knowledge and making sure that you appropriately modify that load.

Obviously, different sports will have different problems here, and how you need to work with them to modify that load that they are feeling. Modifying it would obviously entail the training and competition schedule, the equipment they are using, the environment they are in, biomechanics, and kinetics. Limitations of the traditional approaches with respect to load and function. If we talk about now, rigid tape, for instance, there is a restriction of range of motion. Reduced capacity to dissipate load through movement, we all know that tape does not last very long, and they can't take much of that force anyway. Possible adverse effects on balance. Limited or no deceleration through range. That is, in my opinion, a huge issue. Limited capacity to functionally assist, well, there is no functional assist. Tape fatigue, it takes twenty minutes. Twenty minutes is what they can gain some help from in terms of rigid tape. That's important to consider when you put white support tape on, regardless of if it is Johnson and Johnson or which other brand it is. Twenty minutes.

Fundamentals of taping mechanically. If you use biomechanical tape, there are three critical factors that have to be met in order to affect the mechanisms of motion. First is you need to cross a joint or multiple joints. Secondly, you need to apply it in a shortened position. Remember, when I say shortened, I do not say fully shortened, I do not say loose either, we will get to that point on what that means later on, and we will back it up with some research. Get good purchase on the levers. Now, that doesn't mean that you should pull the tape with everything you got, but it means that you need to have a small pull on the tape to get the effect you are after. Because the greater the force of the load that goes through that tape, the better it will help you to sustain that load. Modifying load or movement with tape, unaccustomed load; acute overload; permit early functional loading and reduce compensation strategies, very, very important, if you want to get that reactive tendon back to normal; permit optimal tissue healing, obviously also very important; functional impairment or techniques, depending on who you are talking to or how they look like. Like the gentlemen on to your right there, his arm is a bit different from the other arms you might have seen in your practice. Now, how will you tape that? You got to stop thinking about what you are after and what you want to do. The mechanisms, if we look at some research that is done on Dynamic Tape so far, there's not overly much yet. There are being done a fair bit though, and we can see that if you look at EMG activity, we can see that statistical analysis shows the increase in EMG activity was statistically significant and not coincidental. What happens is we do gain response with the force contribution or in the EMG activity if we use Dynamic Tape.

The effects of Dynamic Tape on DOMS. It is an interesting study, you can all read about as well. But in conclusion, the clinical markers associated with DOMS can be seen to have been reduced through the application of Dynamic Tape. What they did was measured the PPTs, range of motion, and muscle girth. There we see what I just talked about. All right, let us see what we have talked about.

WATCH VIDEO Brian: We often hear that because the tape attaches to the skin that it cannot possibly affect mechanics. Really, what we are talking about here is kinetics quite often. Can we introduce a force that crosses the joint, that changes the joint movement there, and in doing so, reduce the required workload of the structures that would normally create that force? Or maybe by introducing a force, we can actually change things like position, so change our kinematics, our movement, our position, and in doing so, once again, that can also have an effect on our kinetics by changing lever arms, either of things like the ground reaction force, or of the muscles that are acting upon that joint can change things like the axis of motion, for example, your subtalar joint axis and so on. This is just a quick demonstration, we are looking at the Achilles tendon or a calf-type application here, I just want to pay attention to a couple of things. First, have a look at the resting angle here when there is no tape in place. Also, have a look at the way the foot springs back and then the force that is required to take this through full dorsiflexion. You will see here, as we go down, that takes about 3.2 kilograms or 32 Newtons of force, and we see it spring back there.

If we go a little faster, we just reproduce that here, it is about 3 kilograms. Again, a little faster, we are only getting about 1.8 kilograms or 18 Newtons of force if we move at speed in that outer range. Again, there is 2.3. Now, with the tape on, let us have a look at our angle once again. We are now actually resting in full plantar flexion. Again, watch what happens now, as we come down, we already hit 3 kilograms, not even a plantar grade. If we keep going to the end of range, then it is well up, almost 9 kilograms, and you can see it springs straight back, and it springs back into that same resting position, full plantar flexion. If we go with a little speed, we can see that is about thirteen and a half kilograms. If we just do it in outer range with speed, we are still 7 kilograms, seven and a half kilograms of resistance, and we are not even reaching plantar grades, that is just in that outer range of motion. We will often use this technique for calf tears, for Achilles tendinopathy, particularly those reactive ones where we're trying to get an initial reduction load to allow them to settle down a little bit as we reintroduce the load in a way that they can handle it. It may be in transitions where we are increasing the amount of activity and there's potential for them to relax a little bit. Or it may be in those late-stage sorts of degenerative tendinopathy where they have lost their own intrinsic energy storage and release capacity within the tendon. We can tape them to give that to them, sort of externally, and they will say they feel like they have a bit of a spring back in their step once again. We may be able to maintain function, even though we are not directly going to reverse some of those more

permanent changes in the tendon itself. But as you can see there, you know, we are getting 5 up to 10 kilograms additional resistance to dorsiflexion. Every time that foot lands on the ground, the tape is absorbing or taking some of that load off the structures that would normally have to control that. If your athlete is a marathon runner or a jumper or volleyballer, then that can add up to a very significant amount of force throughout an event or throughout a training session, or throughout a season.

Martin: Another EMG study, they looked at the activity of the upper trapezius, pre and forty-eight hours after application of cervical offload PowerBand technique in a group of office workers. What they saw was, results showed a significant reduction in the EMG activity with the tape. Another one came out of Brazil where Dynamic Taping improved both pain and active range of motion in the subject with accessory nerve injury post lymphadenectomy. We do see small amounts of research coming out on biomechanical tape in terms of Dynamic which is nice to see. A lot of athletes are showing it more and more. A lot of athletes seeing the help it can actually do. Personally, I had a tennis player that came back to Sweden after being in the States for a few years with significant problems with his shoulder. I did such a simple little offload of that shoulder with Dynamic Tape. We taped her up for a couple of weeks and we did, some other soft tissue work and adjusting and so forth, and some corrective exercises. She went back to the States in January this year and she came second in the league. She is outdone herself in every possible way. It can really change a lot for a lot of people when you start using these things for the right reason. As you can see, there are a lot of different sports that you can start to see Dynamic Tape today. If you want to modify move or position, which is kinematics, you got to understand that kinematics describe the motion of objects, in the case of bones, without consideration of the forces or circumstances leading to that motion. Kinetics examines the forces on an object and potentially, the effect of this motion on the object. As certain kinematics have been associated with painful conditions and poor performance, we can target our technique to simply improve the movement patterns by pulling the body part on one way or another, by playing external force on modifying kinetics. You are gliding movements like Mulligan techniques and stuff like that into the position of ease correcting a deformity, or anything like that, we can use the Dynamic Tape for that. The aim may be to change the way they are loading on a particular structure, to improve function, permit better healing, to resist deformity. But a change in movement or position can have additional effects. We can use the technique with Dynamic Tape and have multiple layers to it. Emerging research on large hip joints is showing an effective change in magnitude velocity of movements with Dynamic Taping. There are coming out studies both in Australia and so forth are showing just this which I find quite interesting. I am looking forward in the future to see where that can bring us in terms of research in Dynamic Tape.

Does Dynamic Tape change the walking biomechanics of women with greater trochanteric pain syndrome? That was a double randomized control trial with a crossover. What we see is obviously, positive results on these people. A couple of interesting movement positions and how

much you will literally push the patient on, if you are going to resist or load up these joints and how painful those conditions can be unless they have worked on. Remember what I said before about taping them in a shortened position? Now, if you go too much, you actually force inefficiency and functionally weakens them. But if you stick around in the mid-range, in a resting or neutral position in the mid-range, you have a lot better positive change when you use Dynamic Tape. What we are trying to obviously do with the tape or can do with the tape is something that we call Force Closure. That will help when you use Dynamic Tape circumferentially. That will create the compression force, which may augment that force closure. As I said before, depending on which technique you use, you can do more than one thing at the same time. There is another interesting study that came out of Brazil, which you can read about in your own time. This nice little tape job is something that once you take the courses in the Dynamic Tape with us, when we go through taping in our class, which we will show you, I absolutely love this tape job. It is simple, it is effective, and you got that ankle covered, in my opinion.

Do I ever use rigid Y tape? Yes, I do. Is it rare or very seldom? Yes, it is. Please, think about the possibility to use Dynamic Tape in these situations as well. There are a lot of other things, which we will go through with you once we have the live sessions. We will go through how you work with the soft tissue offload and so forth as well, which is really handy and positive if you have patients with a lot of pain in terms of muscle strain and so forth. The aim is that we want to work with the load. That is our biggest thing here, to provide a strong mechanical compression. We help with or resist the deceleration or acceleration. Permit applications which augment stability or introduce accessory motions and rotation. There are a lot of good things we can use the tape for. Patients may not have pain and function may be limited by load. On the other hand, depending on the pain process involved, the pain may well be load-dependent in a way. Once you clear that load out of the picture, a lot of the pain disappears.

The same thing with the skin reactions to the tape. We need to be vigilant about this and ask about allergic reactions. Skin reactions are obviously the same thing as kinesiology tape. You can have mechanical irritation and that is when we see when you pull the tape a little bit too much. It is good with a pull. But if you do too much, you will see mechanical irritation. As I say to all my patients, regardless of what type of taping I use, if you experience any itching, burning, stinging, irritation, or similar, take off the tape, just remove it. If you want to reach out to Dynamic Tape out there. Now, rigid tape, I will just simply brush on this, we will go through in the live session how you tape an ankle and how you do things like that. But the same thing here, it is like what we do in the live sessions is built upon you understanding what and how you do it, obviously. But also, that there are things that you must think about in terms of contraindications in the skin irritation, it is that simple. Make sure you think about skin irritation, circulation, and nerve supply, those are the big things. For crying out loud, use the right scissors, or use the right equipment if you do not want to like the top picture there. Please, be mindful of how you work with the tape, how you take it off, and how you put it on. Obviously, check for a capillary refill

and so forth, we will go through that in the live sessions. Would you consider taping these injuries? I hope that with your previous understanding, and what you have done so far, is that you would consider maybe think twice about applying tape to these injuries. First of all, you want to make sure that it is not an injury that would sustain or create huge issues for the patients or athletes, think about that, please.

Obviously, you can see in the very picture that we have a dislocated finger. The second one down there, we might have a fracture because of the swelling and so forth. It is important, can we still tape once they are cleared? Obviously, when they are cleared if there is nothing there, yes, we can. Do I put tape on this before? I have sent them off or if I have made sure that you have checked it properly with the medic or X-ray and so forth, so, just think about that. When you understand the technique, you know a technique. But when you understand a concept, you know a thousand techniques. This guy knows a few things, "Education is not the learning of facts, but the training of the mind to think."

I hope after this lecture, you have understood there are a lot of extra layers to everything we do and everything we have seen so far. Not to say that what you know already is not useful. What I am saying is take what you want from my lecture or my presentation but try to add on to what you already know and try to add on a little bit more of that fascial understanding and how much understanding of the fascia can change your practice. It changed my practice and my way of thinking. I mean, there is education or learning and knowing, it is not hard to bear or to walk around with. Please, stretch your mind as much as you can.

[END]