



Trigger Points: Evidence and Treatment - Ref 304

with Bob Gerwin

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TRANSCRIPT

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Steven Bruce

Good evening and welcome. Well, this last week seems to have been non stop here at APM. We have this hugely, hugely instructive visit to the BBC. And then of course, we started the dry needling course which ran from Friday to Sunday. And that I can tell you was pretty damned intensive. And I spent today filming material for various purposes, with the course tutors, Simeon, Niel Asher and Professor Bob Gerwin. The course was, I think the second that we've run with Bob and Simeon, and if you'll forgive me beating the same old drum again, I am convinced that it is the absolute gold standard in dry needling, and we've got another one scheduled for September. Now if you need more convincing about the quality of that course, stick around for the next 60 minutes because I've got Professor Gerwin here with me in the studio to talk about the increasing body of evidence behind the whole trigger point concept. Now, maybe I need to lay out first of all Bob's credentials for you. He's had over 50 years in medical practice, he's retired now. But he's an associate professor of neurology at Johns Hopkins Medical School, one of the foremost medical schools in the USA, if not the world. More than that he actually worked very closely with Janet Travell herself. She of course, along with David Simon's was the author of the trigger point manual, the defining text in myofascial pain. So I really do consider it a huge privilege to be sharing a stage with him, Bob, thank you very much for giving up your time to be with us today.

Bob Gerwin

Thank you for having me here with you.

Steven Bruce

Now, I've got a second guest this evening as well. I hope she won't mind me saying that she isn't quite top of the bill given who my main guest is. But she is a very experienced osteopath, as well as a good friend and colleague. And I've asked her to join us to give the lowly clinicians' view of the training that she received this last weekend at the hands of Bob and Simeon. And I'd like to know as well, how useful she sees it being in practice. She's Bernitta Willoughby. Welcome too, Bernie.

Bernitta Willoughby

Thank you, Steven.

Steven Bruce

Great to have you here. Bob, where do we start. Did I do you justice in your introduction?

Bob Gerwin

Yeah, you're very kind. It was a very kind introduction.

Steven Bruce

You were very modest and self-effacing. And you also run Johns Hopkins neurology.

Bob Gerwin

I actually I had a full-time private practice in Bethesda, Maryland. And I had a part time faculty position at Johns Hopkins. And I had a clinic at Hopkins for roughly 10 years or so. Which was started as a neurology clinic. So I could treat my neuromuscular pain patients. And it's sort of evolved into the neurology

department pain clinic, which was an interesting phenomenon. I don't think the neurologists knew what to do with me at first, but I think over the time they actually learned what I could do for them.

Steven Bruce

Okay. We don't have an awful lot of time this evening. Would you like to start by just reminding us a bit about the history of trigger points first of all, the progress of knowledge in treating?

Bob Gerwin

Sure, the concept of trigger points and the pain syndrome that is associated with trigger points, the so-called myofascial pain syndrome, indicating muscle and fascia involvement was not known as such hundreds of years ago, but the phenomenon of tender nodules in muscle tissue that was known far back into the 1600s and before. And they just, people describe nodules that were like small crab apples in muscle that was not picked up well, there are the phenomenon of pain associated with muscle was given many, many names fibrocytes, and a variety of, there are over 30, 40 names applied to this, but it really did not go anywhere until two phenomenon, Kellgren identified the phenomenon of referred pain when he injected hypertonic saline into willing volunteers, those were medical students, of course. And he also identified the elimination of referred pain by injecting tender spots again in the same volunteers. Janet Travell came along a few years later, top of her class at Vassar, top of her class in Cornell and a clinical pharmacologist at Cornell University Medical School, I think not in medicine because she was a woman. I once asked her if she thought she was a feminist, and she said she was too busy for that.

Steven Bruce

She might have been just a woman, but she did have some fairly significant clients, didn't she?

Bob Gerwin

Most famous client she had was John F. Kennedy, five years before he became president. She got him out of his sick bed onto his feet. And when he became president, he invited her to be the first woman and first civilian, White House physician.

Steven Bruce

I bet that really pissed some people off.

Bob Gerwin

Oh, that made the Admiralty that previously provided, they were still physicians to Kennedy at seven physicians and forbade any of them to talk to each other, which is another phenomenon of interest. But when she was at Cornell, because of her position, and as a clinical pharmacologist, she accompanied the clinical rounds of every department that she could. And first of all, she became even better educated in general internal medicine because of that, but more than that, she would point out to Harold Wolff, the most prominent headache doctor in the country at the time, while he was wrong because he didn't understand that muscle caused some of the referred pain he was getting. This went through other departments of people with angina that continued to have chest pain with no sign of cardiac impairment anymore. And she published the first paper in a series of 40 or 50 papers on myofascial pain, a paper with Seymour Rinzler on noncardiac chest pain, the effect of myofascial trigger points. And so it went from there, she was fascinated by the phenomenon of cold, the effect of cold on biologic symptoms. And

from that interest she developed the concept of a sprain stretch, you use a cold spray on the skin, supposedly as a counter irritant, which would decrease the pain that limited stretch, so you would spray and then you would stretch.

Steven Bruce

This is a technique still being used and advised in certain cases, isn't it?

Bob Gerwin

It is, it's still being used, particularly by I think massage therapists and those who don't do interventional treatment. It has its problems. It has its place, but she used it extensively.

Steven Bruce

Despite the fact she used it extensively, despite the fact that she was so well regarded, at least by John F. Kennedy. The whole concept, the whole evidence for trigger points was questionable for some time. Is it still questionable? Can people still dispute their existence?

Bob Gerwin

Not really, at this point, there are still a few, certainly, there's a group in Australia that questions this. But the concept of trigger points has been increasingly supported by evidence and increasingly accepted. Norman Harden did a study with the American Pain Society maybe 10 years ago, and the acceptance rate was somewhere around 85% of people thought myofascial trigger point concept was correct. In neurology, I remember, an East Coast and West Coast neurologist collaborated in, writing a publication basically damning the concept of trigger points and fibromyalgia for that matter, the figment of the imagination. Now, myofascial trigger points are mentioned as a concept that is responsible for initiation of migraine headache, for example, at neurology meetings today. So yes, it is now I think, mainstream medicine.

Steven Bruce

Bernie, you came out of college a bit more recently than I did. I don't remember being taught about trigger points when I was at college. What I don't remember from college isn't really a good guide to what they taught because I wouldn't say I was the best student. Did you get taught about trigger points?

Bernitta Willoughby

Not that I remember.

Steven Bruce

This is amazing, isn't it?

Bernitta Willoughby

We are manual therapists. So I would have thought that it would have been a topic, but then maybe, it's been 12 years. Trigger points to me have been more of a recent thing. And it's not something I've added to my daily clinic as I'm going to treat a trigger point, it's, we're osteopath, we treat everything, and we treat as we find. So the trigger point approach is very specific, which actually personally like, I like specific approach.

Steven Bruce

So the weekend course we've just done is that the first time you've been given detailed training on trigger points specifically?

Bernitta Willoughby

For trigger points? Yes, absolutely.

Steven Bruce

So well, let's come back to Bob, what the hell is it? What's the science behind or the theory?

Bob Gerwin

First question, what is it. A trigger point is an area that is tender, it's in muscle, and it is a source of pain in muscle. It is composed of a structural alteration, so that you have a band within the muscle, not the entire muscle but you have a discreet band within the muscle that is tight. It's stiff, you will say it as decreased tissue compliance, you can't push it in as far as you can push in normal muscle. And within that band, there is a very small spot, and we think it's about the size of a grain of rice. #

Steven Bruce

So not a crabapple then?

Bob Gerwin

They were talking about very tiny crab apples, not the crab apples we see today. But that small spot is really exquisitely tender when it is stimulated by pushing, or when it's stimulated by activity, then the muscle feels uncomfortable. So, that is within the muscles. So that is a, we call that a pain generator and it sends pain impulses through the nerves to the spinal cord. So the spinal cord is central and the trigger point is peripheral. So you have a peripheral source of pain, goes into the spinal cord, and it acts on a nerve cell on the spinal cord that receives pain, information. And if that persists too long, it will actually sensitise the nerve cell within the spinal cord. And that sensitised nerve cell then becomes very sensitive and begins to respond to stimulation, which is not as painful. Or if you get the same level of pain, then the response is magnified, that hurts like the dickens instead of hurting just a little bit. And if it really becomes sensitised, it begins to hurt when there's no stimulation whatsoever, that central sensitisation in the spinal cord tends to maintain the pain even after the peripheral source of pain may recover. So it can become long lasting. And it has another peculiar aspect to it, which has made it very difficult to understand. And I think which probably lent itself to the difficulty in acceptance. And that is that the sensitised nervous system leads to something called referred pain, that you begin to feel pain away from the source of the pain. So you have a trigger point in the shoulder and you may feel pain in the head, you may feel pain in the finger. That's the referred pain. And you could treat the referred pain, but you don't get rid of the source of the pain. And that was confounding to people. The other problem early on, by early on, I'm talking about the 50s, 60s and 70s into the 80s was that you could not image the trigger point. And in medicine, we have this strange phenomenon if you don't see it, it doesn't exist. Well, now you can see it high-definition ultrasound and you can see it on Magnetic Resonance Elastography. So that adds to its credibility.

Steven Bruce

That's reassuring for people who are proposing to treat them of course, I've been corrected Bernie by several people who say that the BSO trigger points are being taught 23 years ago and ACC they were teaching them 30 years ago. At ESO they teach trigger points. So thank you, Caroline, George and Rachel for telling me how bad my memory is. Here's a good question from one of our audience who calls himself Mrs. Trellis. His name isn't Mrs. Trellis. Are trigger points consistent and reproducible between individuals? Or do the exact science vary. And following that, are trigger points associated with any identifiable specialised tissues?

Bob Gerwin

Are trigger points consistent, the first question, the trigger points tend to recurred motor points in the muscle. And since motor points in the muscle are relatively consistent, in the same muscle from one person to another. There is a general consistency within the muscle. Within an individual though you really have to search specifically through that muscle to find them. The initial textbooks that Simon's and Travell, actually Travell was the first author, Travell and Simon's wrote had x's on the muscle. And then they found that certain practitioners would open the book and try to match the X up onto the muscle. And that of course doesn't work. You really have to identify them manually.

Steven Bruce

Is that an easy process?

Bob Gerwin

Once you have trained, I think it becomes progressively easier with experience. I think if you are not experienced and not trained, you can't appreciate the heterogeneous nature of muscle. Take a muscle of a newborn a young child, it is I would say homogeneous, it feels the same throughout. As we get older, and we work, use and abuse our muscles. We find that there are palpable strings within the muscle and you can palpate them. But it takes some effort. You don't see them with your eyes, the eyes are on the tips of your fingers. And with a weekend's training, you become adept at this. And as you continue, it becomes more and more evident and easier to identify. So I would ask you, whether you get to the end of the weekend, did you find that there is a difference in your ability to identify trigger points from the beginning, but you've been working on trigger points for a long time.

Bernitta Willoughby

I mean, going back to like the training question, trigger points was not something that isn't like in an osteopathic, for me, it was never emphasised to what they can do and why they are there. What you can see under like, we covered on the course with the workers, office workers, and then seeing those slices of muscle tissue and they were compressed, and they were the taught bands. Like, they were never emphasised to that degree as to they can cause pain that is still there, even after an injury.

Steven Bruce

Yeah, I agree with you there. If we were taught trigger points, I'm pretty confident I was taught it. I think it was while you're treating a patient, you might find a tight fit in the muscle, you press on it until it goes away. But it wasn't taught as being a pain generator, as you said it was almost sort of a reaction to whatever the environment was.

Bernitta Willoughby

It's an observation when you're treating, you will treat trigger points, whether you say I treat trigger points or not. It wasn't a specific essay, this course is specific to trigger points, it's not just about dry needling, it's about trigger points and how to treat trigger points and what pain they cause, and what benefit you can get from treating them. That's what I found really beneficial.

Steven Bruce

So but we haven't actually got to the second part of that question, but you've kind of said in whether you can't say that the trigger points will be in exactly the same place on every patient. Are the pain maps reproducible? The sort of the referral sites and so on.

Bob Gerwin

The referral patterns are muscle specific, if you will, so that by and large, one muscle will have a reproducible pain referral, there's obviously some leeway there. But generally speaking, the referral is rather consistent. And that's highly useful. Because if you want, when you work in the field long enough and become familiar with referred pain patterns, the patient will point to an area or refer to an area where they hurt. And you should automatically be able to go back and say this area of pain on this part of the body can be caused by trigger points in this or these muscles.

Steven Bruce

Right. Okay, what's the most unlikely referral site?

Bob Gerwin

The most unlikely referral site?

Steven Bruce

If you say that you can get referral from the shoulder up into the neck or the head.

Bob Gerwin

The soleus muscle trigger point in the leg, causing a referred pain in the jaw, that one raises eyebrows, it is reproducible. One of the peculiar things, I have one gentleman at a time when we were actually putting people on a scale, on a rocker and hooked up to an electromyogram. So we could see activity to muscle and he had pain in the jaw, and we could rock back and forth. And as he activated the soleus muscle and the trigger point pain in the leg increased, you could see reported increased pain in the jaw, a very strange referral. Others are less strange, the phenomenon of referred pain is by and large segmental. So that if you have a trigger point in a fifth cervical nerve distribution, for example, an infraspinatus muscle which is by and large, innervated by C5, the prominent referral patterns will be in the distribution of muscles innervated by C5 with a spillover, C6 and C7. So that's relatively reproducible.

Steven Bruce

Okay. Did you answer the question about whether trigger points were associated with any specialised tissues in particular?

Bob Gerwin

Well, they're clearly in muscle, but you have to realise that muscle is invested by fascia, and you really can't separate muscle from fascia. And so the question has come up as to whether or not the source of the pain is fascial or muscle. One of the observations that actually that led Travell to calling this myofascial was that she was in the operating room and took a wisp of cotton and stroked the exposed fascia and it contracted and said, aha, the fascia must have something to do with this. So there are people who do fascial plane blocks to relieve the pain and they can work. But there are others now who say that the fascia is really not the source of the pain, it's coming from the innervated muscle, fascia of course is innervated as well. So I'm content at this point with using the term myofascial and waiting for somebody to define the precise origin perhaps better.

Steven Bruce

Okay. Salome has asked, are trigger points the same as neuro lymphatic reflexes or Chapman reflexes. She says she learned trigger points 30 years ago at the College of Osteopathic, yet again, I'm having my ignorance exposed by all. So Chapman's reflexes, neuro lymphatic reflexes.

Bob Gerwin

I'm not sure what Chapman's reflexes are, you can define it for me, I can ask her better, but I don't know that lymph pathways are at all, lymphatics are at all involved in the actual pain, I think lymphatics are involved in the taught band in the sense that there is, in my opinion, it's likely neurogenic oedema, it is yet to be proven, but I think that's likely.

Steven Bruce

I'm not going to try to define Chapman's reflexes, although I know I have read about them in the past. But just in terms of reflexes, obviously, the course we did at the weekend was about needling trigger points in order to relieve pain and so on. What happens when you needle a trigger point?

Bob Gerwin

Good question. What happens, you're putting a mechanical stimulus into muscle, now the tip of the needle is clearly bigger than the muscle fibre. So what happens that you can see if you get in the right spot, you see a sudden contraction in the muscle, we call that a twitch and that taught band relaxes and that's what happens. Now the question is, how do you explain that? What actually goes on for that? There were thoughts I remember in a panel, debate with Robert Bennett from Oregon, does that needle poke a hole in the muscle and let the calcium leak out? Well, that seems to be a fantastical idea. I think more likely that needle is stimulating the distal nerve endings, and you're getting a nerve induced contraction of muscle and a twitch, then the question is why does that muscle relax? And I don't think anybody has a good explanation for that yet.

Steven Bruce

Okay. Based on what you just said there, I know that needles are very, very small, very narrow gauged, but are they doing any damage when you're needling trigger points?

Bob Gerwin

When you put a needle through a muscle even though it's a monofilament needle, it's not a cutting edge needle, you're certainly tearing muscle fibres. You may be damaging small capillaries. Studies done on mouse now 10, 15 years ago, so that within three days muscle begins to regenerate. And at the end of six days, you cannot see where that needle track went, the recovery is complete.

Steven Bruce

Right. Okay, so you can damage capillaries, what about damaging nerves or veins or arteries as well?

Bob Gerwin

Myelinated nerves tend to roll away from a needle.

Steven Bruce

Cause there's no cutting edge on the needle.

Bob Gerwin

There is no cutting edge, it's a monofilament needle so it tends to push things, push things away. If you come near a nerve, you will feel an electric shock kind of thing, even a small peripheral nerve. So yes, you can come near a nerve, you can get electric shock down the leg that is associated with no damage to the nerve itself. So that nerve, that electric lightning like pain goes away and the aching goes away within minutes, I think. Certainly, if you come dead on to a capillary, small arterial or vein, you can puncture it. Bruising can occur. We advise a moment of pressure hemostasis after taking the needle out. I would think that bruising is probably the most common adverse effect of needling, but I think it's of no matter whatsoever.

Steven Bruce

Okay. Victoria wants to know if you've got a simple explanation that you give to patients to explain how it works.

Bob Gerwin

I tell patients that we have a technique in which we will stimulate the painful area, your painful area, we will activate it momentarily, when that happens, you will feel a lightning strike duration that means a very short duration of a pain when the muscle contracts, then the muscle relaxes, and you will have an immediate relief of your pain. And while you may have some post needling aching or soreness, it will be different than the pain you came in with. And that will last anywhere from hours to a day or two. And when that is gone, you will feel much better than you were at the beginning. I tell them that if we are wrong, and we miss it, and we have not done right, you come back we'll do it the right way. But because I can't promise miracles, but that description of what we do satisfies most of our patients. And they know that we treat with a needle, they know we can treat with manually and there are very few patients who are so needle phobic that they don't want to undergo this. I have a few that come back, only want manual.

Steven Bruce

Well. And that leads nicely into Rob's question which is intramuscular stimulation, is that any better than just inhibition compression manually.

Bob Gerwin

From a practitioner's point of view, and then you do more manual work than I did certainly, I think it's better because it's faster. From the patient's point of view, it certainly is quicker. So you trade being pricked with a tiny needle. And I have to say that the needle prick is generally rather innocuous, as a student, this weekend, you've had many, at the end of a week you really can't tell the difference.

Steven Bruce

How did you feel about the lightning strike muscle pain?

Bernitta Willoughby

I wouldn't say it's pleasant. And I have warned. So I was back in clinic today. And I used your techniques today. And I warn them differently to how I would normally warn before with dry needling because I know that it will cause more discomfort than what I would normally do because I wasn't doing intense trigger point therapy beforehand. And all three that I used on today, we're happy and we're more of the view of it, I'm in so much pain, if it helps. I'm up for it.

Steven Bruce

Did you see the instant relief that Bob described?

Bernitta Willoughby

Yes.

Bob Gerwin

May I make one more comment, which is rather intriguing to me. And that is that after the first treatment, the patient comes back. And again, because if someone has had trigger point pain for a long time, one treatment is not going to get rid of it. If someone that has had trigger point pain for a week or so, one treatment may get rid of it. But patients typically would come into our clinic with months and even years of trouble. And so they would be in therapy for maybe six weeks, or someone we treated gets injured again and they come back. So they first of all, they ask for the needling, because they know it will get them better. And then the peculiar thing is they will say to me, Doc, your needle is off just a tad to the right. So they can tell and then they'll tell me, you didn't get the twitch. Or they'll tell me Doc, I feel you got it, it's done. So the idea that the twitch is painful momentarily doesn't keep people from coming back. And as a matter of fact, it is not only the sign to the clinician that they put the needle in the right spot. It's the sign to the patient that they're going to get better.

Steven Bruce

Bernie, your needling before this, I don't want to know the name of whoever taught you the needling. I don't want to draw comparisons with other people's training. But I'm guessing the philosophy was slightly different. What was your dry needling based on before this?

Bernitta Willoughby

More about you would find taught bands and tension and that's how I would needle, I would needle into those taught bands and tensions and do multiple needles at a time in an area.

Steven Bruce

And leave them in?

Bernitta Willoughby

Yep, leave them in for as long as until the needle releases. So I would twist.

Steven Bruce

And were you also taught, when I did my dry needling course way back, whenever it was, I was also taught periosteal pecking, as well, did you that?

Bernitta Willoughby

I was taught that but it's never something I've used in practice because I've never felt, like what is the benefit here?

Steven Bruce

Yeah that's not something that you teach in your dry needling course.

Bob Gerwin

That was Jenkins innovation, periosteal pecking, you know, we did that whether I don't have any idea whether we did any good by that. The first time I saw dry needling done was when I was teaching in New Zealand, it was the first time I actually taught a course on my own. And I remember the doctor, you put the needle in, you put the needle or multiple needles in, you leave them for 28 minutes, he had a string of exam rooms, you go from room to room to room, and say you put it in, it gets stuck, because the fascia grabs it. And then when the fascia relaxes, you can twirl it. And when the muscle relaxes, you can move the needle in and out. As 20 minutes, how many exams, I had two exam rooms, it just wasn't going to work.

Steven Bruce

I was never sure myself after my training, I've never had any clear idea of how long the needle should be in. And quite often, I thought, well, the patient won't be very happy if I didn't leave them in for 10 minutes, because that's what they were expecting. And then I was also taught that if you can't pull the needle out, as you sometimes can't, then you stick another one in nearby to try to release the fascia so that you can bring or release the muscle, so you can bring it out. All sorts of things. And yet I don't recall anybody on this weekend's course or the one we did in September having a problem getting the needles out.

Bob Gerwin

No, but there was some where the needle was sticky at first and it's true the fascia, when you twirl the needle, the fascia wraps around the needle and grabs the needle. We don't recommend, we don't use twirling, but I have no problem with someone who wants to put the needle in and twirl it, you can put the needle in, you can do electric galvanic stimulation through the needle, percutaneous electro neural stimulation or PENS. They're variations but I find that the utility of just the in and out approach is highly effective, it's quick. It allows you to treat multiple areas in one sitting.

Steven Bruce

Typically, how long will you have a single needle in your patient?

Bob Gerwin

It goes into the trigger point, and it comes out. So I needle in a motion that is quick. Now there is a technique that was taught with very fast in and out. And that was taught that way with the idea in mind that when the muscle twitched, the needle would be out and you wouldn't tear the muscle, I think that there was never any proof that there was any better than a slower technique. But in truth, the needle is in for a short time, I'd like to explore the area, the trigger points tend to occur in a cluster. So you put a needle in one spot, and there may be a zone of trigger points surrounding that. So I will draw the needle out to the skin tilt the needle a bit, being careful the needle is straight, not bent. So I'm in a different area. And in essence, the handle of the needle is the apex of a cone and the base of the cone, the circle of the cone is in the muscle tissue. And if I can treat four quadrants, or explore four areas around the central, the first in search of the needle, I will have cleared the area, I also would like to get rid of all the twitch responses and in someone with a very active site you can have three four twitches, you can have eight or nine twitches. By the time you get to 12 to 15 twitches, I think the patient's tired and I'm tired. And we'll take the needle out and come back another day. But I'd like to get rid of the area. What I think is a cause of incomplete treatment or failure is failure to clear an area of trigger points so that they remain, you send the patient home, you have a dysfunction remaining. And when you have a dysfunction in the muscle, it will cause further dysfunction because that muscle isn't working properly.

Steven Bruce

And that approach Bernie, that we obviously covered over the weekend. Are you comfortable with that? I felt you know, constantly moving the needle around. I always thought I was shredding flesh. Of course, you're not it's a tiny, thin needle.

Bernitta Willoughby

I just felt like I was maximising what I was doing at that spot rather than just one needle in one spot.

Steven Bruce

Somebody sent in a comment. I lost it for the moment, but they said they came on your course in September, the one we ran here, and they use it all the time, and they've had great results with it. And they specified something. I think it was piriformis syndrome, they were having real good success, which is, that's fairly deep needling, isn't it?

Bob Gerwin

Piriformis, it's not the deepest needling, but it is deep needling. It's an interesting phenomenon. It's a trigger point or collection of trigger points in the piriformis muscle, which runs from the sacrum to the trochanter of the femur. It gets positioned, the muscle is positioned so that when the muscles are shortened as muscles with trigger points do, they shorten. And when they shorten their cross-sectional diameter increases, so that puts pressure on nearby structures. And the nearby structure is the sciatic nerves being compressed against the sciatic notch. And so some patients with piriformis muscle trigger points will develop what's called the piriformis muscle syndrome, which is signs of a sciatica association with the trigger point.

Steven Bruce

So it was Ali who asked that question. So my apologies to Ali. I lost the question. So forgot your name. But she's obviously quite happy with, or he is quite happy with that sort of needling. But it sounds to me as though there are risks involved in this, especially the longer the needle gets. What's the safety record of your training of dry needling?

Bob Gerwin

Complications are extraordinarily rare. Just to go back to the piriformis syndrome and the sciatic nerve, the danger there would be putting the needle into the sciatic nerve. If you do that, you'll get an electric shock down the leg in the distribution of whatever division of the sciatic nerve you happen to hit.

Steven Bruce

But without damage you said?

Bob Gerwin

You have a monofilament needle that divides fibres and does not transect fibres, I mean by divide I don't mean it cuts, I mean it will separate fibres. Nerve damage with a monofilament needle, a needle made for dry needling. I can't say that I have actually read about peripheral nerve injury to that with injection with a cutting-edge needle. Yes, that's a different story. Most common complication is bruising, infection, extraordinarily rare if it occurs at all. The most serious I think complication that we would have would be a pneumothorax which can happen if you're kneeling around the chest. It can happen even with an experienced clinician; I know that David Simon's produced what I did on one of my patients. But it is, again, exceedingly rare. The complication rate of serious complications I would say from the studies that have been done and published, serious complications less than one per 7000. In one study, less than one in 25,000 in another study. Non serious ones, again, bruising is the most likely.

Steven Bruce

Sorry, going back to pneumothorax, that needs to be put in perspective as well, doesn't it? There's a big difference between a monofilament dry needling needle going through the chest wall and a stab wound into the pleura.

Bob Gerwin

That is correct. Even with a hypodermic needle, you can get a large pneumothorax, with a monofilament needle, point three millimetres in diameter, which is what we commonly use pneumothorax is 10 to 20%, generally does not require a chest tube and is generally treated by expectation. Send the patient home and they recover within a week to two or three weeks, and they don't need anything else. A person doing dry needling around the chest in the first place should be educated enough to know how to avoid it. Number one, and number two should be aware of the symptoms. And actually when I tell somebody that I'm going to be needling a muscle near the thoracic cage, I tell them unlikely complication, but you should be aware of the fact that if you have shortness of breath, pain in your chest, rapid heartbeat, fatigue, call me, tell me, and if it sounds convincing enough, you should get a chest X ray. People don't tell me stop, the explanation is there I tell my patients, it's my job to do it properly and to avoid it.

Steven Bruce

You said that people should be well educated enough to know about this. But you did admit to having caused one yourself at one point.

Bob Gerwin

I caused one actually was during a teaching course, did the proper way we taught people to avoid, this was needling over a rib to isolate the rib, needle onto the rib. Turned out as we looked at the X rays later, the rib was tilted, the needle went off the rib and slid into the lung. I have modified the technique to angle the needle so that even if it goes off of the rib, it's not going to go into the lung.

Steven Bruce

The other side of the hazards of needling is of course, contraindications. Are there people that you would not needle or that you'd be more cautious about needling?

Bob Gerwin

Yes, I think that the first I say is someone who's needle phobic someone says absolutely don't want needles, I would not force the needle on them, but certainly somebody with an anticoagulant, not aspirin and not an anti-inflammatory drug, but one of the currently available anticoagulants.

Steven Bruce

Say warfarin.

Bob Gerwin

Warfarin is the old one that's used, yes. And there you have the INR as a guide. So you'd like to have that under two before needling. But there are the newer anticoagulants that do not use INRs. And so you can't tell but I just wouldn't do that. I would use a manual or alternative technique. There's laser, cold laser techniques, there is electroshock wave therapy. Plus the variety of manual techniques. So there are alternative ways to treat, I would not treat an area that's infected, that wouldn't go through cellulitis, I wouldn't treat an area that is known for cancer, tumour or one that's undergoing radiation therapy where there is an impairment of circulation in that area, would not treat an area of lymphedema, for example, is a prosthesis, an artificial knee a contraindication, I think not. You have to realise that anything that's implanted in the body is already focused for infection. So I think you really make an effort to clean the skin. Scrub, when you put that needle in, dry needling is a clean technique, it's not a sterile technique, but it's a clean technique. And the other real concern is pregnancy. So we have heard people say that pregnancy is a contraindication, dry needling can induce labour and miscarriage and so on. There's absolutely no evidence so we've looked at the literature, we have talked to OB gynaecologists. There is no evidence that needling of any sort will activate labour and lead to miscarriage as a complication.

Steven Bruce

It always struck me as slightly peculiar that when it suits the conventional medical world, they will blame physical therapy or acupuncture for accidents but if you're telling them you can help with inducing labour, they'll say well, there's no evidence that that could possibly help.

Bob Gerwin

A woman with low back pain, pregnant women with low back pain, you need to treat the low back pain. I think it's fair to go ahead and do that. The problem of course is that especially early in pregnancy miscarriages are rather common. And if you happen to treat somebody a day before miscarriage, you are responsible for the miscarriage.

Steven Bruce

What about specific conditions and one which actually it's a shame to some extent we don't have Simeon with us for this one, but I've been asked by Wallace how effective dry needling is in treating or trigger points are in treating frozen shoulder? I say Simeon of course because that's Simeon's area of specific expertise.

Bob Gerwin

He has specialise in that and loves it and it's highly effective in his treatment. Treatment of trigger points, I don't believe in magic, but I would say it's magical. It is remarkable.

Steven Bruce

Don't blow too much smoke up him because he's online. I can tell he's listening and he's complaining that we're dwelling on the negative and not enough on the positive.

Bob Gerwin

No, but it really is quite remarkable. And you could, if there was one muscle that I would take on a desert island it would be the subscapularis muscle. That's the go to, that's the gateway muscle to the shoulder, it is the muscle that I would always treat for frozen shoulder. And many of my patients treating the trigger point in the subscapularis results in complete full range of motion, restitution and full range of motion, you do not want to stop with that, you need clean out that trigger points in the other shoulder muscles, there are 26 muscles that guide the movement of the shoulder. You don't have to treat 26 muscles. But certainly, I would look at the intra spinatus, I'd look at the teres and while you wouldn't think of it, particularly the triceps because to the surprise of many of the patients that don't have a clinicians rather don't think about this, the triceps actually attaches, the long head of the triceps attaches to the scapula. So it is in fact a shoulder muscle. And I find it highly useful. Lattissimus dorsi another one which doesn't attach to the scapula at all, but does attach them to the humerus. So yes, highly effective. I think the data on the effectiveness of treatment of trigger points, manual treatment, dry needling, a cold laser, the literature is growing in evidence incredible studies, not poor studies, randomised control studies with sham needling, randomised controlled studies with sham, cold laser. The evidence is mounting about the effectiveness of treating trigger points.

Steven Bruce

You've just written a paper recently about trigger points yourself, haven't you?

Bob Gerwin

It's been out in the world for less than three weeks.

Steven Bruce

Does that reveal something that we ought to know?

Bob Gerwin

I would hope. So it is a new hypothesis of trigger points. It's based on an old idea, 150 years old now, of maintaining homeostasis that biological systems are maintained within limits. And if you wish, there's a teleological purpose in the way the body works to prevent injury, you go outside of the parameters, and you expose that tissue to damage or to cell death. And, in muscle, there are systems that are protective. They are feedback mechanisms. So the idea of the paper is that there is a failure of feedback mechanisms that are normally built in to protect the muscle. And one whole set is a sympathetic nervous system. And the other that I specified in the paper, it has to do with the mechanisms that control the amount of calcium that goes into muscle cells. Because what goes in has to go out, that's energy requiring if it accumulates too much, that cell gets damaged. And I think that's what happens in trigger points. So there are ion channels through which calcium flows, through which potassium and sodium chloride float. And so I specified the two particular ion channels that do this one of them, which is intriguing to me in the response, is the ryanodine receptor that is known best when it fails as a cause of something called malignant hyperthermia, so that there's a set of people who have a mutation in their ion channels so that it's leaky and you get too much calcium in and you expose that these people function well until they are exposed to some substance. What was well known for a long time was a subset of anaesthetics. Halothane was one that it's no longer used, I don't think, but it would set off malignant hyperthermia, temperature is 106, 100, a rigidity, specificity, tremors and so on. Well, that intrigued me. It was not on a human model, it was a pig model, and these animals display changes, not the temperature, the temperature rises because of the energy, the heat generated by the breakdown of ATP, adenosine triphosphate. But it's the tremors and the spasms and the rigidity that intrigued me. And I published the paper and the day after the paper came out, I get an email from a woman who says my husband is affected by this. Not so much with a malignant hyperthermia, but he has the mutation, and he has pain on exercise. That's intriguing. Actually, before that, I'd gone back to the literature and I found one article, someone looked at people with pain and muscle pain on exercise, 32 subjects, 14 of these subjects had a mutation or a variant, intriguing to me. So I'm thinking now that there's a, not all these people who had exercise induced pain had the full picture of malignant hyperthermia, thank goodness. So now I've got a study plan to look at how many of these people with the mutation and there are over 400 mutations known in the ryanodine receptor, how many of these people who have known mutations have exercise pain. That's a population that is intriguing to study.

Steven Bruce

So is the paper behind a paywall, the current paper, or can I share it with the audience?

Bob Gerwin

No, no, it's open access.

Steven Bruce

It is, right, well I'll share the link to our audience if that's okay. So they can wade through the data themselves. We've got very little time left. But I've got a number of questions here, one of which is not really for you, considering that you're based in the United States, but it's about getting insurance for dry

needling, is the course that you and Simeon run sufficient for people to get insured for dry needling? The simple answer that question I know is yes, because the academy is setting up a relationship with BGI insurers, whereby people can get a discount on their insurance. But I also asked them whether they covered dry needling and provided they said that it is taught by responsible, reliable tutors, then they're happy. And I described the tutors and I said, well, this bloke he happens to work at Johns Hopkins, he's a neurologist and they thought, he's probably good enough. And Simeon Niel Asher is well known. So, certainly through them, you can get insurance. I know that Baylands offer insurance in dry needling and your course would be suitable for that. I can't speak for other insurers. But I think we were talking to Simeon about insurance, weren't we earlier on, he's speaking to Howdens insurers in a few days' time. And his aim is to set up a complete package or accreditation or register, a gold standard register for dry needling. So that particularly those who are approaching this from a trigger point perspective can satisfy everybody, not just the insurers, but the public and other health care professionals that have got adequate training. We've had a couple of questions. You kind of answered this a little bit early on about are there other approaches which work if you're not going to do needling. Now, you talked about cold and stretch techniques, didn't you, ice and stretch? We talked about manual pressure and so on.

Bob Gerwin

I think you must use a variety of manual techniques, strain counter strain. There's the ischemic compression, which I think Simeon calls inhibition. There's myofascial release, which is a term that massage therapists use. There's certainly cold laser, electro shockwave. There's percutaneous electro neuro stimulation. Those are the ones that quickly come to mind but they're all, they've all shown efficacy when looked at incredible studies.

Steven Bruce

I don't know if this is up your street this particular question, but Kim has asked whether acupressure is that still treating trigger points and I don't know if you know about acupressure.

Bob Gerwin

As far as I know if acupressure is the same that we would call trigger point compression. Now the term ischemic compression, which is what Simon's used, always wonder how do we know there's ischemic anything so I don't use the term ischemic but if acupressure is putting pressure on I presume on an acupressure point or an acupuncture point. But the physical action of pressure is the same. I think the idea of putting it on an acupuncture point that is not a trigger point that I would have questions.

Steven Bruce

And I suspect that acupressure is at least, perhaps you know, is at least in part about following acupuncture points as well as other inhibition areas. I'm not sure. We are nearly running out of time and I'm conscious that Simeon sent in a message saying we're concentrating too much on the negative, what are the big successes in trigger point therapy.

Bob Gerwin

In the last 10 years, there's been an explosion of studies. Again, randomised controlled studies are included in those, others are observational studies because of the nature of what we're doing. Showing efficacy, relief of headache. I think it's remarkable.

Steven Bruce

Including migraine?

Bob Gerwin

Migraine headaches, a trigger point is one trigger among others. If I treat the trigger points in the head and neck you can just stop a migraine within a few minutes. Pain in the knee after a total knee replacement, Orlando Mayoral from Spain, very nice study, double blinded study showing that treatment, pretreatment of trigger points in the knee before a total knee replacement led to a much faster decrease, elimination of pain, postoperatively. Post stroke hemiplegia, there is even evidence showing that you can treat spasticity, post stroke spasticity or post nervous system dysfunction spasticity with needling. So yes, the plantar fasciitis, many articles on plantar fasciitis treated with needling.

Steven Bruce

TMJ.

Bob Gerwin

Oh, absolutely, thank you for reminding me, temporomandibular joint dysfunction. Absolutely. But I think the point I would make is that realising that you can treat effectively, you can treat the trigger point effectively. Treating the trigger point is part of a larger treatment of the whole person. So you have to look at why the trigger point was there. What is maintaining it, postural, occupational, recreational things, nutritional deficiencies, hypo metabolic states like hypothyroidism, they all have to be addressed. And I think treatment of the trigger point answers the question about pain and allows to restore function. But then you have to do more than that to restore the patient to a full, normal function, back into community.

Steven Bruce

Bob, I think you've impressed over 500 people with this evening's discussion, we've got no time for any more, I'm afraid but it's been great. And I'm reminded of while you were teaching over the weekend, I was standing to one side with Simeon. And we were watching you and he said this is a neurologist who's doing an active and a passive examination better than any of the osteopaths and chiropractors here, and he's now stretching quadratus lumborum, better than most of us know how to stretch quadratus lumborum, it's fantastic to find a guy with your knowledge or expertise who's even better at what we're supposed to be good at than we are. So thank you so much for coming for the course. Thank you for your time this evening. Bernie I feel I've left you out a bit.

Bernitta Willoughby

Not at all, I've been really enjoying the conversation.

Steven Bruce

It's just amazing, isn't it? It really is amazing. And the courses are amazing, too. I hope you'd agree with me on that one.

Bernitta Willoughby

Absolutely.

Steven Bruce

The time just flies by, doesn't it, I really hope you've enjoyed that as well. It really isn't often we get the chance to speak to such a knowledgeable, world renowned experts as Bob here. If you're interested in what we're now calling the dry needling foundation course in September, the dates are the 8th to the 10th of September, so three days, Friday to Sunday, and there is a link on the screen for you now, I was asked if that course is suitable for people who have no needling experience. Well, that course is designed for people who don't have any needling experience as well as people who perhaps have been trained elsewhere. And like Bernie like myself, want to take the needling to a different level or adopt a different approach to it. It really is a good course. There are early booking and there are member discounts available so you can get a place for that three days for as little as 830 pounds and you can pay in three instalments if you like. We are planning an advanced course. Now that advanced course addresses some things that we've mentioned here, needling, perhaps around the chest wall where it's going to be a little bit more more cautious than some of the other muscles and needling for temporomandibular joint problems where the muscles are difficult to get at and it needs a little bit of a higher degree of expertise. We haven't got a date for it, but it will be in January. You can't do that course unless you've done the foundational. We sucked it for ages about this over lunch today while we were planning these courses, but there's a really good reason for it. As I said, we're going to be looking at some difficult muscles, some perhaps in slightly risky areas. And Bob isn't happy to take anyone on the course unless he knows how well they've been trained in the past, safety is absolutely paramount as you can imagine. So there you go, a great course if you can make it and you know, it'll take you on to that advanced course later. Before I go, don't forget we've got a communication and consent course next month. That's on Saturday, the 24th here at the academy. Link is on the screen now. Robin Landsman, who's been on the show before, he's running that one-day course, not only will it of course tick the mandatory training required by the General Counsel, it's also going to help to develop your communication skills both within the profession with other professionals and with patients. We'll be making the APM cameras available during the day so you could leave with some really good stuff for your website or for social media. But the places are limited because Robin wants to give close supervision to those who are there. Our full course cost I think it's 99 pounds. There's a member's discount and an early booking discount available at the moment. That brings it down to 82, that's for the whole day CPD. Again, the link is on the screen as I said, right. I'm done for this evening. Thanks for joining us. We'll see you again soon, I hope. Our next broadcast is lunchtime on the fifth of June when we have a case-based discussion with the absolutely amazing Claire Minshull. But for now, good night from all of us here.