Academy of PHYSICAL MEDICINE

Transcript

Anatomy Trains and the Role of Fascia With James Earls

APM: Well, I'm in London this evening and our guest is a very experienced practitioner in the realm of myofascia. He trained as a psychologist originally but since 1991, he's been working with a variety of physical therapists including osteopaths, chiropractors and sports therapists, dealing largely with Anatomy Trains and fascia. He's a colleague of Tom Myers, the American who is the founder of the concept of Anatomy Trains and has co-authored a book with him, Fascial Trains and Structural —

JE: Fascial Release —

APM: Fascial Release, thank you.

JE: I had to think myself.

APM: And he's written his own book called Born to Walk, an excellent book about the relationship between the myofascia and gait and he is the director of anatomytrains.co.uk which is the British arm, if you like, of Tom Myers' business. We'll probably hear some more about that this evening because there's a lot of excellent training coming out of that organization but for now, welcome, James—

JE: Thank you very much.

APM: --to this evening's broadcast. I hope you're going to enjoy yourself here. I'm sure that we have a lot of people looking forward to hearing what you've got to say and I want to start off really with this business of Anatomy Trains which seems to have sprung to the fore in the last few years. I mean what the hell is an Anatomy Train?

JE: Anatomy Train, it was developed, as you mentioned, by a wonderful guy called Tom Myers and he was teaching for the Rolf Institute and he was the… like osteopaths, they teach a lot of fascial anatomy and he was trying to find a different way of encouraging people to learn and ingrain their anatomy and he remembered a game that one of his teachers used to play, saying, "Well, if I start at the mastoid process and if I am going to the medial malleolus, how can I get from here to there in as few muscles as possible?" So you would start with the sternocleidomastoid, the sternalis then rectus abdominis and then something and after awhile, he started to realize, "Well, actually, if we're looking at the connective tissue, the fascial tissues rather than just the individual muscles, there's going to…" There's a truth to that that actually, there is a continuity. So he started seeing that actually…well, if we look at the body in a different way, looking at connection rather than separation, that maybe there's a map that he could put together and just out of the experimentation on the plane that he was doing, he developed the idea of Anatomy Trains and developed the 12 lines that he's put forward in the book.

APM: Which we will talk about a little bit later on. So when we talk about trains, really, we're just talking about connective maps of tissues across the body.

JE: It's one line of continuity. So he uses the analogy…the idea _____0:02:44.7 the language of train systems to explain that. It's really just high…when we look at the fascicular direction, the line of pull of one muscle and think of the connection across the _____0:02:59.3 attachments, well, actually, that's leading then to create a line of pull that carries on into the next _____0:03:06.2 separate muscle _____0:03:08.1 different language, it's really the long chains of one muscle.

APM: And you said 12 Anatomy Trains, how would you…I mean where are those trains? Are they specific? Are they common to everybody and every individual?

JE: Most human anatomy _____0:03:28.7 similarity. So yes, _____0:03:31.3. Everyone with all four limbs are going to be a similarity with that.

APM: And are these what other people would call myofascial slings —

JE: Yes. So I think there's a strong overlap. The myofascial slings would be from _____0:03:45.1 the front and back myofascial sling, particularly looking at the latissimus dorsi, across the thoracolumbar fascia into the opposite glute and he calls that the posterior myofascial sling. We would call it maybe with a little bit difference _____0:04:04.0. So there are overlaps but then Thomas maybe just taken a little…the idea a little bit further.

APM: Maybe we can explore later just what those differences are and what…you're suggesting in what you've just said that Tom Myers has developed this to a

greater level of expertise or precision.

JE: A different level of expertise and just maybe a fuller body map. _____0:04:28.0 very detailed dissections and investigations and research to back up what he's looked at. Thomas has made it a little bit sort of bigger picture and maybe broader but without the depth of detail and investigation that _____0:04:45.8 has done. Certainly in terms of his publications, _____0:04:48.6 very productive.

APM: Fascia's really become quite popular, I would say, in the last 10 years or so or maybe I'm underestimating, though it just seems to me that it's really come to the fore in the last 10 years. Do you want to give us a little bit of revision on fascia? Why is it so important? What is it? What's it constitute of?

JE: Sure. The fascial tissue is what's holding us together essentially, not in isolation but in _____0:05:17.0 with the muscles. We have a few slides here that this is…if it's gone to the slide, this is the sternum, this is the pectoralis major on either side and the fascial tissues that this stuff…over the top of the muscle fiber. It's holding the muscle fiber together. It is the epimysium. It's the endomysium, all of the mysiums or fascial tissues and there's a lot of debate over how we define what is a fascial tissue and some are structural, some are functional definitions but basically, it's generally considered a connective tissue. It's the one that's holding the musculoskeletal system together.

APM: When you say it's holding the muscles together, obviously, the fascicles have their own outer covering which holds them together. Is this fascia holding what we would think of in a lovely anatomy textbook as being pectoralis major in a single compartment? So it's completely enveloping that muscle and you can define it from that bit of fascia.

JE: Yes.

APM: Because I have to say that one of things I've struggled with in dissection, I think a lot of people do is actually isolating those different muscles because it's quite hard to find the difference between pec major, pec minor —

JE: Absolutely. It is difficult to recreate those beautiful pictures that are in the anatomy books because this stuff gets in the way but all of those pictures are being created by getting this stuff out and that's been one of the historical problems and I think that's why fascial tissue has been becoming more popular perhaps in terms of people's education, desire to know more over the last 10 years because it had been ignored. One of our friends, Robert Schleip would talk about the fascial tissue being the Cinderella tissue of the body. It was the bit that was kind of stuck in the attic. It was cut out and thrown in the bin so that we could recreate the pictures of the anatomy books. So yes, you're

actually right, it holds pectoralis major together but as you say, it's not just pectoralis major. It's also carrying on over the sternum. It's adaptive. It's creating the tendon, you know. It's everything.

APM: And we were talking about dissections earlier on and one of the things that I think…we run dissections in the academy from time to time and primarily, we use animal models because we do have greater flexibility of what we do with animals and, you know, we don't have to go through the very necessary procedures of dealing with human dissections although we do those as well. One of the things about human dissections is that generally, the facia's missing because when you get a prosected body, they've taken it all away and so you miss all this and it's lovely to look inside particularly a young animal body and you can see this gleaming, perfect, pristine structure but when you take… presuming you've done some dissections yourself, I'm sure, when you take these apart, are you able to separate different layers of fascia so that, you know, the different Anatomy Trains…you were talking of myofascial slings and so on and so here's a pattern of fascia which is going left to right, here's the one that's going down _____0:08:11.9.

JE: Absolutely. So one of the _____0:08:15.3 with Anatomy Trains would be looking at the _____0:08:17.4. So you mentioned the _____0:08:20.1 back functional line, lats, thoracolumbar fascia, gluteus maximus. That can be taken off as one complete layer. That can be separated from the middle and obviously, the anterior layer of the thoracolumbar fascia. So it's quite separate from the erector spinae. So it's being able to see the different vectors of force that would be carried by the Anatomy Trains and being able to see just that ability to continue the transfer of force through the tissue. We need different layers to be able to communicate force through the body.

APM: I've not been able to distinguish that. I've never tried to distinguish that when I've done dissections or attended dissections in the past. So how do you identify…to me, it looks like a cling film wrapping around virtually the whole body. How do you identify the bit that is your particular line, your _____0:09:07.5 fascial line?

JE: So sometimes, it is having the picture before starting. It's, you were saying, about the difficulty of trying to identify _____0:09:17.3 pectoralis major. So it's having a…I talk a lot but, you know, my accent is originally from _____0:09:24.3 so I can speak about prejudice. We all have a prejudice. We all approach a dissection with a different prejudice with an idea of what we want to recreate. So pretty much, we approach the body with a prejudice of, "I'm looking for Anatomy Trains." So I can…it's easier to find it because we have the impression of where it should be —

APM: Are you seeing what you want to see or are you definitely able to identify the different structures?

JE: That is sometimes debated but I would say no, they are very definitely dissectable into these…there was a paper published recently by _____0:09:58.6 2015 where he'd…they had done a literature _____0:10:03.9 looking for the _____0:10:05.1. They'd done a literature _____0:10:06.9 looking at…I think it's about 6 ½ thousand different papers _____0:10:11.2 came down to 60 whenever they'd taken out the irrelevance and they found, "Oh, actually, there's strong support for most of the lines that had already been published," but mostly published by people who aren't looking for an Anatomy Train. They were just doing dissection for various other reasons. So they are almost given additional support by accident and _____0:10:35.0 one of them looking at, for example, the biceps femoris leading into the sacrotuberous ligament. Sacrotuberous ligament leads into the erector spinae. So that, for us, would be part of the Superficial Back Line. So they are definitely dissectable entities and realities.

APM: My concept, as I put it a moment ago, of cling film around the body, obviously, I could dissect that and I could carve it into strips of any shape I like. When you do this, in order to…presumably to call it a fascial line, Anatomy Train, the tissue within that piece of fascia is presumably orientated all in the same direction, along the line that you're saying before —

JE: Yes. So it's one of Tom's rules for Anatomy Trains. They have to keep going in the same direction and at the same depth. So it's almost…it's the rule of any train line. You can't turn a right angle on a track. You can't, you know…no one goes in over ground and comes out underground, you know. There's a continuity. So we're following certain rules that have to be adhered to and that's the same whenever, you know…even when carving chicken or leg of lamb, it's the same. If you get into that line of _____0:11:45.6, you can separate it out and keep on going, especially when you're doing quite fresh animal tissue. So mostly, that can be done with just a gloved hand, separating and _____0:11:59.4. So yes, whenever _____0:12:02.3 through the tissue in a certain direction then yeah, you can bring _____0:12:07.0 relatively easily and that also depends on what the person or the animal has actually been doing.

APM: So getting back to our revision then, just remind us, what's this stuff made of?

JE: So it's predominantly collagenous fiber. So there's a little picture there. So again, depends on the definition but it's _____0:12:30.4 from the back of the skin. You've got the areolar layer. That would be the superficial fascia. So we've got a layer that would be holding the adipose in this and then the fascia profunda's the next layer down. So the so called deep investing layer but actually, it's quite superficial. That's probably the first layer that you see whenever you're opening up the cadaver. So the fascia profunda or the so called —

APM: So do you not see areolar layer or is that difficult to get to when you're dissecting?

JE: The areolar layer? So there's the adipose layer and then the areolar layer. The areolar tissue would be the loose connective tissue between each layer. So between the fascia profunda and the epimysium, there would be some element of areolar tissue. So it's the loose connective tissue. It's the lubricating element. That would be probably less collagen and much more _____0:13:26.1 and so the…predominantly hyaluronic acid, lots of water, so allowing each of those layers to move relatively…hopefully relatively independently and of course, _____0:13:39.9 depending on the area that you're talking about.

APM: So what's feeding this stuff? Is it well served with blood supply or is it…?

JE: So it's extracellular matrix. So it's _____0:13:52.8.

APM: So it's an osmotic process that's feeding it.

JE: Yes.

APM: So are you going to go beyond this? You just said when you look at your fascial trains, you're going beyond the fascia profunda. Is that —

JE: Absolutely, to a certain extent, we have to. So we're looking at going into the quadriceps. So for us, the quadriceps would be part of the superficial frontline. The adductors _____0:14:16.3 what we call the Deep Front Line, the hamstrings going into the Superficial Back Line, so different portions having different affinities with other tissues. The quadriceps lead into the tibialis anterior in the anterior compartment and so for us, the Superficial Front Line, the IT band and that would be much more part of the deep investing fascia. That's really continuous up to the…let's see if I can find the right slide. There we go, up to the tensor fasciae latae and also the superior portion of glute max. So if we keep following that, we get into the internal, external obliques. So again, following the rules, keeping on the same…correct layer and so once we get beyond the deep investing layer then, well, we can go to various different structures, again, depending on the direction of fiber.

APM: How stretchy is this stuff?

JE: That's variable. It's not particularly stretchy and, you know, so _____0:15:16.5 we've got the iliotibial band and I don't know about you, I kind of grew up with the idea that the…we release and stretch and open the iliotibial band and _____0:15:26.9 better informed that actually, that stuff is not particularly stretchy and it shouldn't be because it's designed to give a certain amount of stability, that it should be that the muscular tissue, the

contractile tissue that's doing the stretching _____0:15:44.4.

APM: Now, you've hit on…I actually anticipated a question that's just come in from one of our viewers which is does it have a contractile element to it.

JE: It does. So over the last 15, 20 years, we're getting the better picture because more research has been done on it. So one of the cells that's producing the collagen fiber and many of the _____0:16:05.6 involved with the tissue, the fibroblast, they apparently have the ability to change their function and become myofibroblast. They become contractile. So it does have some ability to actually tension itself and —

APM: Activated by what _____0:16:25.1 innovation to contract those?

JE: So that mechanism is not innovated. It's cellular. So it's chemical rather than neural. So it changes in the surrounding chemistry and by the surrounding tension in the system. So it's not innovated in the way that a muscle is.

APM: One of the things that strikes me about this…I mean you're talking of various fascial lines but surely, the fascia is nailed down between the different muscles. So there isn't a direct connection between the lateral malleolus and the opposite _____0:17:03.5.

JE: No, not necessarily. The lateral malleolus _____0:17:06.4 the lateral malleolus can get us there and you're actually right, that many, many attachments are attached. _____0:17:15.2 some attachments are more attached than others and that has been, again, an area of research, looking at…I think it's become more available recently with fresh tissue dissection. So when we looked at previously with the preserved formaldehyde fixed cadavers, everything was fixed. So it was very difficult and —

APM: You get very misleading idea —

JE: Yeah. You think…yeah, absolutely. The anatomy books are right, this bit goes from here to there and doesn't do much of anything else where actually, when you look at a fresh tissue, you can see actually, there's a lot more slide and glide in the system. And so there is the ability to communicate and again, there's been some research looking at, for example, the ability of the soleus and gastrocnemius to communicate around the calcaneus and into the plantar fascia or vice versa, that there is a communication of…or transfer of force from one structure across a so called bony attachment and this is, again, a prejudice that when we say attachment, it gives the impression that there is a solid adhesion but actually, it's —

APM: This is a hot topic of research at the moment, of people doing a lot of investigation to find out whether they can prove this transfer of force.

JE: Unfortunately, not enough. I think we're getting there and it's difficult to be able to research _____0:18:39.9. It's not easy to set up. So research was done in South Africa where they had taken five fresh tissue cadavers and just brought them into a straight leg raise and _____0:18:53.4, be able to measure the various different tissues —

APM: This was on fresh cadavers.

JE: It was on fresh cadavers. So they were looking at the plantar fascia, the hamstrings, the thoracolumbar fascia ipsilateral, contralateral and they were showing that yeah, if you go into a straight leg raise, you're not just stretching the hamstrings or checking the length of the sciatic nerve but actually, there is a _____0:19:15.1 to the plantar fascia and to the thoracolumbar fascia on various different aspects.

APM: And is that…probably very hard to identify this but if you do a straight leg raise then you're liable to be rotating the pelvis, flattening the lumbar lordosis, all of those things will be affecting fascia further up the body. So is the transfer of force from the fascia to the fascia or is it from the fascia to the joint altering the joint and then the next stage in the _____0:19:44.0 creating that tension or does it not matter?

JE: I would say for me, as a practitioner, it doesn't matter. It's what's the reality of the person I'm looking at. There is a transfer of force. This is perhaps then leading to the idea of the tensegrity system that we need to see the body as a unit, not a collection of the bits that we so religiously learn for the exams.

APM: You've hit on a nerve with me with what you just said but we'll come back to that in just a second. Somebody has asked, could you just run us through the IT band again and fascial connections that you mentioned earlier on?

JE: So on this slide, this is the traditional _____0:20:21.1. It's the law. If you're producing an anatomy book, you have to have that picture. And so here's the IT band. This is tensor fasciae latae and gluteus maximus. So the superior portion would lead into the IT band and that's kind of this anatomical law that the picture is always presented but we mentioned and talked about briefly the idea of the deep investing fascia. So I would say that actually, if we look here, the iliotibial band _____0:20:49.7 is just one portion of the fasciae latae and then fasciae latae is just the thigh portion of the deep investing fascia. So it gets a little bit more interesting when we start seeing the wider context of the rest of the connective tissue rather than just the muscle to _____0:21:06.9. So in class, often one of the question I ask, "What is the function of tensor fasciae latae?" and many people will say abduction and flexion and internal rotation and maybe someone will say, "Well, stabilization of the pelvis." So what's the function of levator scapulae? Well, it elevates the scapula. So what's the

function of tensor fasciae latae? They say, "Well, it tensions the fasciae latae," so not just the tensor fasciae latae but also that gluteus maximus that's leading into that same tissue. So that's a full layer that encompasses around the muscles of the thigh. All of that layer is being kind of shrink wrapped in against the muscles which if we're walking, if we're running, if we're jumping, hopping, all of those muscles are going to also be…and in English, we say contracting but the contraction is again, the wrong word because they're giving a little bit of expansion _____0:22:04.9 stiffening in that contraction. So we've got a superficial layer, that purple layer of the deep investing layer or the fasciae latae shrinking in and kind of meeting, matching but certainly, meeting the forces of the _____0:22:21.8, the radial expansion of the quadriceps, hamstrings. So this is like a force distribution system because if we look back to the original textbook approved image, that's actually a force concentration system. If you are going for a run with that as the truth in your body, every time you heel strike, every time you walk, every time you jump, land, all of that force…so force, six times whatever it may be, your body weight is going to be focused on to Gerdy's tubercle. That's not good design. That's going to lead to iliotibial band syndrome, runner's knee, all of the issues that we've been previously stripping the IT band for. So we haven't had a full appreciation of this works as a system, not as a unit and we've been, again, you know…and it's I think one of the fine lines of osteopathy, you know, don't treat the symptoms, treat the cause, look at the wider picture.

APM: It's probably the case for most practitioners these days, isn't it? We got away from that looking at an isolated structure, trying to treat the symptom. I was thinking that what you said there reminds me of another one _____0:23:36.5 core stability and the idea that people used to have, and a very few these days, that, you know, the core can be regarded as a unit or individual muscles _____0:23:46.1 when actually, like…as you just _____0:23:48.4, it works as a whole element and you can't isolate the muscle because that's not the way it works.

JE: No. I think that was interesting research that was done early '90s and it was built on a similar idea. Unfortunately, I don't have the slide of that but it's a similar idea if we think of this as being the erector spinae and that's actually encased within the connective tissue that's coming from the transversus abdominis. So the contraction of the transversus abdominis pre-tensions or pre-stresses the fascia around the erector spinae. So some modeler looked at… did the different equations and said, "Well, actually, if we get that to happen then we can increase the efficiency of the erector spinae by something like 30%." That's quite significant but it was one paper looking at one section and yeah, it led to the _____0:24:46.6 of the core but, you know, we lost again maybe the bigger picture but at least it was a section and not just a bit. So it was a useful _____0:24:55.2. I think we learnt quite a lot of it but I think we're getting a better story as we go through.

APM: Now, and I take you back to the bit there around my interest a moment ago, you mentioned tensegrity which is a term I came across several years after I completed my training and I had to ask the chap who mentioned it what the hell he meant and I can't remember what he said. Perhaps you would like to define that because tension integrity I believe was the origin of the term.

JE: Yes. So it's a combination of two words, so tension and integrity. So it's integrity of your system through tension. So it's a different way of looking at the body. Whenever I was first taught anatomy, I was taught, you know, the properties of the skeletal system, so support, production of red blood cells and also…so support and protection. So whenever we look at the skeleton at the front of the room then you'd see, yeah, it seems logical that the skeleton supports the body but it's, you know, again, the law. If you're teaching anatomy, you have to have the skeleton in front of the room that's being held by different rods and wires and screws. Take those away and you've got a useless pile of plastic on the floor. Same for us. If you take away the tensional elements of the myofascia, we are just a pile of bones on the floor. So we've got the compressional elements, so the elements that resist compression which would be the bones and the elements that create the tension which would be the adjustors of stiffness, the muscles transferring the force through the connective tissue. So what we've got on the screen is just a model idea, so different [redacted]0:26:30.5 held in place by a pile of different elastics and [redacted]0:26:37.6 some models by Tom Flemons who's a wonderful creative genius over in Vancouver. He's put all of these ideas into the context of the body, how does the body work as a tensegrity system, building on the work of [redacted]0:26:54.9 and the sculpture of Kenneth Snelson. So the first one is just individual muscles. The second one is with the layers of tissue, kind of put over or superimposed and for us, in Anatomy Trains' world then we see that the continuities over the top [redacted]0:27:17.3 longer chains of compressional… sorry, tensional force that helps hold —

APM: And the colored lines in your image here, what do they represent?

JE: So this is all of the lines, all of the anterior lines pretty much in place. So it's a little bit too much to go through all of it but…so that green line would be, first, the Superficial Front Line I've mentioned a couple of times. That would be sternocleidomastoid. This leads into the stuff in the front of the sternum. This leads down into rectus abdominis and from rectus abdominis on to the pubis. Then we don't have that…there's no other fascial tissue to go in the same direction. So with the mechanical link of the pelvis, we would jump over rectus femoris and then that leads us down into the anterior compartment so we can go through the…that kind of reddish line would be part of what we call the spiral line which is, in this section, [redacted]0:28:12.6, the external oblique and then leading to the opposite internal oblique and you're talking about have we got some support. So recently Carla Stecco of the Fascial Manipulation

school, she published the Functional Atlas of Fascial Anatomy and in it, there's a wonderful section that said when we consider the upper 0:28:35.5 of the abdomen, we can consider the internal and external, opposite external oblique to be a digastrics muscle. It's one muscle with two bellies. It's not quite necessarily revolutionary but certainly, it's an advance on the way that we're talking about anatomy, 0:28:56.4 —

APM: It's a good book to get your hands on.

JE: Definitely. It's beautiful. She's Italian and female. So every picture is fresh tissue dissection. Every picture is a work of art. I fairly recommend it.

APM: What's the title of the book again?

JE: So Functional Atlas of Fascial Anatomy.

APM: 0:29:17.1 we'll put that as a record on the website anyway because it does sound fascinating and, you know, I don't think it's just a fad that people are suddenly talking about fascia, you know. That's why we've got you here because it seems to have a role in…obviously it has a role in treatment. Again, I'm backtracking again slightly. We've had a question in from one of the viewers which is that they believe that…the iliotibial band, tensor fasciae latae that stabilize the knee, is that part of the function as you see it of the fascial lines?

JE: Absolutely. So any tensional element is going to help with stabilization. We would also try to emphasize that quite often, in terms of function, the function of the muscle is the opposite of its action. So let's see if I jump through to here. If we look at that kind of standard pronation, valgus, response to heel strike…so yeah, if we look at all of that kind of line of force 0:30:19.4 it's going to be decelerated through the IT band. If I'm heel striking with my foot in front as a just normal gait then it's not going to be tensor fasciae latae. It's going to be what I would prefer to call posterior tensor of the fasciae latate, the superior portion of glute max. I think if we can have anterior and posterior deltoids, why not have anterior and posterior tensor of the fasciae latae? They're doing very much a similar role, just a slightly different angle. They're both connected into that IT band and the fasciae latae or the…yeah, the fasciae latae.

APM: The sound man has taken a bit of a shine to you this evening. He's come in here to fiddle with your microphone 0:30:59.5. So the real question from all this then…I mean it's lovely to learn about 0:31:05.8 anatomy. Perhaps you ought to talk about, you know, how we can feed that anatomy. What can we do to improve the quality of our fascia? Let's start with that now, what can we do? Is there any evidence on how we keep it in good shape?

JE: So again, Robert Schleip who I mentioned a little bit earlier, he's done a lot of work and developed his own…alongside his wife, his own approach to what he calls fascial fitness and it's maybe a style of movement that's a little bit more directed towards the connective tissue. So it'd be a lot of kind of soft balances. So not a lot of loaded movement but just kind of soft balancing at the end of range so we're getting appropriate vectors of force being put into the tissue and that helps…excuse me, it helps with the laying down of collagen fibers in the appropriate direction, helps with the hydration of the tissue and also when looking at movement in different [redacted]0:32:04.8 different orders, we get a range of shearing between the layers as well. So we mentioned the areolar tissue earlier, so that's that lubricating layer in between the different aspects. So quite often, it can become a little [redacted]0:32:23.5 or little restricted. So actually, this is one of Robert's slides. This is looking at the areolar tissue. This is of a rat, so between the deep aspect of the skin and the deep investing layer but quite often, it should look like this where it's quite fluid, kind of gelatinous. It allows glide to happen but occasionally, it can become a little bit adhered and this is very much an area of focus for the [redacted]0:32:53.0 and the fascia manipulation method. That tissue is —

APM: What's causing the adhesion?

JE: They would say, well, overuse, misuse, disuse and abuse, sort of to quote your next presenter, [redacted]0:33:06.8. So it's otherwise known as life. It's lack of use, overuse. It's injury. It's surgery. It's anything that's going to stop you from having kind of relative movement between layers. So if you're, you know, doing the deadly sitting all day that we've been educated about over the last 10 years then yeah, that stuff's going to…it's not going to be lubricated. It's not going to be [redacted]0:33:34.6. It's not going to be moved. So it's by using different factors of movement whenever, exercising whenever and just in daily life, thinking about, "How can I vary my normal pattern?" And I think that's one of the strengths of…not just Robert's fascial fitness but the current trend of functional movement. It's very much about three dimensional movement as opposed to what we were doing of going in the gym and doing the same vector with the PEC Tech or with the bicep curl or, you know, [redacted]0:34:07.7 machine. We are always going to go through the same movement at the same speed. So it's not creating that shearing.

APM: So variety is particularly important in terms of movement, in terms of preventing those adhesions.

JE: Yes, I think so.

APM: You mentioned damage earlier on. What's the effect of damage to the fascia [redacted]0:34:29.8 tear the fascia? What's the mechanism? Are we going to get simple scar tissue there? How well will those collagen fibers reproduce what was there before?

JE: Million dollar question. It's going to depend on your age, your level of fitness, your level of hydration, your nutrition, your rehab, how quickly you get back to treatment. So there's lots —

APM: I'm glad you mentioned that because that's the important thing is what do we know…what do we do about it in clinic? I don't know, let's say post surgery, somebody's come through [illegible] 0:35:01.2 do whatever they do. What actual effect can we have to improve the repair?

JE: So it can depend on the…partly, it's skill of the surgeon and obviously, the area of the surgery. I would certainly advocate for manual work as early as possible in and around scar tissue but that's also [illegible] 0:35:23.9 understanding what's actually happened and going through the appropriate training for that which most osteopaths will have had.

APM: [illegible] 0:35:32.3 chiropractors, physios and sports therapists who are watching as well.

JE: Yeah, so I guess all the professionals. So it would be making sure —

APM: We're equal opportunities here —

JE: [illegible] 0:35:41.0 in spite of our prejudices. So I would say making sure that the tissue is mobile as possible and certainly, in some surgeries, there's going to be…it's not going to be possible. If there's been a fusion, so that tissue is just going to be stuck. So I'm thinking of spinal fusions perhaps. So in that case then it's making sure that there's as much mobility above and below and not necessarily in the segment, obviously, directly above or below but making sure that…one of my other teachers, wonderful guy called [illegible] 0:36:11.6 about the thoracics and he said one of the biggest gifts that you could give for a shoulder is to mobilize the thoracics. One of the biggest gifts you can give for the hip is to mobilize the thoracics. And so one of the biggest gifts you can give to any area that's been fixed is make sure that everything either side and beyond and above and below it is able to do what it should.

APM: So actually, even those practitioners amongst us who maybe aren't thinking about fascia will be thinking about mobilizing joints. We might be thinking about soft tissue to muscles. Presumably, we can't do any of that without having an effect on the fascia.

JE: No.

APM: To what extent are we being effective? I mean which is the most important component [illegible] 0:36:55.6? Is there any investigation to say, "Well, you've got a bit of torn fascia here or incised fascia here"? How much can we restore

its elasticity? How much can we —

JE: Though the restoration of the elasticity is going to be a slower process. _____0:37:09.9 not going to be in your 10 to 60 minutes of treatment, depending on your style but this certainly is going to be producing the conditions under which then the rehab can take place.

APM: This is functional rehab then.

JE: Yes, absolutely. So I think that's becoming much more of an adjunct in most of the trainings is being able to see the system, see the body in the context. So it's not just manipulating the local area and that is certainly effective and productive and that will alleviate some of the potential strains into the surrounding tissue and it will certainly affect fascial tissue. You can't touch the body. You can't take your plantar _____0:37:55.6 without doing something to the fascial tissue. It's encompassing everything.

APM: I suppose one of the reasons I'm asking these questions, pursuing this line is because if we are incidentally affecting the fascia while we're doing whatever we're doing or what we think we're doing to the body, is there a need to go and do specific training so that we know how to directly affect the fascia or deliberately affect the fascia?

JE: _____0:38:23.1.

APM: And you're biased because your own courses —

JE: I would say yeah, I have a vested interest in saying absolutely, definitely, yes. It's stretching techniques. Do I do an MET? Do I do a _____0:38:34.1? Do I do a PNF? We have different vocabularies that are going to be more appropriate for different systems. If I'm trying to mobilize a joint, I need to know how to mobilize the joint. There would be different schools of thought _____0:38:48.2 osteopathic manipulation and there's a whole range of different approaches in osteopathy. So I would say yes, if I want to be fluent with how to engage fascial tissue, so further away from the joint then yeah, I would say one can benefit from learning some of the ways to connect with the tissue. From the outside, it looks quite often like massage, like general manual therapy but the style of connection into the tissue is really quite different.

APM: In what way? _____0:39:24.1 do you want to start by first of all talking or demonstrating where those lines of fascia occur, what these Anatomy Trains are and then perhaps illustrate to us how you might start by affecting those lines?

JE: Sure. So we can maybe look at…you mentioned…so this is the first, the Superficial Front Line we went through quite briefly and quite quickly. So it's

there and we see it also not just in dissection but also in movement. So this is wonderful British high jumper called Isobel Pooley.

APM: Sorry. We just lost that on the screen there. So we'll just play that one on this screen because it's…

JE: Sorry. So Isobel Pooley and she's in her run up to the high jump but if we just…0:40:15.8 and we can hopefully see that there is a line of tension going through the 0:40:26.2. So sternocleidomastoid, this stuff over the front of the sternum, the rectus abdominis. We talked about the mechanical link of the pelvis. So then rectus femoris and even whenever we say rectus femoris, rectus abdominis, we actually don't necessarily mean that specific tissue. It's the myofascia in that area going in that direction. So rectus femoris coming down over the patella leading into the anterior compartment. So she's going in and tensioning, hopefully, pretty much all of that line and some of us will be old enough to remember Michael Johnson whenever he was running that he had that very upright extended stance and he was often criticized for having it but maybe he's using or was using something similar. He was progressing into that continuity and that was giving him a little bit of extra potential for power within his movement because of that tensioning that we kind of touched on a little bit with the fasciae latae, IT band story. So whenever looking at clients in context, I need to understand what their demands are, what they do in their normal life, what, you know…how many times are they painting? Are they running? Are they, you know, high jumping? Are they…whatever it may be, I need to assess all of their system. I need to see it with that vision of is their system able to communicate effectively, efficiently through that line? So quite often, one of the main culprits would be 0:42:08.7 restricted hip extension but if she was restricted in that hip extension, it quite often would then create a hyperextension through the lumbar or thoracolumbar fascia. So she may come complaining and pointing to this bit and if I follow the idea of the symptoms, I'll work and manipulate in around the thoracolumbar junction but I need to be able to check, well, actually what's going on with the rest of the system, what's creating that other pull.

APM: And just taking that example there, what might you suspect is creating the pull? I mean we're talking about fascia but why would it be creating an unnatural pull there?

JE: Because of any adhesion, any restriction.

APM: That's a fit young lady. So she is —

JE: So her movement's quite beautiful. It's lovely. It's very fluid. It's a good example of use of the full body.

APM: And what are you going to do about…how are you going to find that adhesion, if that's what it is and what are you going to do about it in her case?

JE: So with that —

APM: _____0:43:06.2.

JE: No. So we can use, you know, again, functional assessment. We can have any _____0:43:12.1 going through just a simple anterior steps or anterior lunge and I'm looking for the ability to connect effectively, efficiently, fluidly, smoothly into the continuity. So quite often, as I said, I'm looking for that inability to open up through here and that isn't always necessarily a fascial restriction. It can be a motor control problem. It could be a joint adhesion. It could be, you know…there are many other possibilities. So just going through normal assessment protocol but a lot of it would be just using palpation and checking in to make sure what's actually happening so we can use some manual therapy, so going through from assessment into…eventually into treatment.

APM: So the aim with what's going on in this particular video is to try to isolate that bit of restricted fascia or tissue, presumably we can't really tell whether it's fascia _____0:44:09.3 preventing that extension and where the practitioner there had his hands at the beginning of the video was presenting, I imagine, overextension of the _____0:44:19.4.

JE: Yes. So it's very much focusing the vector of her force into the front of the hip, so I get a better idea of what's happening and this is…I think we mentioned the idea of…the decade of the core and from that we actually went into I think the decade of fascia. I think we're maturing and coming out of the decade of fascia and looking at the decade of…hopefully the decade of the system. I need to talk about the myofascial, skeletal, neural, whatever, all put in together system.

APM: _____0:44:51.3 don't it? Because, you know, you've got to try to work out what it is you're trying to treat here and as you say, there are symptoms in the lower back and you probably want to treat those symptoms but at the same time, you get to the root cause and finding that restriction isn't always straightforward.

JE: No. So here, I'm doing it in context and this is not, you know, again, in isolation of any other standard orthopedic test but I'm being able to see and feel the system as she's going into that movement. So my attention might be brought to the lack of ankle dorsiflexion or to her hyperextension on her knee or, you know…and being able to feel and see the whole system as she's doing something that kind of looks like what Isobel was doing in her run up to the high jump.

APM: A question we just had in is…going back to that business about surgery, when you've treated people post-surgery, just how effective do you think you are in addressing the fascial changes, problems that may occur?

JE: I would _____0:45:51.3 really quite successful and again, that's going to be depending on the surgery. So it does take some time to —

APM: Maybe we should rephrase that. How successful are you…how successful can one be in _____0:46:03.2 change in the fascia itself or is it…again, it's the business of addressing the whole structure?

JE: Again, addressing, yes, the whole structure. So I do need to be focused on to the…any area of adhesion, scar tissue. So I want that to be as mobile, pliable, hydrated as possible as well as then looking for the other potential areas of restriction. So it is I think important that…for example _____0:46:28.8 sort of the model _____0:46:31.6, whenever at looking at her ability to go into hip extension, I still need to really make sure that she can ankle dorsiflex or toe extend at the same time. So whenever somebody's had a surgery or _____0:46:43.6, I need to make sure are there other parasitic restrictions, adhesions going on in her system that's going to put extra stress and strain into that area. So with post-surgery, there's limits quite often on what can actually be done with that area. It's changed. It's been stitched together so I need to try to optimize the rest of the system.

APM: I was talking to a practitioner recently who, before training as an osteopath, was actually a professional ballet dancer _____0:47:14.8 presentation about the training that they do and of course, it just reinforced all those beliefs I had about ballet and how bad it is for your body and it's cruel and it's punishing and of course, you end up with people who are held together, I imagine, by the strength of their muscles, not by the fascia because they must've extended it so far that it's no longer supporting the joints _____0:47:35.2. What can you do about that? I mean is this stuff re-trainable? Can you _____0:47:39.9?

JE: It can be improved and certainly, it's mostly improved through awareness and retraining of…allowing the ballerina often to know _____0:47:54.7. So it is a lot of motor control, retraining. We would use strength training as they do but quite often, it's —

APM: In other words, the fascia has lost its role and we're relying on muscle stability now.

JE: Pretty much because —

APM: Over time, will the fascia contract?

JE: It can certainly re-stiffen and get a little bit more integrity back and some of the training, interventions _____0:48:18.7 would put a little bit of extra tone, if that's the correct word to use for the fascial tissue as well as building the muscular strength but really, it's quite often…in my experience with the hypermobile type, it will be strength training and awareness training so that they don't go into that ligamentous _____0:48:41.2. So with, for example, the model _____0:48:44.4, she has a tendency to go into that knee hyperextension. That's just her comfortable, easy place to go, not necessarily conducive to good fascial health or structural health for the rest of the system.

APM: I've got a question from the audience which is about adhesions which we talked about earlier on and _____0:49:04.3 talk about adhesion. From your experience, I mean what exactly is going on in an adhesion? What is adhering to what and by what _____0:49:11.4?

JE: So I'll switch back to that slide. So this is, I mentioned, the Stecco family and fascial manipulation that…this is one of their areas of specialism. So they were saying that two things…one of two things in kind of the almost opposite extremes can happen that we get a lack of water. We get a change in the percentage or proportions of hyaluronic acid to water. So the less water, the hyaluronic acid becomes a little more dense, a little stickier, more glue like and so the layers start to stick together and recently, some research that was presented at the last fascial research congress in Washington…so a medical doctor that's been working with them presented a research on…that she'd done. It was a pilot study. So she'd done…she's working with people after brain injury, so probably stroke and she's just looking at the logic that after brain injury, there was a certain…I can't remember, unfortunately, the percentages. Certain percentage have spasticity and six months after the brain injury, that percentage increases and our previous model has been…well, there's been a further change and decrease in ability of the neural system. _____0:50:39.3 further brain injury, so maybe…is there something else that's going on and she started with the Stecco work, thinking of more of the areolar tissue and she started injecting _____0:50:52.0 which is enzyme to breakdown the _____0:50:56.6 so that it became more fluid and her thesis or from the _____0:51:03.1, she wants to go on to investigate further. _____0:51:06.0 some of the spasticity just leads to lack of movement, that lack of movement leads to the change in the proportions, too much _____0:51:16.3. So she was injecting the enzyme to break that down, bring the proportion back to better balance and she showed many impressive videos of…post treatment of people going from almost no movement to quite an acceptable range within 2 or 3 treatments of the injection.

APM: Interesting. We had a surgeon on some time ago who…we talked about adhesions with him and he was saying that adhesions _____0:51:43.1. Now you're suggesting this research suggests that if you can alter the _____0:51:49.1 in the body then you can _____0:51:51.2. So injections or

other therapy _____0:51:54.3.

JE: Absolutely. Yeah. So she was using the enzyme and so the Stecco approach would be to use pressure, quite deep and cross fiber friction _____0:52:04.4 type approach. So with that, stimulating, again, just the changes in chemistry to bring the proportions back to better balance and using movement as an adjunct post treatment.

APM: I'm intrigued by one of the videos I know you've got on here which is of people walking and if you'd like to show that…I mean what's that bringing out that's relevant to the discussion of fascia?

JE: So this is a video that's…again, it was given to me by Robert Schleip and it was given to him by a wonderful German physicist and structural integration practitioner called _____0:52:43.1 was following up on…it was kind of classic bit of research done by _____0:52:48.9 in 1986 where he had gone out and looked at the ladies from the Kikuyu and Luo tribes in Kenya and Tanzania and found that they could walk with 20% of their body weight on their heads and with the same efficiency when they did this with army recruits who put 20% of their body weight on to their heads or —

APM: _____0:53:10.3.

JE: _____0:53:11.8 many of them can do it and so it went on to the backpack but it cost them 13% extra oxygen use. So there was…so _____0:53:21.3 this happens —

APM: The video is just showing people with 20% body weight on their heads. There's not anything in the style of movement that you're seeing here which illustrates fascial trains, Anatomy Trains at work.

JE: This is I think one of the difficulties whenever looking…so without the map, without kind of that vision to superimpose, it just looks like people walking and what _____0:53:46.3 did was following from _____0:53:50.5 posterior sling _____0:53:54.1 these ladies must be using some kind of an elastic mechanism, kind of getting free energy from somewhere. So he was looking at that connection, latissimus dorsi, thoracolumbar fascia, opposite glute max for _____0:54:10.1. It's the inferior portion. For _____0:54:12.3, it would be the superior portion. Sorry, the other way around, for _____0:54:15.5, it's the inferior portion. For _____0:54:18.9, the superior portion. So in a way, he said they're actually sitting into that sling and that sling is helping to propel them forward. So it's giving them extra free energy when they're tensioning it. If they _____0:54:33.7 they have a contralateral arm swing, enough hip extension or, sorry, hip flexion.

APM: I would genuinely be interested to look at this research. I shall look this up

because clearly…I mean the women in the video that you showed, they've done this all their lives so they've built up a tolerance with that and adapted to it, doing that. I don't know which batch of military recruits they tried it on but I'd be fascinated to see if we could _____0:54:57.4 into the Royal Marines training _____0:54:59.2 if we can get them carrying their _____0:55:01.3 on their head. If it's 20% better efficiency…well, did you say 20% —

JE: 13%.

APM: 13% better efficiency, they ought to be thinking about it although I imagine it's not very good for _____0:55:09.9.

JE: Possibly not _____0:55:11.7 and it does require perhaps…so let's go back to that —

APM: _____0:55:16.7 dexterity and skill which Royal Marines will probably lack —

JE: Dexterity and skill and also a little kind of swing perhaps to the pelvis that may not go down too well and so when we look, we do see that —

APM: _____0:55:28.1.

JE: _____0:55:32.2 but we see that there's a lot of involvement through the pelvis. I'm not saying that this is a perfect walk but definitely, it's a full body walk and, you know…so if you can just go back to the…_____0:55:47.6 stop it here. When that right leg is back, she's also progressing into the Superficial Front Line. So it's _____0:55:57.6 looking at the posterior sling and he did one _____0:56:03.6 to investigate some of the elastic contribution through the connective tissue. Whenever I looked at that video, I saw…well, actually, I see a lot of engagement of other lines. So she's progressing the Superficial Front Line. She's also got…if you remember, we talked about briefly one of the elements of the spiral line. So that serratus anterior, external to…opposite internal oblique and even that leads into this tensor fasciae latae. All of that is being tensioned. So it can act a little bit like an elastic but…a little bit of elastic energy maybe put into the connective tissue but also, we're getting that lengthening of the supporting _____0:56:45.3 for the muscles which means that whenever the muscles contract, that contraction is transferred more quickly and also, more powerfully and effectively. So the muscles do less work because they're in a _____0:56:57.9, so going back to the fasciae latae and the thigh mechanism or the core strength idea of that middle layer of the thoracolumbar fascia and the erectors.

APM: I'm going to digress completely for a few seconds. You know I mentioned when we started that one of the certainties in life is that the Internet will let you down _____0:57:16.2. Elsewhere outside this studio but within this venue, upper flight of stairs, in a large room, there's a whole pile of

accountants who are having a meeting and somehow, our sound is being transmitted to the accountants. So they're learning an awful lot _____0:57:30.1 about fascia. Well, you know, a big shout out to the accountants. I hope they're enjoying and as they cut into their lamb and so on, I hope they're dissecting that fascia and they're exploring all the things _____0:57:40.1.

JE: _____0:57:40.4.

APM: Amazing. They're not complaining about it. They're too busy drinking and eating.

JE: Sounds good.

APM: Getting back to what you were talking about, _____0:57:45.7, again about the scar tissue, what then would you do to treat keloid scar tissue?

JE: So a lot of the traditional _____0:57:55.6, mobilization, a lot of skin lifting, just getting the…and it seems unprofessional to say but just playing and mobilizing with the tissue. I'm not going to dress up with fancy words. It's basically going in and getting the tissue and playing with it in an appropriate way _____0:58:14.7 —

APM: _____0:58:16.1 instinct and feel on how much of it is based on, you know, fact and research because we live in this age where everything we do is supposed to be based on evidence and so on and it sounds _____0:58:26.8 every other field of physical therapy, nobody's paying to do the research. So it's very thin on the ground, isn't it?

JE: Unfortunately.

APM: In terms of what you're doing, I mean you've got an understanding where you believe the force lines are, the lines that the tissue lines are in the fascia, within that, are you simply then going in and feeling what's going on?

JE: Most often, it is by…from feel, yes, and whenever it's…for me, it's impossible to be led by evidence-based medicine. I need to see exactly what's going on with that person, how the surgery has been performed, how that person has responded. So I don't know how many layers are going to be involved. Again, the age is going to be _____0:59:05.5. So sometimes the scariest three words that I come across, evidence-based medicine and I find it difficult to put that model into a tensegrity myofascial based idea of how we work. So the two systems —

APM: I think it's _____0:59:23.7 a little bit now, isn't it? I mean it's not that we despise evidence. It's just that we recognize that sometimes things work but

don't have evidence.

JE: I need to be informed by evidence-based medicine but I don't necessarily… this is my own bias. I'm not going to be absolutely led and boxed by it. So I need to have the _____0:59:43.1 of being informed, doing the research but then just feeling the tissue and working through the layers. I need to know my anatomy. I need to know the layers _____0:59:51.6. I need to also just know all of the previous whatever thousands of clients that I felt in the front of the hip, how should that tissue feel and what happens when I mindfully and I mean hopefully, intelligently kind of mobilize it. So I would _____1:00:09.3 it's a full range of techniques with skin drag, skin lift, _____1:00:14.6 and you mentioned also that what's the difference between fascial release and many other manual techniques. I would say one of the main…sometimes the main emphasis and sometimes the main difficulty is the ability to identify and connect into an individual layer. So we would, you know, often…in class, we'd say pressing from the skin to the adipose to the deep investing layer. Hopefully, a skilled practitioner can sink through each of those layers and choose where to lock in to that layer. So I'll be doing that mindfully, feeling for, listening to, just which layer's the resistance on, how can I lock into it and not always just using my movement but also using the movement from the client or whether..._____1:01:05.8 so maybe using their movement to get a little bit of shearing happening below my contact.

APM: I'm going to put one of our audience out of her misery now because she's getting very frustrated. She's asked three times and I haven't yet asked you. Can you get adhesions within the joints themselves?

JE: It depends what you define by in the joint itself. So I would say in the joint capsule, yes. Yes, that seems perfectly possible to me.

APM: Between joint surfaces?

JE: Between joint surfaces then there would be…there would need be some kind of joint degeneration that's going on. I'd give that a different name but…so it depends what you call an adhesion, what…how you define that.

APM: So in the capsule then, what would you typically expect to see if there were an adhesion _____1:01:54.7?

JE: So _____1:01:56.4 —

APM: What's going to be stuck to what?

JE: Again, this is going to be depending on a viewpoint that it would be sometimes a…I would say a fold or a kind of…yeah, probably a fold is probably the best word, that something has happened within that tissue that is

kind of gathered in, adhered, stuck to itself, become restricted and sometimes, not just…that seems to be how it feels but sometimes it's not just local. It also can be…well, that joint capsule and this would be from the research by [redacted]1:02:32.9 joint capsule is continuous to the ligament that's continuous to the tendon that's continuous to the muscle. So sometimes it's not just the joint capsule but I can…certainly I can manipulate the joint capsule but also, I can affect it and influence it by working with the soft tissue that's distal to it because one of the things we've learnt over the last 10 years is all that tissue is [redacted]1:02:56.5 not as it's normally presented in parallel. So it's not joint capsule, ligament, muscle tendon [redacted]1:03:04.2 actually, that muscle tendon is leading into the ligament, leading into the joint capsule. So it can have a different…lead to a different input, therapeutic input or style of work. So sometimes, the joint capsule, yes, it can be restricted but then I also need to look that a little bit further down the chain.

APM: Earlier on, you were talking about [redacted]1:03:28.4 and one of our viewers has asked if you elaborate a bit on it.

JE: [redacted]1:03:32.9 is just simply taking tissue [redacted]1:03:35.2 lateral, medial. And so for example, easiest way, erector spinae and [redacted]1:03:42.6 and then for a [redacted]1:03:44.9, locking both sides, lateral and pushing into [redacted]1:03:49.2. So it's just a different way of mobilizing the tissue but it would be [redacted]1:03:53.4.

APM: So mobilizing the joints in as many planes as you can.

JE: Absolutely, yeah.

APM: When you do that, are you doing this on a supine patient or a prone patient [redacted]1:04:10.7? We're talking about the —

JE: Prone, supine, side lying, moving. So [redacted]1:04:15.1 —

APM: So do you try to isolate a specific joint level and the fascia around that joint or are you being more global in your treatment?

JE: Yes, I have to…so again, just going back to the [redacted]1:04:28.5 of I need to see and understand the system. So the work that I was doing with [redacted]1:04:34.1, so here, this could be the first thing I do. I've taken her case history and she's complaining about back pain, knee pain, whatever it may be. I say, "Well, let me see how you move." So we might just have her move initially just using…so this posterior step but eventually stepping forward. So I mean just looking at the global system. I'm trying to get a sense of where does her tissue move? Where does it not move and where does it move too much?

APM: Why have you folded her arms?

JE: That was for the benefit of the video.

APM: Because that is going to effect, presumably, the tension of the fascia or tensegrity —

JE: The tensegrity of the fascia, yeah and so for me, in terms of a functional assessment, I could put her arms anywhere that was appropriate for what she does. So they could be anywhere but in order to see some of the tissue then it was just easier to have the arm across. So I might then reduce the movement but have _____1:05:47.2 in order to feel and sense the system and that can automatically lead to an intervention. I'm actually guiding her movement, feeling the tissue response. Hopefully, she's also feeling the effect of the intervention and then it'll depend on, well, does she improve with just that work or do I need to get her on to the table? Do I need to modify Thomas test? Do I need to do an MET for the tissue in the front of her hip? Do I need maybe to mobilize the anterior joint capsule? You know, so I'm getting a lot of information that can lead either to work on the table or just further work on the…in standing.

APM: Do you actually do joint manipulation yourself in the sense that a chiropractor or an osteopath would —

JE: I don't. It was not part of my training. So I leave that to others and —

APM: But you think it has a role in —

JE: Absolutely. I've worked with…I was trained by many wonderful physiotherapists and osteopaths. I worked with a fantastic _____1:06:44.3 wonderful chiropractic clinics back in Belfast and so I have a vocabulary of reference as to how they work and I fully appreciate the work that they do. So I regularly would refer for manipulation.

APM: Slightly technical question, going back to the keloid scars again, I mean would you advocate the use of Depo-Medrone injections or perhaps laser resurfacing? Is that somewhere…is outside your area of expertise?

JE: Would be outside my expertise but _____1:07:12.6.

APM: So we don't know the answer to that. What about Kinesio taping, K taping, RockTaping? I mean I don't know how much you know about the research behind those if there is any genuine research but do you find…have you found clinically that they're useful?

JE: I haven't used it myself. I don't enjoy the activity of taping but I have many

colleagues that do and have found them useful. I have many colleagues that have thought it's a bit of a waste of elastic and tape and time. So I find it split, same as acupuncture and dry needling or with many other approaches. Some find them to be absolutely wonderful and some find them to be less. So I think with certain _____1:07:59.8 that it's maybe not necessarily directly _____1:08:04.9 but certainly, giving some kind of proprioceptive feedback into the system. So I think it could be very useful. It could be a very useful way of retraining the movement pattern. So whether it's creating tissue change, whether it's creating neural change or whether it's just giving more information of where you can or cannot move, I don't know.

APM: Some of the things you said there are quite interesting because very often, no matter what you're doing with patients, you do wonder whether a lot of the procedure is your relationship, the practitioner's relationship with the patient rather than anything you do with their body and I don't know how much you feel _____1:08:44.8 in doing what you do. Is it your personality to fix these people?

JE: I wish. I think, obviously, yes, the patient-client…practitioner-client interaction's a huge part of what we do. I think that's the…for me, the value of being outside the system that we can take that time. We have that luxury.

APM: How long do you spend with your patient?

JE: I spend plus or minus 60 minutes. So that's probably on the more generous side _____1:09:16.1 compared to many other practitioners and that's just the kind of…the value of the modality that I work in and I think yes, it's definitely about building rapport and that's been proven many times to have a beneficial effect, that actually, sometimes it could be the defining element within the treatment but I think —

APM: You can't just miss it though, can you? I mean if it's having a beneficial effect, it's having a beneficial effect —

JE: Well, I think certainly, it's another variable that we need to be very conscious of and we can consciously not manipulate the client but manipulate the way in which we interact to take full advantage.

APM: Earlier on, quite a long way back, you talked about stretching techniques, MET amongst other things. How effective do you think those are and do you have any evidence behind the effectiveness of those techniques? Stretching generally and how much of that stretch is coming from the fascia as opposed to other tissues.

JE: So I think again, it's debatable. It's difficult to research where exactly did that _____1:10:21.4 improvement come from. So I think most of the stretching

techniques that we use, you mentioned MET, PNF, they're manipulating the mechanoreceptors within the tissue. So it's going to be more of a musculo, neural response rather than a fascial response but I just think we're limited by that language again. There's no such thing as a fascial response or a neuromuscular response. It's a neuromuscular, fascial, skeletal response. We are manipulators of the system and so what we're trying to do is to bring a better understanding, appreciation of the role that the connective tissue, the fascial tissues have and playing within that system.

APM: So do you use MET yourself —

JE: Yes.

APM: And do you believe you're seeing a clinical effect in that MET? You must do because you won't be using it.

JE: Yeah and certainly in short term and I think —

APM: Short term, meaning how long?

JE: So short term in…well, in like the 60 minutes that I have that I can say yes, you know, they are…they have been leaving me in the days when I was using purely MET…not purely MET but just MET, there was the benefit that was going into their system but what I think I was missing was the missing link of reeducating the rest of their system. So we have…I mentioned before the [redacted]1:11:44.7 doing the Thomas test. So we have the Thomas test and we do MET in Thomas test kind of position and that can lead to an increase in length in the hip flexors [redacted]1:11:53.5 getting increased length in the hip flexors but I think what I fail to appreciate is that the hip flexors are not just the hip flexors. They are continuous in our world. So if we go up [redacted]1:12:07.4 diaphragm but if we go below, we get into the anterior adductors. We keep going below that, we get into the deep posterior compartment. So all of that tissue needs to also be reeducated because one of the things we maybe skipped over or didn't emphasize enough is the positioning of the mechanoreceptors. So all of those mechanoreceptors are embedded within fascial tissue. So if I'm trying to reeducate a client and if I have them sitting over the edge of the table and if I'm working with their soleus, iliacus or recturs femoris, whatever it may be, there's a certain kind of algorithm that's going into the mechanoreceptors of that system. How many times do you want your hip flexors to go into extension whenever you're in that position? Only probably the next time that you come back for the treatment, you need to go into hip extension whenever…often, not you're sitting on the edge of a table with… probably your lumbar's in relative flexion. You actually want to be going into hip extension whenever your lumbars are also going into extension, also whenever your knee's in extension rather than flexion and also you'll be in ankle dorsiflexion leading in, eventually, to toe extension. That's going to be a

different algorithm going up to the mechanoreceptors in the tissue because that tissue is continuous. There's a different line of tension.

APM: Well, while you brought up this picture of…is it _____1:13:39.7?

JE: _____1:13:40.1, yes.

APM: One of our viewers has asked if you could just quickly illustrate what you are seeing in that video we saw earlier on.

JE: Sure.

APM: What did you think is usual, unusual or otherwise?

JE: So one of the things would be…so the hyperextension _____1:13:59.6. So you mentioned the ballet dancer. She was training to be a dancer and had an injury. So she does have the tendency to go into that hyperextension. So if I wasn't just demonstrating one technique, I would also be investigating maybe some of the tissue around the plantarflexors, making sure that she could achieve maybe a little bit more ankle dorsiflexion in this position. I certainly won't… not necessarily to increase the length of her hip flexors. Actually, if we go to this picture and this is maybe a little bit further involved but I would actually say in standing, she's actually already in some hip extension. So I don't necessarily want to increase the length of her hip flexors or her ability to go there. I want to mobilize this tissue but I need to be able to check that it can open to take off some of the pressure that was going into that thoracolumbar junction. So we can see that she does have a tendency to hinge in through here when she goes into various other movements. She had the tendency to stand in that way. So if I can get a little bit more balance and ease through the rest of her system, I want to take the pressure off that area.

APM: Are there specific conditions that you feel are particularly suited to your form of treatment _____1:15:40.1 approach?

JE: It's anything…we've mentioned the overuse, misuse, disuse and abuse of life —

APM: _____1:15:49.2 one that we've had questions about which I was going to ask you about anyway is your approach then to frozen shoulder. What do you think it is?

JE: What do I think.

APM: Are these any adhesion? How do you restore function to the shoulder using your approach? How successful are you?

JE: Reasonably successful. So I wouldn't say I'm in any way expert on the shoulder and this is allied but not specific perhaps to frozen shoulder, so I think yes, there seems to be some [redacted]1:16:22.1 that does occur and yeah, we can certainly mobilize and manipulate perhaps with that approach but I would also say, well, if I'm looking not just at the shoulder, I need to check that the thoracic spine is able to go into side flexion. I need to check it can go into rotation. I need to check that the rest of the arm elevation system is working.

APM: My approach to this would be…if I were to look at someone's shoulder which we're going to call it a frozen shoulder, I would want to isolate the glenohumeral joint to see whether that joint is capable of going through a range of motion that it should because of course, you can compensate by side flexing the spine if you want to get abduction but that's not fixing the shoulder, is it? [redacted]1:17:07.6 accommodation elsewhere.

JE: Yes. So I do need to go from specific to general. [redacted]1:17:14.1 why…so one of the questions would be why [redacted]1:17:17.2 appeared? Why has it occurred in the first place? So I do need to check the rest of the system for its ability to compensate or to adapt to movement. So I do need to be able to mobilize and be specific and I think quite often…certainly, [redacted]1:17:34.7 would be I mobilize. I get the glenohumeral area moving and then I think I'm done. In the same way as whenever doing the Thomas test, so we get the improvement in Thomas test and I think, "Now I'm done," but actually, at no point during the day do we go through simple abduction. It's always in context with the rest of the system. So I need to make sure that all of the [redacted]1:17:58.7, maybe the lateral line, for example —

APM: [redacted]1:18:00.9 some function in this rather than simply movement for the sake of achieving a number of degrees into a specific [redacted]1:18:07.9.

JE: So the orthopedic assessment approach is absolutely informative and essential but if I'm going to empower my client to utilize the improvement, I need to make sure that the rest of their system is optimized as much as possible.

APM: What would you do then to mobilize hip capsule?

JE: Hip capsule? I use prone lying. I would bring the…so just bringing up into extension, so hand on the distal femur, other hand on the posterior proximal femur and a little bit of [redacted]1:18:44.2, a little bit of rotation, exploration [redacted]1:18:47.6. So I'm not going to the full end range but just making sure there's a little bit of exploration in there. That's one approach. The other approach and it's the approach I also use, it's adapted from [redacted]1:19:00.1, another American manual therapist, of actually taking either the humerus and/or the…obviously not both at the same time but for separate conditions, taking the femur, taking the humerus and actually approximating into the joint and

then just mobilizing through it. So going through internal, external rotation and then drawing out a little bit 1:19:20.7.

APM: Somebody has asked if you would be a little more specific, if you would explain where the fascial chains, where the myofascial chains, the Anatomy Trains start and finish. I think it's top and bottom you said earlier on.

JE: So in a way, the start and finish is just…it's convention. There is no start or finish that…we've defined that. So our tradition is that we would describe most 1:19:55.7 from the foot towards the head. So the superficial frontline will start with the long toe extensors and finish at the mastoid process, with the sternocleidomastoid but start, finish is just…that's the way that we describe it. We would say actually, even that is a reduction that…it doesn't finish at the mastoid process. The fascial tissue will keep on going. So we could also say there's a loop of connective tissue through the epicranial fascia that goes from that one mastoid process to the opposite side as a line of pull. So the connective tissue, the fascial tissue is continuous and it's just the way that either we're using it in function or the way that we decide to be able to describe it.

APM: You said there are 12 so I presume they're paired front and back 1:20:45.8.

JE: Mostly yes.

APM: And you talked about the frontal line, the spiral line.

JE: So we have the superficial front line, superficial back line, lateral line. So the superficial front and back line, those two, left and right. There's lateral line, left and right. There's 1:21:03.2 the spiral line, left and right. There's a deep front line, also left and right. We've got two front —

APM: A deep front line.

JE: Deep front line. So the deep front line would be deep posterior compartment, the adductors and that all becomes a little bit of a mess of being able to describe it but it's everything from the adductors 1:21:21.3, pretty much all of the abdominal thoracic contents coming up into the throat, into the jaw musculature. So that'd be, first, the deep front line. We've got two functional lines, front and back, left and right again and then four arm lines, two —

APM: Four arm lines.

JE: Four arm lines, so superficial and deep front, superficial and back arm lines and then a line that Tom added for the second edition would be the ipsilateral functional line which would be latissimus dorsi to the external oblique to the

Sartorius that comes down into pes anserinus.

APM: You address these…do you say, "I want to treat that particular fascial line," or do you just say you've just got…bearing these in mind basically gives you an idea of the direction of the tissue or —

JE: It gives me an organization tool. So in the way that…so many approaches will have a…this is your assessment protocol. This gives me a way of…you look at some of the movement videos. [redacted]1:22:20.4 looking at the overall lines of force that are going into the system. So for me, it's an organizing principle and I don't necessarily have to work the whole line. I will use that vision to identify the kind of…the key suspects. Where do I need to work? And that would be when I'm working mostly in a kind of remedial setting. So somebody comes to me but pointing to a certain bit, I say, "OK, well, let's look at how your system works," and then I'll work on probably the more specific bits and then the other side of the work that we do, the structural integration would be…well, we go through a series of 12 sessions. So we work usually on almost one line per session.

APM: I don't know if this is outside your experience again but it seems to me there must be a connection here between what chiropractors would call sacro occipital therapy, osteopaths, cranial therapy, others, craniosacral therapy. Can you sort of put those two together? Do you do any cranial work yourself?

JE: So I think cranial work can be an adjunct to what we do and it's also…there's a fascial connection through the meninges. So it's an addition. In an ideal world, I would say…well, we're working probably more with the myofascial system. In cranial approaches, working a little bit more with the neural fascial system and with other approaches would be the visceral manipulation of Barral. So in a way, we're working with three different fascial elements or areas. So in an ideal world, [redacted]1:24:00.2 all three have the language and vocabulary and palpation skills to be able to balance all of those systems would be perfect.

APM: And I suppose we're rapidly running out of time but what do you do about…you used 60 minutes with [redacted]1:24:18.6 in your treatment room. She's having to go away for a week or longer or whatever. What does she do to support the work that you've done and how effective is that? How effective do you find it that patients do their own exercises?

JE: Well, I'd say that for me, that's one of the benefits going to the more functional type approach, that it's…so rotator cuff exercises. One of the big problems for many practitioners is patient compliance, what your question leads to. I can't think of many more things that are more boring than doing rotator cuff exercises compared to more global, more energetic movement. So I think for me, that means a big improvement in the outcomes and also client's

compliance, that actually it's more fun and also with working in standing as opposed to just always, you know…I spent the first probably 15 years of my practice…I was stuck on the table because that was all I was taught and that was my model of anatomy, on a table. It was like that was my interpretation, just either _____1:25:25.6 whenever I looked at the pictures or the body lying down. So I didn't have the vocabulary and ability to see the body movement. Whenever working…for me, doing that, some of that work in movement, it's much more _____1:25:40.0 to the client. So for example, working _____1:25:43.3 hip, she could immediately feel that changes the sensation in her low back. So this is why I want you mobilize or —

APM: So what did you get her to do that was going to continue that, the same exercise we saw in the video —

JE: So similar exercise, put in some rotations, again, _____1:26:00.9 checking that it's all safe and appropriate that she can manage the loads that she's putting through the system. So we _____1:26:07.8 beginning to do some similar work on the front of the shoulder. So I need to make sure…if I'm using what we call a top down approach, that also all of this tissue is doing its job appropriately.

APM: We've literally seconds left now. Any other major conditions you can think of, question from the audience that would respond well for what you do? I mean the question mentions dizziness or asthma and so on, headaches.

JE: Again, it's going to depend on —

APM: _____1:26:38.4 will be talking about asthma next time.

JE: I'll definitely leave that to the expert. So for us, it's about optimizing the system. It's probably less symptom oriented. So it's an adjunct to…if you've got specific techniques that you have for frozen shoulder, _____1:26:54.2 get that integrated and working with the rest of the system. So I would say for our approach, it could be anything _____1:27:03.2 and —

APM: I'm going to stop you there because we before we went on air, I said we don't allow our guests to advertise their own products on this. I've already mentioned Born to Walk, your own book which is a damn good book, examination of the relationship of fascia and gait. One of our guests, one of our guests…sorry, our viewers has asked how do they find out more about what we've been discussing. Your opportunity —

JE: Lovely. Well, thank you _____1:27:24.9. So I'm kind of responsible for teaching a lot of Tom's work through Europe and we have some other complimentary workshops. So we have a website, anatomytrains.co.uk and that has a —

APM: We'll put the links up.

JE: So that has a full listing of the workshops and also, we have _____1:27:41.9.

APM: James, it's been brilliant. Thank you. One of the things I really enjoyed about this is that we talk a lot about holistic therapy and I hate the term because it's so overused but what you've been talking about tonight is truly holistic stuff. It's connecting the big toe to the malleolus or to the jaw and I think that's what a lot of us want to hear is reinforcing the stuff that we do already and I think it's been a real education which is exactly what we want for our audience.