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Elbow and Forearm Pain

With Simeon Niel Asher

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TRANSCRIPT

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Simeon:

Today for his fourth in our series on trigger points. I'm joined by world experts Simeon Neil Asher. Simeon, welcome back. And you said you were very excited about today's topic.

Simeon:

Yeah, I'm quite excited about today because we're going to cover carpal tunnel syndrome, we're going to cover some sort of quite interesting ideas that pronator teres syndrome. We're gonna look at the tennis elbow lateral epicondylalgia via I'm hopefully going to show you some interesting trigger point perspectives that perhaps people haven't really explored before and why I'm excited is I hope that clinically this is going to be really relevant for people.

Simeon:

Excellent. And for those people who haven't joined us on the previous shows of yours, the last three this picture behind me is of course on a mobile phone with your app trigger points, 3D on it, which they'll be able to see partly in action as we go through this brilliant way of exploring trigger points and treatment.

Simeon:

As you know, I've partnered with Dr Gerwen, neurologist, ex head of pain medicine at Johns Hopkins and really an absolute phenomenon in trigger points. He's actually that last living creator of the trigger point movement. So we're going to be exploring some of his ideas in our workshop today as well as with some videos we've made. Okay.

Simeon:

I suspect you've got something interesting to tell us yourself haven't you?

Simeon:

Well, one tries. So before we get to that slide, we talk about this one, which is that we're just gonna explore lateral epicondylalgia, not epicondylitis. We're going to talk about that shortly. A carpal tunnel, pronator teres, syndrome as well. So, that's hopefully what we're going to have time for.

Simeon:

So let's get to the next one. So this was from ehand.com which is a great resource, actually a third of all acute injuries seen in the emergency rooms involve upper extremities, two thirds of upper extremity injuries occur to individuals in their working years. The most common disabling work injury in the United States involve the upper extremities accounting for over one fourth of all disability in the workplace. And one out of six work injuries involve the fingers mostly due to finger striking or finger being struck hard against the surface including keyboards, by the way. Uone fourth of athletic injuries involve the hand and wrists and children under the age of six are at this greater risk of crushing or burning injuries of the hand. Now, we pointed out, uin our first lecture, I don't if you remember, we looked at the homonculus.

Simeon:

Now the hand is hugely important in terms of our relationship to the world around us. It's what makes us different to the other primates, in many ways, the opposition of the thumb. So, hand injuries, that the brain is really geared up to for sensation in the hand. Uand hand and wrist injuries can be very debilitating as we know clinically. But again, it's important to see them in context. So, let's just move to the next slide. Uso, in context,we talked about this when we were looking at some of the shoulder last week and rotator cuff, the hand and wrist is the end point of the elbow and the shoulder, and actually related of course through myofascial meridians and chains through the fascia itself to the rest of the body. So, I've put in here the next slide was of some of the kinematics that have links from the Tom Myers myofascial meridians book.

Simeon:

And the other thing is, remember we talked about some super trigger points. We briefly brushed over them last time. So often we find with the wrist and shoulder,

elbow we find a super trigger points through the bicep and we're going to be looking a bit at the bicep today as well. The next thing is this posture. And remember last week we looked at posture as well and we looked at the role of the thoracic spine in shoulder related injuries. So again, the shoulder, the rotator cuff specifically is there to stabilize the glenohumeral joints or bring the ball and sockets together. And as part of the shoulder kinematics we need a good mobility of the thoracic spine. So anyone that's coming in with hand and wrist injuries, elbow injuries as well as working on the thorax and also the shoulder as well.

Simeon:

And even actually down to the opposite hip. We looked at that when we were looking last week, the shoulder again. So I thought we'd bring that slide up again. Now, just interesting to look at,this was looking at the tennis serve. Remember we said last time and we were looking at the shoulder. But, but this time, of course we're looking at the wrist. Uso we can see that actually in a tennis serve, the elbow and the wrist account for about 25% of power that you'd think that the elbow and wrist are going to be doing a lot of the tennis serve,but actually most of it's coming from the leg and the trunk. Uso as we said last time, if you're looking at someone's wrist, if you're looking at their elbow, you have to have context of the whole person, looking at the kinematic relationships between the pelvis as well.

Simeon:

So I thought this time we would bring trigger points in a bit earlier than last time because what we're going to do is look today at some trigger points that mimic or suddenly we find very helpful in looking at some of these conditions. So again, just to refresh your memory, a trigger point is a hyper sensitive spot in a taut band of muscle that causes referred pain. These are the three key elements of a trigger point. So we're working, we're feeling this tight band of muscle. We are palpating along and we're feeling this exquisitely sensitive spot, often causes a wince or a twitch or sign of pain. And then when we're holding it for more than five to 10 seconds, it causes a referred pain. I was speaking to Dr Gerwen yesterday, we've actually managed to get a photo now of the sarcomeres actually in situ, and he's publishing it.

Simeon:

I'll send you a picture. It's coming out in one of the big journals. So there's an absolute proof that they exist now. A sarcomere tends to go into sarcomere failure. They tend to be in the belly of the muscle, which is where the majority of sarcomeres are. So we tend to find active trigger points in the belly of the muscle. And the myofascia is a continuum. In fact, I was reading a book that said there's only one muscle in the body, it's just connected by lot of fascia. So it's one way of looking at it. Uso in terms of trigger points,they have a role to play here, two roles to play actually, in perpetuating and also relieving wrist and elbow pain. One of the things that switches on trigger points is unaccustomed or eccentric over overuse injuries.

Simeon:

So a lot of times we're seeing, especially I'm sure you guys are seeing in your clinic Mo hand and wrist pain and mobile phone use computers, games using a keyboard, related injuries. And here you're getting a lot of repetitive use overuse syndromes. And when the trigger point starts to develop, one of the problems is that they start to fire nociceptive sensation to the spinal cord. And they, as we said before, they increase nociceptive drive causing peripheral central sensitization and then reduce the threshold for pain generally around the hand or wrist and shoulder. So, they definitely do play a role in these things. I think in the next slide we were going to look at is this, trigger points make the host muscles short, fat and inefficient.

Simeon:

They can also increase, as we said, the nociceptive burden in terms of peripheral central sensitization. And the thing is that they can put pressure on plexus, on the plexi and the nerves themselves. So if you have a short, fat, inefficient, tight muscle with trigger points, it can put pressure on the nerves. Classically we see this in the scalenes with a thoracic outlet syndrome, neuropraxic type syndrome. We can also see them in the brachial plexus. It's about brachial plexopathy. Anyway, so the brachial plexopathy, beneath pec minor, so the brachial plexus can get compressed beneath pec minor as well. Ualso moralgia paraesthetica that's another one that we learnt about,related to tensor fascia lata muscle, greater occipital neuralgia, we covered that in our headache lecture from the anterior superior,obliquus superior capitis, also carpal tunnel syndrome, which we're going to cover now, pronator teres syndrome and what's called a double crush. Double crush is where you have pressure on, for example, the median nerve through the pronator teres and loads and through supinator muscles as well and lower down through palmaris longus, which we're going to look at today. So the idea of a double crush is that you're getting pressure in several muscles and they're pressing on the nerve supply and causing neuropathies. The exact mechanism is unknown, although there is quite a lot published about it, but it's something like a neuropraxia. And if you remember when you lie on your arm in the wrong way, we sit with your legs folded in the wrong way and then you get a neurological sensation.

Simeon:

So there's some kind of watershed effect on perhaps the Vasa nervorum. So the idea here is that the trigger points are perpetuating, maintaining factors but also may cause actual frank neurological injuries or symptoms. So I thought what we'd do now is a quick refresh of the extensors of the forearm and I'm going to do a practical demonstration because it's quite nice. So, the flexors of the forearm, the easiest way to remember this is, we started here with the brachioradialis, can you see that? Brachioradialis. So we're going to find the brachioradialis, you can all do it yourself at home. Feel free, Steven. And then as we feel the border of that, the next one along is the extensor carpi radialis longis.

Simeon:

So the longis is the next one. And then we're going to roll to the next one along there is the brevis, now the reason I'm saying these in order is because the brevis is really when we're going to find trigger points for lateral epicondylalgia or tennis elbow or wrist pain. So we've got the brachioradialis here, then we've got the longis, then the brevis. Moving on then we've got extensive digitorum. Digitorum is quite a large muscle so if you play the piano with your fingers, you'll feel the digitorum there. Then we've got the digiti minimi as the next one, and then extensor carpi ulnaris here, if you do some ulnar deviation. So again, we find the brachioradialis. We're just going to roll onto the longis, the brevis, the digitorum, digiti minimi and then the ulnaris there. The reason I'm bringing those up is that when we start talking about some trigger points, you'll have a better idea of that together. So, let's start with the lesser epicondylalgia. Now epicondylitis would indicate some kind of inflammation and suddenly there is no inflammation that's really been described in terms of inflammatory exudates in that area. So epicondylalgia which would be elbow pain,or epicondylopathy, unhappy elbow. It's estimated in between one to 3% of the population and as we know, it can be extremely recalcitrant. In other words, it can stay there for a long time even with treatment. Ums we said, we use the term epicondylitis, ho describe a painful condition, but there is no histological evidence of inflammatory process going on there.

Simeon:

And generally speaking, the structures we find from a trigger point perspective, most commonly affected are the origins of the extensors, especially extensor carpi radialis brevis. Now, the thing about the brevis is that the longis is much bigger and it sits on top of the brevis. So the brevis tends to be the one to go for, so remember we said you've got the brachioradialis, the longis and the brevis and the brevis is available in a fairly small area. But it's incredibly specific when you find the brevis, you can absolutely reproduce this amazing pain in the back of the hand. And we bought picture here from my software of the dorsal hand pain classically from the brevis.

Simeon:

The other muscle to look at again is the supinator. We're going to explore that shortly again in a video. So, the brevis,extensor carpi radialis brevis, supinator. So when we're looking at the other two, it's worth mentioning here as well are the biceps and triceps that sometimes we find that there's this sleeve of myofascia that if you're going to work on the lateral epicondyle is worth looking at the biceps and sometimes the triceps as well. So they're the four muscles I would say that if someone comes in with a tennis elbow, are the things that I would look at. Now, last time we covered collagen, we can move to the next slide. And we said that,ollagen,there are 22, some say up to 27 types or 29 even, of collagen but 22 types of collagen.

Simeon:

And we're looking at type one collagen, which is similar to the rotator cuff, which is really good at translating forces. So the extensor carpi radialis brevis is a thin, long, strap muscle and it's unipennate so it only has one muscle structure to it. And there are three areas really where we get these changes this micro trauma, the tendono osseous, which is where the bone meets the osteum and the skin around the bone. Then we've got the muscular tendonous junction where the muscle and the tendon joint and then we have intramuscular within the muscle itself. And we get these micro traumata that occur in these areas of the tendon and they can start to cause a tendinopathy if you like, of the brevis. And that's the place that we would tend to look at for tennis elbow.

Simeon:

So prognosis and treatment time are very much connected to which of these injuries. The easiest one to treat is intramuscular. The hardest ones to treat is tendono osseous because of the blood supply is alot more difficult. But in the case, as we said, of tennis elbow, it's also important to look at the tricep as well. Now usually tennis elbows don't come after a sudden injury. Usually there's an accumulative type of problem. But we said last time that a sudden eccentric load of a type one collagen of more than 5% can cause a rupture. So, it is an area where we do feel, you know, people go to the gym and they're all manipulating, they're squeezing. Of course the tennis elbow is the common name for it, but not everyone plays tennis.

Simeon:

As we're about to find out, I believe. Let's move on. So what are the symptoms? Okay, well tends to be more likely in the dominant arm according to the literature, but it can be in either. Usually it's a slow and gradual onset over several weeks and months. And it's less common for it to occur suddenly. But as we said before, tendons don't like sudden eccentric load. It can be anything from mild discomfort to severe and it can also affect people's sleep. We get this increase when we forcibly try and stabilize or move the wrist. So we know it's very much related to movement of the wrist, pain on shaking hands. In fact, shaking hand pain is also associated with brachioradialis and to the point where they call it the presidential handshake trigger point. Using power tools gripping, especially pens, computer mouse, cutlery fully extending the arm, which may be something to do with the bicep and tricep trigger points, turning knobs of the doors and lifting, sort of just holding, lifting.

Simeon:

So all of those things will make things worse.

Steven:

But at least with coronavirus, they'll be less shaking hands.

Simeon:

There will be less shaking hands, it's true. We may see less tennis elbows. In terms of epidemiology, we think it's between one and 3% of the population, mainly men ages of 30 to 50. And remember last week we talked about, shoulder being rated to 40 plus. And again, you know, we said the body, collagen attendants have an optimal,age range of about 40. So we can see after the age of 40, a range of 10 and operatives. But in terms of people playing regular racket sports, they are a slightly higher risk of developing the condition, which is why it's called tennis elbow.

Simeon:

But actually 95% of cases are not tennis players, but anyone who sort of participates, we said in sports, anything with a full arm muscle with gripping so things like kayaking, canoeing, archery, all of those kinds of sports. And also certain professions like musicians, cooks who chop up, cleaners butchers, gardeners, assembly line workers. So, we're talking about people that are 30 to 50 and that have a regular, repetitive occupation or hobbies that challenge the tendon. In terms of differential diagnosis I think that really important things to look at here are the radial head. I've seen a couple of tennis elbows that have actually been radial head pathologies at the elbow. Of course also looking at discopathy the fibro cartilaginous disc in the wrist that is often of course, a source of pain as well, and we can get osteoarthritis of the elbow joint.

Simeon:

There are other rare conditions like this posterior interosseous syndrome, which is a type of nerve entrapment. And also radial tunnel syndrome as well, but they're fairly rare. And actually they may be connected to trigger points.

Steven:

Are there any particular pathologies of the radial head? You mentioned radial head pathology generally.

Simeon:

Well, this could be post-traumatic, post falls. I actually had a case recently of a woman that had been on steroids for lung conditions and she had a very relatively minor fall and she came in with what everyone thought was a tennis elbow, took an x-ray and the whole radial head had just come off. It just completely slipped off. So, it can happen. So in general lateral epicondylalgia, these would be the differential diagnoses. What I thought we'd do now, if we may is we'd ask Dr Gerwen a little bit about tennis elbow. So let's see what he has to say.

Dr Gerwen:

It's referred pain from the supinator muscle, is located over the region of the lateral epicondyle. And the muscle is almost always involved in lateral epicondylalgia. However, it should be noted that in one of the few studies that looked at this question, that only approximately 50% of subjects with lateral epicondyle pain had

trigger points that were found in the supinator muscle. Despite that, from a practical point of view, we examined the supinator muscle in all patients who have lateral epicondyle pain. And I must say that from my own clinical experience, we treated in almost all these cases and it seems to, despite the fact that the one study showed only 50% of subjects had trigger points in the supinator, it seems to me at least that it's far more common than that one study would indicate. Extensor carpi radialis longis and brevis, pain is felt for the brevis more over the back of the hand as well as pain in the lateral epicondyle.

Simeon:

I'm very honored to be able to work with him. What we're going to do now is we're going to look at those pain maps and the muscles in a little bit more depth. And this is just lifted from the software that I've been doing withDr Gerwen. And so, so let's look at supinator first. And we can see supinator takes it's origin from the lateral epicondyle and the radial collateral ligaments and inserts into the dorsal lateral surface. And look, this is the pain map here for supinator. So got lateral epicondyle pain and pain around the web of the thumb as well. So if we're looking at the brevis now, instead, the brevis is a little bit sort of distinct. See the brevis from the common extensor origin and then it goes into the dorsal surface of the carpal bones, but it actually is involved in ulnar deviation.

Simeon:

So one of the ways we can identify is by doing some ulnar deviation as well. So it's a little self-help that you can send your patients to do at home from the software. The other thing is we said before are the biceps and the triceps. So let's just have a little look at those. We're going to look at the biceps ..... We covered that in extension extensively last week where we can see the pain map tends to be around the sort of deltoid and the bicep area and the tricep has several particular trigger points because obviously it's three different muscles. So we can see we've got some deep medial border which would tend to cause sort of medial border pain. The long head of the tricep, that's the one to look at with epicondylalgia because you can see that the pain map is often felt in that lateral epicondyle area.

Simeon:

Also along with anconius as well. And again, this is just showing some self-help that you can send your patients from the software if you decide to. So, that's looking at the pain maps. So again, tennis elbow supinator, extensor carpi radialis brevis, tricep for sure and sometimes the biceps as well. Uso in terms of treatment, you look like you've got a question. We're good.

Steven:

Yeah, I have, yeah. I was hoping for pause because first of all, (name) sent in a question sometime ago asking how big a trigger point is, you know, finger size, elbow size?

Simeon:

Okay. They range in size from very tiny little nodules, to pea like nodules all the way up to quite large kind of gristly bits. The size of a trigger point varies according to the type of muscle.

Simeon:

Is it unipennate, multipennate? How big is the muscle? What I mean by that is like the pec major for example, is three functional muscles that come together. So you'll have three trigger points and more. Infraspinatus also tends to have three trigger points. Uthen also it depends on the chronicity, how long the trigger points have been there. The longer they've been there, the more sarcomeres have failed, the more, the bigger the trigger point will be. It's an important point, it's worth noting that, when trigger points start to get better and it takes me around about five sessions, usually five or six to get them better. They take a while. Uthere's the trigger points tend to become much more superficial. So they moved from being deep and sort of big to superficial and very small and you can feel them much more near the surface of the muscle. And yet you can get enormous twitch responses from going not very deeply into the muscle. So, they vary in size from a sort of a lump to a pea size to a very small nodule.

Steven:

Quickly, before we move on, I need to reassure people as well that they shouldn't worry too much about the slides during this presentation because they'll have access to those in a day or so once we upload them to the website. More important to listen to what you're saying, than worry about the text being a bit fuzzy on Facebook and things like that.

Simeon:

Okay. Duly noted. I'm happy to share them. In terms of treatment we talked about inhibition, compression techniques, they can be very helpful. So, what you're doing is, and again you'll feel you can actually treat anywhere in that taut muscle. It doesn't have to be actually on the trigger point. However, if you can locate that point of maximal tenderness that reproduces the symptoms, I find it tends to be more effective. And we're gonna find it, hold it and pause and wait for a change. And really important, as we said, always with trigger point work is don't come off too quickly. If you come off too quickly, you can get rebound pain and it can actually make things a bit worse.

Simeon:

So if you're going to go deep hold it slow. And the other one is that deep stroking massage. Now look, I mean the truth is that a lot of the positional release techniques are myofascial trigger point release techniques as well. So positional release, holding for 90 seconds, strain, counter strain, they're all things that you can do on those trigger points as well. But as we said, always remember to look at the tricep as

well. I do like needling when it comes to lateral epicondylalgia. I find it actually one of the most beneficial things in my tool box. UI don't needle everywhere, but when it comes to that kind of condition, I find it incredibly helpful.

Steven:

Robbin has asked if you have any thoughts about anconius involvement in lateral elbow pain.

Simeon:

Yeah, absolutely. So, anconius can definitely be involved. We actually cover it in the software and we've got a whole video on anconius if you're interested in that. But yeah, it's part of the whole tricep story. You know, it tends to be more you see it in bodybuilders, but yeah, definitely involved. Thanks for the question.

Steven:

Okay. And Martin's asked whether you treat chronic tears in ECRB tendon or do you refer for other therapies such as needling, which you just talked about?

Simeon:

Yeah. that's a really good question, Martin, thanks. I think you know, there are different mechanisms of tendon injury. I would treat them, I treat them. Yeah.

Steven:

And a final question before we move on. Actually there's a really good observation been sent in here from Carol who says she's had a client who had a medial epicondylectomy for a malplaced ulnar nerve as it was snapping and it was a surgical failure, but her understanding of the mechanics suggested removing the epicondyle would make a slipped ulnar nerve slip about even more. What do you reckon?

Simeon:

Well, it's good. I mean, yeah, the ulnar nerve neuralgia or neuropathy is definitely an issue. You know, many of us have seen them. They can be very uncomfortable, but nobody, I don't know, they normally don't take away the epicondyle, they normally just move the nerve around. I'm not sure about that procedure. I know from what the ones that I've seen, they normally sort of move the nerve rather than remove the epicondyle or maybe it's some other way of doing it.

Steven:

Jemma has asked if while you're treating lateral elbow pain, let's call it that. Whether you also suggest the patient rest or whether you keep them exercising, doing bicep tricep curls and so on.

Simeon:

Yeah. So it's a good, very good question. So in general, last time we talked about holding patterns, I find that the body goes into a lockdown around these problems.

Simeon:

That's not just agonist antagonist that's also looking at the autonomic nervous system as well. So I find it unhelpful when someone's got active trigger points to get them to exercise. Stretching is important. So I would get them to stretch on the hour every hour or every second hour after the treatment for two or three days just to kind of reinforce what I've done. But in terms of exercise, I would generally get them to lay off of exercise of that area while we're working on it. Okay.

Steven:

And one final one on this and then move onto carpal tunnel. Ian has asked how we protect muscle tendons from sudden loading if we follow the procedure that was outlined last Friday by Dr Claire Minchell who was talking about graded but continuous loading approach to rehab.

Simeon:

Absolutely. I mean, I wasn't at that lecture, but it's absolutely right. All the advice is that we do no sudden movements. I think we said last time tendons are like kind of you and me. They like gradual change. They don't like something sudden, you know, not our age.

Simeon:

Moving on. Thank you. So, now let's move on to the carpal tunnel. So that's explored the tennis elbow if you like, but carpal tunnel syndrome. Now this is one of those ones where as an osteopath, I'm sure many have had the same experience, you think, Oh, you know, what is there to do because it's not a kind of natural thing for us. However, I'm going to show you some stuff that really, really does work. So, let's look at the carpal tunnel. It's the single most common form of entrapment neuropathy and it involves pressure of the median nerve and we're going to look at the median nerve a little bit later. And there are several structures that can impede that. We've got the carpal tunnel itself, which we're going to look at in the next slide. But there's also some other non flexible structures there such as the retinaculum and sustained high pressure in the tunnel impedes microcirculation.

Simeon:

We've got the carpal tunnel itself, which we're going to look at in the next slide.

Steven:

I don't know what the hell happened there. I think it's a zoom problem Simeon.

Simeon:

Okay.

Steven:

Sudden looping going on if something's wrong.

Simeon:

I was thinking who is that intelligent person? So a lot of people have looked at the pathophysiology and there are certain parameters, but some cases cross surgical decompression, but most cases don't. Uand let's have a look at some more of those muscles. So we have a little look now at the facts. More common in females than males. Uwith a frequency of 9.2% of females and 6% in males, average of 40 to 60 in terms of the age. Uas I said in Europe, 60% of all work-related injuries are attributed to carpal tunnel syndrome, a huge amount of work injuries. In Europe, between seven and 19%, in the USA around about 5%. Um, doesn't seem to make sense that figure does it, you know, the Europeans, people who sit at a computer and use a keyboard for extended periods are at higher risk. Um,ople that do, for example, repetitive key entry jobs. Pregnancy, we know that pregnancy can change the hydrostatic pressure around the wrist. Also diabetes, an diabetic neuropathy, they have a greater tendency to getting carpal tunnel syndrome, um ple that are packing meat, fish industry, musicians, mechanics, a little bit like we said, about lateral epicondylalgia, same kind of thing. And also smoking. Smoking has been found to contribute to carpal tunnel syndrome as it limits the blood flow to the median nerve. So all of these are are associated with carpal tunnel.

Simeon:

So moving on, let's look at the anatomy. So the carpal tunnel itself is located on the Palmar surface of the wrist and its job is to protect the median nerve. And we can see quite a nice picture here. You can see the median nerve going into its branches, which is the lateral three and a half fingers, the thumb, index and the four fingers there. And and it goes through this osseous fibro osseous tunnel and it's got two layers. There's what we call the deep carpal arch and the superficial flexor retinaculum. So the deep carpal arch forms this concave surface and it's converted into a tunnel by the overlying flexor retinaculum. In terms of the carpal arch,concave on the Palmar side, is formed laterally by the scaphoid and the trapezium immediately by the hook of the hamate and the pisiform.

Simeon:

And then the retinaculum is thick connective tissue, which forms a roof of the carpal tunnel. It bridges the space between the medial and lateral parts of the arch. Uand that's where we find, the median nerve passes through. So the actual function of the carpal tunnel is to protect the median nerve in some ways as well. Ulet's come to the next slide if you would.

Steven:

That's a lovely, lovely slide. That last one, Simeon, I just love the fact they've left in a piece of string holding the thumb.

Simeon:

Oh, you're right.

Simeon:

I thought you'd find that amusing.

Steven:

But you're right. Let's move on and look at carpal tunnel symptoms.

Simeon:

So what we're going to get is numbness and it's numbness of the lateral three and a half fingers, thumb, index, middle fingers and the sensation also when people are holding a steering wheel in one position for any length of time, holding a phone, holding a newspaper weakness is common. People drop objects, they usually feel weak and numbness and tingling and also they tend to be worse at night. So this is really also related to the way people sleep with these awkward sort of hand positions. But again, classically people want to hang their hand out the bed and want to shake it off and sort of almost sort of dissipate the fluid. And as we said at the beginning it is the most common form of nerve entrapment.

Simeon:

In terms of predisposing factors. So on the next slide if that's okay. We are looking at things like diabetes. Sadly obesity, we won't go into that without me crying. Hypothyroidism, rheumatoid arthritis, pregnancy, also cell phone use, gaming, computers and ergonomics. Hugely relevant in terms of diabetes because of the effect on the nerves in general. So then the predisposing factors as many of us remember from college. But I thought perhaps we'd get our friend, neurologist, guru, generally amazing man, Dr Gerwen, to tell us a little bit about his thoughts on the carpal tunnel.

Dr Gerwen:

Between the two heads of the pronator teres muscle runs the median nerve. This is important because the median nerve is most commonly trapped or compressed in the carpal tunnel in the wrist. However, there can also be entrapment of the median nerve at it's traverse through or between the two heads of the pronator teres muscle. In this case, we would have a true double crush syndrome with compression in two distal or peripheral sites. The patient who is suspected of having carpal tunnel syndrome should have the pronator teres muscle examined as well. A typical response to percussion over a compressed or entrapped median nerve at the wrist would produce a Tinel's sign or a numbness or tingling or pain on percussion. The same maneuver then is performed over the pronator teres muscle. Please turn your wrist in this manner, I'm going to rotate it back so you rotate against me. There you go. So we find the pronator teres muscle and in its mid belly, a pathway roughly halfway between the insertion and the origin is the passage of the

median nerve. So we'd tap that and see if that elicits a Tinel's Sign indicating that there would be an entrapment of the nerve at that point. Now, in truth, if there is entrapment of the nerve at one side such as the carpal tunnel, the nerve may be tender and may have a Tinel's sign at the pronator traverse as well so that the Tinel's sign itself is not a sure thing. A negative Tinel's sign at the pronator muscle may mean more than a positive.

Simeon:

We're going to look at it now. It's just some trigger points from the app itself as well.

Simeon:

Yeah. So starting off with the supinator muscle, I believe, let's have a look with searching for pronator teres. So pronator teres muscle, there's a short flap coming from the medial epicondyle, and inserts into this medial surface of the tubercle there of the radius and look, here's the pain map for the pronator teres and the median nerve actually sits underneath. And the other one that's really important is palmaris longis. Now we're looking at Palmeris longis in more depth later, but it's the common flexor origin anterior aspect of the epicondyle and then it goes into the flexor retinaculum in the palmar aponeurosis of the wrists. Uagain, there's just some self-help that we can give the patients from the software as well. The reason I'm just going to change the background colors because you know, you can see that the Palmer surface there is a little bit easier to look at this Palmer aponeurosis. But here's the pain map, very much carpal tunnel pain. So, the pain map of palmaris longis actually we find it's a really important one for looking at carpal tunnel syndrome. So let's go back one slide if that's okay.

Simeon:

Just one back. Perfect. So let's carry on here. So Palmeris longis, well is actually absent in around 16% of the people, I have got caught out before. What I remember very early on in my career, I was saying to a doctor, I think this is a palmaris longis problem. He quite rightly pointed out that the patient didn't have a palmaris longis. She didn't make me feel so good. You can tell cause at the wrist there's usually two flexor tendons. So, actually the tendon of the Palmeris longis can actually be very thick and it can rest on the carpal tunnel and trigger points in palmaris longis can certainly contribute to, carpal tunnel syndrome.

Simeon:

So it was one of the reasons I'm excited is because it's nice to, to find something that we can actually do to help and boy, does it help. It really does help. So it's really worth looking at. F we look at the Palmeris longis a little bit more and in more depth. Yeah, the next slide. And then for some reason it's not coming. There it is perfect. Uthere are certain variations and here, we can see some variations of the palmaris as we say, absent in about 16% of people, we can get a duplication where we have these two tendons, and it's actually two muscles and two tendons, a triplication

where we get three muscles and tendons and accessories and also a profundus a deeper one as well. So there are certain variations of palmaris longis. Certainly it's a wrist flexor absent in 16% of people.

Simeon:

But we can see that it comes, in fact I believe. Can we go back to that slide before? Sorry. Thanks. We can see here in this picture how it actually inserts into the Palmar aponeurosis and it's this right above the carpal tunnel. So for completion, I just included a couple of slides from the software. One of the nice things about the software is that we can send self-help to patients and show them things that they can do at home stretches, which is quite nice if you're doing an online consultation. It's just nice to be able to sort of whack them something over there as well. So let's just talk a little tiny bit about the software as well. So this is actually not just Dr Gerwen, we've got treatment experts really top people in the field, have all contributed to the software, including by the way, Leon Chaitow.

Simeon:

So we've got a lot of really brilliant trigger point content in the software.

Steven:

Questions before we move on if you're done, there's a few related to what you've just said. Jackie's asked about these chronic occupation related changes are they're not just going to keep coming back despite what you do with them?

Simeon:

Well, I mean there is some truth there. I would say that, like we said at the beginning that when a trigger point is present that it actually increases the, it's a kind of vicious cycle. So I think it's important to release them and get people stretching effectively. Otherwise what can happen is they're locked in sort of vicious circle. There are obviously things that mitigate this. Ergonomics, chair considerations, work desk considerations and getting people to take regular breaks and stretching all of those things that we know about.

Simeon:

It's like saying is it not worth treating anything because it's going to come back again. I think that with some stretching, with some good advice, with some management and some treatment, it's definitely worth treating them.

Steven:

Okay. Martin has asked about tests for carpal tunnel syndrome. And do you use Phalen's, reverse Phalen's, or do you have other preferred tests?

Simeon:

Yes, Phalen's and Tinel's. We nearly had the video of that, which maybe we can slip it in on the notes. They were correct on the notes.

Steven:

If you're happy for me to put the videos up, I'm very happy to do that.

Simeon:

I think we can put that video in. That would be fine because people didn't get it, it'll answer that question. You'll see Dr Gerwen will tell you about the Tinel's sign and we look at Tinel's tests also as we said at the pronator teres as well. And we are looking at something called the double crush, which is what we're going to look at.

Steven:

And there's one question, last question. Jen has asked whether needling risks aggravating the tether itself.

Simeon:

Well we're looking at something like a 0.3 micron needle. And once it's true that when we needle someone, we get micro trauma and we do get small reactive tears, it's very, very tiny. So you're not going to aggravate any larger tear with an acupuncture needle. Very unlikely.

Steven:

Would you actually be needling into the tear itself or would you be needling around it?

Simeon:

No, you're going to be needling to the taut band at the point of maximum tenderness. It's funny actually, I had one recently, I said recently, six weeks ago, hamstring, that was a grade two tear and that while I didn't needle in and around the tear, I knew where the tear was. But you've got to remember the tear has got a lot of scar tissue and fibrous. You don't really want to get too much into that with the needles.

Steven:

Okay, I'll let you move on sir.

Simeon:

Is it okay? Let's talk about pronator teres and pronator teres syndrome. So, the median nerve entrapment of the forearm, mid elbow can also be from, we could adopt book crush. So when we keep checking for the carpal tunnel, we can also look at the pronator teres, right? Pronator teres syndrome is a kind of compression of the median nerve around this Struthers ligaments and they say there's a little spur

as it comes through. And also the anterior osseous nerve both syndromes infrequently encountered, but entrapment of the anterior osseous nerve by the deep head of pronator teres and the flexor superficialis arch (assits?) being more frequently recognized. So pronator teres syndrome is another one of those sort of nerve entrapments that we can get along with trigger points in the pronator teres. Although it's as many of the clinical manifestations are very similar to that of median nerve entrapment. We can also be confused with carpal tunnel syndrome and as Dr Gerwen said when we're looking at the carpal tunnel, we should also look at the pronator teres and do a Tinel's test there. So double crush is where you're getting compromise of the carpal tunnel down in the wrist and under the pronator teres as well. And the point being that if you've got that, then you're almost certainly going to be able to help someone with a carpal tunnel by looking at those structures.

Simeon:

In terms of the symptoms, let's just move on a little. As we said, this is a double crush. We get this crush at the median of higher up and then also as it goes near Struther's ligament a little bit lower down. So here's an image of pronator teres. As we know it pronates the arm, which is the opposite super nation and the major signs and symptoms are pain and numbness in the distribution of the median nerve. So very similar to carpal tunnel. Anterior osseous syndrome is more weakness, affects the policis longis and digitorum profundus and pain into the cubital fossa, which is here just at the front of the elbow. And also of course resisted pronation that will tend to exacerbate the symptoms. There's pronator teres syndrome and I thought maybe we'd get Dr Gerwen and hopefully this will work to tell us a little bit more about the pronator teres itself.

Steven:

We'll see if we can get this video to work.

Dr Gerwen:

So pronator teres and the pronator quadratus are the two muscles working together to pronate the forearm and turn the wrist and the hand into a prone position. The pronator teres has two heads, a humeral head and an ulnar head and they both insert distally on the lateral aspect of the radius distal to the insertion of the supinator muscle. Palpation of the pronator teres muscle is accomplished with the patient pronating the forearm against the examiner's resistance. So please turn your arm against my resistance and then you can feel the muscle pop up onto your fingers. You can trace it all the way from the medial epicondyle down to the radial insertion. Relaxed. Now we have the muscle that is running in the direction that my three fingers are indicating.

Simeon:

Thank you Dr Gerwen. I just say, by the way again, his functional anatomy... We've got 500 videos of his on the software. His functional anatomy, like a breath of fresh

air. I mean, it really is quite phenomenal and hopefully he is going to come on your program and talk about headaches. We're working on that. Uokay, so just to conclude then, we've covered, lateral epicondylopathy, we covered carpal tunnel and this pronator teres syndrome. We talked about the median nerve being compromised around the elbow and also in the wrist itself. Uagain, just to cover the treatments, very similar,spray and stretch now spray and stretch can be done, used to be done with ethyl chloride spray, not anymore, it's flammable. There are spray and stretch cold sprays, which should be held about 10 centimeters away from the body and literally it's the easiest technique which is you spray and then you stretch.

Simeon:

So you spray the skin usually in the direction from origin to insertion, three times 10 centimeters away, perpendicular to the skin, and then you stretch the muscle and it does deactivate trigger points. In fact, (name unclear) said it was one of the most effective ways of deactivating trigger points. There's various reasons why. Ubut so apart from that, there's of course the deep stroking massage, inhibition compression and needling and needling can be incredibly effective. Uwhen you know the anatomy really well. Uand again, you know, I think just on that point as osteopaths, we are so good at palpation, we're so good at anatomy, that it's a real chance for us to broaden out toolbox and actually lead the whole conversation in terms of the trigger point movement. There aren't really enough of us at the forefront.

Steven:

Do you use spray and stretch? I've never seen you do that on your courses.

Simeon:

Yeah. I don't do it on the shoulder courses, but I do use it for hamstrings. I use it for quads, I use it for some of the bigger muscles. I do use it. Perhaps not as much as I used to cause I'm finding needles more convenient. So that's it. So we've covered it all.

Steven:

Just some questions, of course. I mean, a lot of people have asked about Dupuytren's.

Simeon:

So Dupuytren's contracture. Again, you could have got palmaris longis in terms of trigger points. It's a slightly different physiological process. It's actually related to some of the changes in frozen shoulder syndrome. They've got a similar pathology. No it's not. We certainly won't cover it on this. It's not easy to treat, is it?

Steven:

Okay. David's asked whether palmaris longis predisposes people to carpal tunnel syndrome because of extra tunnels and extra tendons entering the tunnel.

Simeon:

Like we said at the beginning, when I was at college, I don't think carpal tunnel was a real thing then. Then when you see it, there's not much you can do. But I've had really good success looking at the palmaris longis trigger points, really. Excellent. So really worth looking at pronator teres as well.

Steven:

A couple of people have asked about the spray that you were talking about. I mean you did mention it, and I don't think they're talking about your hairspray Simeon on this occasion.

Simeon:

The spray is all yours, Steven. Gerber have a spray and stretch, it's called Spray and Stretch and you get it from the States.

Steven:

Okay. Elsbeth asked weather you can use ultrasound therapy on trigger points.

Simeon:

Some people do use ultrasound they use a ultrasound and they use lightand (something) laser as well. I think you can, I can't see why not.

Steven:

It was very interesting though because I mean, ultrasound is obviously it's a mechanical therapy, but it's it's repetitive. And what you do with trigger points is sustained pressure isn't until they release.

Simeon:

Yeah. I think the thing that we know about trigger points, there was good bit of research done by this Connie Sharp, who did a micro dialysis of a trigger point and he put a needle inside an acupuncture needle, so can you imagine how small that was to suck out the (diaxel?) or take out. And he found that basically trigger points contain a lot of the pro-inflammatory subsudates and substance P, cytokines, interleukins all of these inflammatory, so you could argue that with the ultrasound that, even with the, the techniques we're using, are creating more, and working on the inflammation. So you can argue, that ultrasound could be helpful. It's not something that I do, but it's possible.

Steven:

Silver has asked about trigger points, do they occur in a specific spots in muscles or can they vary?

Simeon:

Obviously it could be anywhere in a muscle tendon. It tends to be in the belly of the muscle. We do get things called attachment trigger points, which is at the tendon sometimes where the muscles attach. A classic one is upper traps in the lower part of the skull. You can get attachment trigger points up there. But generally speaking, they tend to be in the belly of the muscle, which is where the main contractile sarcomeres are that density and that tends to be where we see them.

Steven:

Okay. And do you know a chap called Stuart Bentley? You do? Cause he's asked whether they used you as the model on the app when your a little trigger point 3D perks.

Simeon:

Thank you Stuart. That's very, very funny. Remembering the thing we published together. Well actually you're talking about Boris, the model there. I'm optimistic we're going to be bringing some different models on board.

Simeon:

No, the reason I chose it actually it's a good point is that there are other interactive anatomy softwares there, but actually when we're looking at trigger points, it's all about the maps really. And I think it's nice to have someone and see those maps in their full glory, that's what it's all about.

Steven:

Regarding the app. So if people do get the app and you've generously given a discount for members of APM, so they get the members benefits page, I can do it. Is there some support that they can get if they're having trouble just finding their way around it, getting to use it.

Simeon:

Definitely, bear with us guys. We're just, this whole Corona thing is pushing my mind, the app a little bit further forward than it was, but basically it's available now on, I think triggerpointguru.com. But we're still having some issues with the signup procedure. But if you go to trigger points 3D, you leave your details, we'll let you know when it's ready. It's gonna be in the next week to 10 days at the latest.

Steven:

So if someone wants some help in getting it running?

Simeon:

Definitely. And we've got some tutorials that we're working on as well. Theoretically, it should be quite intuitive, but for sure.

Steven:

What I saw of it, it was. Simeon, thank you very much.