Academy of PHYSICAL MEDICINE

Transcript

Surgical Podiatry With Emma Supple

APM: Now I'm joined by a lady this evening who has been a podiatrist for over 30 years. She's trained in podiatric surgery or-

Emma Supple: Podiatric surgery.

APM: Podiatric surgery. Trained in podiatric surgery and has done that for many years. She has been on the equivalent of the Professional Conduct Committee at the HCPC, so she knows how the disciplinary proceedings work there. She has appeared on GMTV, on Channel Four, she has appeared in the Wall Street Journal, she's been interviewed by people all over place. She is a podiatrist, possibly a chiropodist, I'm not quite sure, but I do know she's Emma Supple. Emma, welcome to the studio.

Emma Supple: Thank you for having me.

APM: Thank you for joining us, it's great to have you here.

Now of course, I said that slightly tongue in cheek about not knowing the difference between a chiropodist and a podiatrist, at least I do know from listening to your interviews that I must call you a chiropodist not a chiropodist.

Emma Supple: Correct.

APM: Makes perfect sense of course with all the Greek learning that we all do so much of in schools these days, but I have always said to my patients that it was a change in terminology and nothing more, and podiatrists are the same as chiropodists, but I understand it's not quite true. What's the difference?

Emma Supple: No, it is true. It's a uniquely British word. So the rest of the world is podiatry, podology, and Britain's held on dearly to the world chiropodist, which as you

say, is to use your hands to treat the feet. So we've had this slightly schizophrenic of chiropodists in podiatry, doing podiatry doing chiropody, doing podiatry. I think I've got that right.

But the big news is that we just, the Society of Chiropodists and Podiatrists voted overwhelmingly at the weekend at our huge AGM, huge podiatry engagement, really pushing the podiatry forward, that we're going to be the College of Podiatry from herein, representing chiropodists and podiatrists. So from a protection of title, we're still chiropodists and podiatrists, and even no matter what I do, whether I'm on GMTV or whatever, there will be people saying, “Oh, Emma the chiropodist.” That's absolutely fine, it identifies me as a professional in the foot.

But what we say is podiatrists can do chiropody, not all chiropodists are confident to say they do podiatry. But it is the same title and we're taking anything away from anyone who's a chiropodist.

APM: So there's no difference in skills then, it's just that they wouldn't call themselves podiatrists?

Emma Supple: Correct, but there is a difference in skills because podiatrists, we've become the experts in lower limb and thus modern podiatrist can do so much. We have independent prescribing, we have podiatric surgery that you've touched upon. We have, and this is what I'm really keen to start talking about today, the MSK specialist. It's no longer general podiatry care. So there's what's in a name, but the word chiropody is definitely moving into the background, but it's still a very important thing.

A lot of our clients will be still looking for their local chiropodist, so we still have an education to do. But the College of Podiatry's working really hard on this. We changed the name this week in Companies House, so from herein it's the College of Podiatry.

We have the most ridiculous situations where I was doing Sky News and I was on Sky News on the television doing podiatry for the College of Podiatry, and meanwhile my counterpart from my same organization was on the same screen, split-sided from the Society of Chiropodists and Podiatrists. It made us look like we weren't on the same team, and we very, very much are.

So just from that tidying up, we're now the College of Podiatry.

APM: Yeah, but there is no difference in skills between the two?

Emma Supple: There is a difference in skills. Chiropody is still, is fairly general. It's what you might have a stereotypical idea of what a foot expert would do. So a bit like a physiotherapist barks orders and lord only knows what they say about occupational therapists. The urban myth. They're not worth repeating here because no one likes them.

APM: Oh, we like things like that.

Emma Supple: Okay, well the urban myth is that chiropodists do all the corns and callus. I'd like to say it's more general care and it's certainly, one of the things that I'm very keen on, is moving away from the word routine. I think a lot of patients are seen for routine chiropody, and for a long time I didn't realize that the initials are RC, so we really need to move away from that.

So in my practice we talk about general foot care, just as you have general medicine, general osteopathy. So I think general care's much more interesting and valid in today's clinical world.

APM: I have to say, chiropody conjures up an image perhaps more of old Mr. Miggins going to have her toenails cut, rather than podiatry which does, I think, smack of something more modern, more biomechanical than simply the general foot care that you talked about.

But okay, so-

Emma Supple: Yeah, we're up against it with that prejudice really that we are just chiropodists, I think the phrase. I don't think you hear just podiatry any more, so that's really encouraging. I think podiatrists, especially new graduates, they're all graduating in podiatry.

APM: Yeah, there are no chiropodists anymore.

Emma Supple: Degree in podiatry ... Yeah. Even when I trained in Durham back in the day, I trained in podiatric medicine. I did modules in podiatric surgery, but I was employed as a senior chiropodist, so it was all baffling then.

So this watershed moment, June the 30th, 2018, enormously important to us to become the College of Podiatry.

APM: Great. Well, I'm very pleased to hear that.

Emma Supple: Thank you.

APM: Can I go now a stage further and talk about podiatric surgery, because I wasn't joking about this when I said before that people, perhaps in my profession, many of us will think well, “Oh, chiropodists, podiatrists do surgery,” because they're all busy cutting corns off and things like that which involves using scalpels on people's feet. So what is the scope of practice of a podiatric surgeon?

Emma Supple: Oh, that's a very juicy topic. So we are very skilled as podiatrists, we're incredibly skilled with a scalpel blade. Some people call it scraping, we call it debridement. The skill levels to get to taking callus and corns off people's feet is really something that our profession needs to take more pride in, because it's the painless removal of very painful conditions.

That's one thing about that's great to be a podiatrist. Most of the time we can make you better fairly quickly, relatively instantly, and relatively pain free. So that's not surgery. It was deemed as surgical, that was where the

phrase surgical chiropodist came from, but it really belongs way back in the last century. We need to now move forward.

So podiatric surgery came about very simply through podiatrists being utterly frustrated with hammer toes, awful [inaudible 00:06:24], lesions sitting on top of people's feet, sitting underneath people's feet, causing huge pain and difficulties. They would be sent to the local orthopedic surgeons who would say, “You need chiropody.” The chiropodists would be saying, “We've already exhausted all our non-surgical treatment. They now need surgery.”

Then with a lot of pushing and a lot of work and a lot of committees, podiatry was granted local anesthetic access. I don't remember when, but it was late 70s, early 80s. That was the transformer because we were then able, under local anesthetic, to do things that were nail surgery, incision nail procedures, and then started ... there was the Podiatry Association, and they got information from America. The Podiatry Association became the go-to to become podiatric surgeons.

I have quite a lot of numbers and initials after my name now, but I'm still most proud and most of us are still most proud of our Fellow of Podiatry Association, because that was all of the levers had happened to get us to the stage where we were actually correcting and surgically managing these difficult conditions.

I remember absolutely the day that I became a podiatric surgeon as opposed to a general, very good podiatrist, is I was in theater scrubbed up, and there was a nasty hammer toe. I remember the podiatric surgeon to me saying, “Come on Emma, you know you want to do this.” I was like, “No, I'm absolutely fine. I'm quite happy to scrub in, I'm really interested.” I looked at this corn, nasty corn, and the bone had eroded underneath the corn. I thought nothing that you could do from a palliative perspective, no shoe, no padding, none of the old fashion chiropody methods could do this. You do actually have to go in and take out the head of the proximal [inaudible 00:08:21] excisional arthoplasty under local anesthetic, so it's a very effective surgery. It's cost effective. It's the right thing at the right time by the right person. It's absolutely evidence-based. That was my moment. Then I trained up to be a podiatric surgeon.

APM: How far up the leg do you go then?

Emma Supple: How far up the leg do we go? Well, don't forget that the foot is geared up by muscles in the leg. In America there are state by states, and that's a very contentious question. Some states allow surgery at the knee because they recognize that that has an impact on the foot. But we're podiatric surgeons of the foot and ankle, that's our remit. Certainly-

APM: But as you say, the muscles extend above the knee.

Emma Supple: Exactly, exactly.

APM: So where would you go? Where are you allowed to range in this country?

Emma Supple: Foot and ankle.

It's really interesting watching podiatric surgeons taking over in the remit of extended podiatric surgical practice in foot and ankle units now. They're now called foot and ankle units, and a good, clever one has already got orthopedics in the foot and ankle, podiatrists in foot and ankle, and the premise is the foot and ankle. So we're starting to move away from this territorial base, which is where we have been. But certainly foot and ankle is our territory.

So going back to America, America started to train us up as podiatric surgeons. I was very lucky to, within a moment, go to Chicago. I trained with [inaudible 00:09:51]. Any of you who have been listening and know about your bunions, you'll know about the Scarf / Akin procedure, it might be something you might've heard of.

APM: Not myself.

Emma Supple: Are you familiar?

So it's a very good way of correcting hallux valgus bunions. We'll talk about that more. This clinic was particularly ... a driver invented it, took a carpentry term and turned it into a really good corrective bunion procedure. I was lucky enough to go in there and train there. It's been so exciting watching American podiatric surgery, British podiatric surgery really come together. There are other examples across Europe; Australia's really pushing forward on podiatric surgery, but I wouldn't want anyone to think it's completely a bed of roses.

We still have a lot of opposition from other people, other oppositions from other groups. But at the end of the day, who do you want to do your bunion? You want someone who's very good at it, who understands foot anatomy, who understands the post-operative, who has done the non-surgical management, and podiatric surgery is right in that mix.

APM: Yeah, I guess my answer to that question is yes, I don't think understanding the anatomy of the foot and that sort of thing is something which you can do that from a book. I want the person who's done most bunion surgeries to work on me; who's been and out of a foot a thousand times and therefore has probably got the hang of where all the bits all hang on and go together, and stuff like that.

Emma Supple: It's a real art though, surgery's a real art.

APM: Absolutely, I don't doubt it.

Emma Supple: I met someone recently who said if he never saw another bunion surgery, he wouldn't be bothered. I thought, note to self, I wouldn't want you to do

mine. I would want you to be interested in whatever piece of surgery is being undertaken.

APM: So explain to me, we discussed this earlier on, but we've had Professor Bill Ribbans who's a consultant orthopedic surgeon who deals almost solely with the foot and ankle here. How would such an individual differ from a podiatric surgeon?

Emma Supple: So orthopedics are obviously a fantastic group and association, and there's nothing being taken away. They concentrated for a long time on the hip and the knee. It's very interesting talking about some of the history of podiatric surgery and the rush to do knee replacements and the rush to do hip replacements left the foot as the Cinderella of surgery. So people were being practiced on, it was left last on the list, huge amount of legal cases, it was not being done very well. Obviously, as the profession dedicated to the feet, we're the closest to have counted those numbers and seen that up close.

So Professor Ribbans particularly has been a great advocate and a great friend to podiatric surgery, so thank you. But the foot and ankle has now become its own fellowship. It's got its own groups, its own associations, and it's so wonderful to see people paying attention to this really important part of our human anatomy, and pay it attention that it deserves. For a long time it wasn't.

APM: Is there a reason why a patient would seek out an orthopedic to do something of the foot or ankle, as opposed to a podiatric surgeon?

Emma Supple: Well now Choose and Book, you're finding that patients are electing to see the podiatric surgeons because we have a very robust audit system called PASCOM, which stands for Podiatric Audit and Surgical Clinical Outcome Measurements. Through that we can show we audit all podiatric surgeons, all units, our antibiotic rates, our complications, our sequela. So it's not always complications that are adverse, but it can just be happenings. So with PASCOM, we publish that data widely, we collect that data. So actually some patients are very keen to seek out their local consultant podiatric surgeons. So I think things have moved on quite dramatically.

APM: Okay. I mean, it was more a question about why someone should, rather than whether there is a trend to do one or the other. I mean, we're not saying that orthopedic surgeons are specialists in a particular type of activity around the foot and ankle, you both do the same stuff? An orthopedic surgeon might be competent to do hip replacements as well, but-

Emma Supple: Exactly, so the podiatrist is not going to be doing that.

APM: No, no, but in terms of foot and ankle, there's no reason to go for one or the other-

Emma Supple: No, and the NHS-

APM: ... other than if they've done lots of operations.

Emma Supple: ... yeah, the NHS is now creating these foot and ankle hubs, and the ideal world is that if you're a diabetic and you've got a diabetic foot complication and it needs surgery, then you're being seen by the MDT, the multi-disciplinary team. You need an orthopedic surgeon in there, you need a podiatric surgeon in there, you need vascular, you need plastics. The days of one person doing it all are well gone. Now you're moving much more to teams, so having teams of approaches.

So for elective hallux valgus surgery, a foot and ankle team will do you proud. If you've got more complications like that, you've got all these multi-morbidities, then the teams of foot and ankle are much more important now than they've ever been.

APM: Let me drag back to your outcome measures, because outcomes measures are the bane of our lives, or the holy grail, depending on how you look at it in our sort of medicine, in terms of justifying what we do to patients. How far beyond the surgery are you looking with your outcome measures?

Emma Supple: Well, that's actually something-

APM: What's the followup?

Emma Supple: We look also at conservative followup, not just surgical. The actual tool was written, I had a hand in writing it a long time ago. We've been very, very keen for general podiatrists to put their nail surgery audits in there and straightforward surgical procedures. The followup I think goes to 12 months. I wouldn't like to ... I can come back to you on that.

APM: But that's pretty robust. I mean [crosstalk 00:15:40]-

Emma Supple: Oh no, it is robust.

APM: ... it's well beyond the traditional, “Let's see what happened the day after surgery and call that a success if they're still alive.”

Emma Supple: If David Tollafield is watching this, David, I am protecting PASCOM here. The whole thing about PASCOM is it is completely robust. We take it to the department of health, we're really very proud of how many sites. It's all anonymized data obviously, but it really shows to the commissioners what we're doing, when we're doing it, and the value for money, and the outcome to the patient is absolutely central to all of this.

APM: Well given that my audience here is primarily osteopaths and chiropractors and physiotherapists, what do you reckon the most popular topic for them is going to be?

Emma Supple: MSK work. I think-

APM: Yeah? Specific condition?

Emma Supple: Well, I'm a podiatrist of a long standing, and I deal now with foot pain. So people come and seek my help out, my specific help.

APM: What do you reckon they're going to be interested in?

Emma Supple: For foot pain?

APM: What do you reckon their first question's going to be?

Emma Supple: [inaudible 00:16:35] foot pain.

APM: It's going to be about plantar fasciitis actually, but-

Emma Supple: Okay. Well chronic heel pain is a challenge to manage.

APM: Let me give you this one from Daniel. Daniel, thank you for the question. He says he'll get in with an early question because he sent it in before we even started talking. He said could you discuss heel pad atrophy and plantar fasciitis, and on the occasions when they're difficult to differentiate clinically, what imagine would you suggest, and what are the treatment options available for heel pad problems?

Emma Supple: That's a huge topic.

APM: Excellent.

Emma Supple: How long have we got?

APM: Well we've got another three quarters of an hour.

Emma Supple: Okay, so thank you for the question Daniel. Heel pain is-

APM: An hour and a quarter [crosstalk 00:17:12].

Emma Supple: Okay. Heel pains is something that we see a huge amount of. I think you always have to hold on to the golden threads here that 85% of all heel pains will go with simple measures. They are well within the remit of osteopathy, they are massage, stretches, stretches, stretches, stretches. I'm always saying to patients, clients, that the achilles tendon has the muscles going into the one tendon, and you have to be doing you [inaudible 00:17:38] stretches, very important. Insole management, orthotic insole management, footwear is very important. Pain management is very important. Then that's the 85% sorted. The 15%-

APM: In that 85%, what would you say then is the specific cause of the pain, the tissues causing symptoms?

Emma Supple: It's overuse, which is not an accident. It has been coming over time through biomechanical factors.

APM: Okay, that's our etiology, which are the tissues that are producing the pain? Because if stretching is working, what is it we're stretching? Why is that working?

Emma Supple: Well you're stretching out the achilles tendon which is going into the plantar fascia. So my clinical take out after this is that the pain is to do with the chronic inflammation that's going on somewhere in the heel pad. More than that, I wouldn't like to be saying. I'm not as scientific as that. Sometimes it can be the [innaudible 00:18:32] nerve which can get entrapments. That's a different kind of pain.

If we talk about classic plantar fasciitis, which is post-dyskinesia first thing in the morning, it hurts like heck until you've got the tissues moving. You go about your every day, you forget all about it, and the next morning you wake up and you put your foot to the floor, and that classic 10 minute shuffle to the bathroom. One thing I always say is just keep a pair of high heels by your bed so that you're not actually putting that heel complex, that plantar fascia under stress first thing in the morning. Stretching out, rotating legs, all the stuff that I know that you do very importantly.

At Supplefeet, my clinic, I work very closely with an osteopath. We work very well on that mobilization and that manipulation. I think-

APM: Name names. Who's your osteopath?

Emma Supple: George Sotiri.

APM: Okay.

Emma Supple: George, the gorgeous George we call him. He's taught me to go slower, and I've taught him to go faster, because I can go in and say, “Well, the mechanics are X, Y, Z.” He will limber up the limb. These are very poor terms, I apologize. He will show how manipulation and how moving the fascia and moving and manipulating and osteopathing is very helpful. George has been brilliant on that.

So the vast majority of cases it is overuse, which is not an accident. It's been coming for a long time. So you need to establish the biomechanical factors. Often times they're very straightforward to see. The person has a pronated foot type. I'm sure you could all identify a pronated to a supinated foot type. So the tissues are being stretched ... I use my hands a great deal to describe feet.

APM: Yeah, you can use a foot if you like.

Emma Supple: So the foot's being stretched so that tilting and rotating over time is acting to upset the mechanism. You can obviously get heel pain in central areas, more like a policeman's heel, and that's more of a supinated, that's more of a heel beater. So I call these patients heel beaters because you can hear them coming down the corridor. They're beating their own heels up. Often times that's to do with their foot type. Not only have they a pronated foot

type on static stance, they have a dancer's foot type. That's to do with how much articulation they've got at the subtalar joint. That's a really key identification. Once you've identified how high, moderate or low that subtalar joint range of motion is, then you can modify their heel height accordingly, and that makes a difference.

APM: Yeah, how do you do that?

Emma Supple: It's just simple ankle articulation, so I've got a dancer's foot. My daughter's going to be a ballerina, she needs that dancer's foot. She needs that excessive-

APM: Plantar flexion.

Emma Supple: ... plantar flexion available at the ankle joint. Some people's are set at right angles, they tend not to get the problems, other people's are set at a more moderate ankle. So identifying the dancer's foot types leads more to this beating up of your heels, which can then move to the chronic inflammation.

So going back to Daniel's original question, heel pad atrophy we tend not to see with plantar fasciitis. You see that in older clients and perhaps some weakening of the structures. But with actual heel pad pain, you've got swelling. You've got pain, you've got swelling. You might not see it, but it's going to be slightly swelling. So we don't tend to see atrophy, and if we do then that's the easiest heel pain to sort out because they're the ones that the silicon heel cups work for. So if you've got someone whose fat pad is sloshing around the calcaneum, then you just simply put them in a trainer and put them in a silicon. The days where the shoe is the problem, nowadays so many people are wearing great trainers that we can really work with the footwear.

APM: But there's also, there's that, I regard as a horrible female trend to wear ballet pumps, isn't there?

Emma Supple: Yes.

APM: Which have got ... there's no support, there's no cushioning, they're perfectly flat.

Emma Supple: They're banned, they're banned. Banned for ballet [crosstalk 00:22:24].

APM: Well they should be, shouldn't they?

Emma Supple: Yeah, they're awful.

APM: Yeah, okay.

Emma Supple: They're awful.

APM: What about night splints? Marks's asked about those in regard-

Emma Supple: Passion killers.

APM: What? Night splints or-

Emma Supple: Passion killers, night splints. They're terrible. There's some evidence behind them, but I personally have never used them. I first encountered them when I was in my 20s working out in Chicago and I didn't think much of them then, and my opinion really hasn't changed. I think for the 15% out of the 85%, you're starting to throw everything at them including the kitchen sink, and that's where the electro shockwave therapy comes in, et cetera. But night splints really, no, I have no personal experience of ever, ever prescribing any, and I've done so well so far.

APM: I think, and you mentioned it, I hadn't even thought about this one, but apparently the evidence is very good for extracorporeal shockwave therapy.

Emma Supple: It is, it is.

APM: Basically you're beating up the plantar fascia, aren't you?

Emma Supple: Mm-hmm (affirmative). You're inducing a shock of inflammation, and that seems to work.

APM: To retrigger the healing process, presumably?

Emma Supple: The important thing to always just keep saying is that none of these things work in isolation. A steroid injection, an insole, a message program, a stretching program, it isn't going to work in isolation. It's come about without injury. There hasn't been a moment where you've stopped off the proverbial bus. So it's overuse, so it's come about over time.

What I find interesting is, especially in busy lives, is they get out of bed, it hurts like heck and they say, “I must do something about this.” Then they forget about it until the next morning. They think, “I must do something about it.” Then of course the process of inflammation has started, so it's breaking that seal.

What we've started to do, and I'm getting some very encouraging results with it, is EMS treatments, which is this Tens machine. That's working very well. It sits as an adjunctive therapy, next to-

APM: Hang on. Sorry, can I clarify that because Tens and EMS are two different things. Electrical muscle stimulation-

Emma Supple: That's what I'm using, yeah.

APM: ... is actually firing the muscles, as opposed to Tens, which is pain gating, isn't it?

Emma Supple: Well yes, but we're doing them on different modalities as a combination. That's working very well. Steroid injections-

APM: So what are you stimulating with the muscle stim?

Emma Supple: Depends. It depends on the presentation. So for me, I'm often doing the actual plantar muscles, which is obviously in the medial arch. If it's particular painful, go into the medial tubercle and do a little bit of pain management. It really depends on the pain. If we feel that the perennials are weak, we'll some work on the perennials. Every patient is obviously different, and I would say that we're moving much more into MSK territory.

Steroid injections, obviously I'm able to do steroid injections. I tend not to do them unless I've got a really specific point of pain and someone's reaching. If I'm pressing and palpating it, and they're off the scale, and my physical health in danger, then those patients do brilliantly with a steroid injection, absolutely brilliantly. Mostly I see them once and say, “If it isn't better, then we'll do the steroid injection.” In that way, you don't need to. I think you find that the body will heal itself so well with good non-surgical, conservative management, but it does all need to come together.

APM: Well, that'll be music to the ears of most of the people watching this of course.

When you do use steroid injections, are you doing them blind or are you using ultrasound guidance for them?

Emma Supple: No, I'm using them clinically. I don't like that term blind. Well, I can do them under a tibial block, so a local anesthetic tibial block, or I can do them under a local anesthetic block. It's a painful place to have an injection. A tibial block is a very useful thing. The most important thing clinically is to X marks the spot, because once you've numbed the entire plantar surface of their foot-

APM: You can't find it, yeah.

Emma Supple: ... you won't know where the pain is.

Once you've numbed their entire foot, as you put the needle in you feel the celery moment, we call it the celery moment. You can actually feel the fibers of the plantar fascia next to the bone squeaking in celery fashion. It's part of your job in applying the steroid, is to break some of that seal down. That's why steroid injections are quite painful in the aftermath, but also very effective. So the warning is always this might, 50%, might make your foot pain more worse, and then it'll make it better. That's always the previsor with steroid injections.

APM: I remember actually when I did my dry needling course, that dry needling is also an option for plantar fasciitis, but it's a bugger of a place to stick a needle because the skin's so thick and it's quite painful. I don't know, I've not seen any clinically robust results for whether it's effective.

Emma Supple: Having it done under tibial block is very useful because it obviously numbs up the sole of the foot. But I've actually found that with advancing practice,

as long as you create a bleb, so you're creating a bleb of local anesthetic, and then through that you slowly but surely approach. So everyone will remember how much pain you gave them in an injection; you will be known for whether you were nice or not nice. I would never, ever go central because that is the oldest reflex in the body. Be kind. The people are already in pain.

So tibial block, give them an anesthetic on the sole of their foot, and then especially for the central bursar pains, the policeman's heel where the pain of the plantar fascia isn't actually medial calcaneal cubicle, it is actually the center, that's where your steroid injection can go in very nicely.

APM: Yeah.

Do you see many fractured calcanei?

Emma Supple: I have done in my career. We have quite a few jumpers, so there is quite a high incidence of calcaneal fractures. I tend to see them in the aftermath, where it's cold and you're dealing with a healed calcaneum but the foot's a mess.

APM: I guess I was asking because I've referred a couple of people for further investigation. What clinical examination do you use to raise the suspicion of a fracture?

Emma Supple: Imaging. If you've got a suspicion of a calcanea fracture-

APM: But why would you send them for imaging? What would raise your suspicions?

Emma Supple: History and physical. If the history-

APM: So what tests do you do?

Emma Supple: Calcaneal positive tests, so stress test where you squeeze the calcaneum. So straight forward, got my foot here. That's my acid test for everything. Squeeze the calc from children all the way through. Don't get them very often, [inaudible 00:28:44] history. I've done a lot of feet over a lot of years, and I'm trying to think of anybody I've ever sent through with an acute fracture. They would normally have straight into NHS walk-in centers and know. When you've hurt your calcaneum, you tend to know.

APM: Yeah.

Somebody's actually asked here about policeman's heel again, and has asked you to clarify. Did you say that it was from supination?

Emma Supple: It can be, yes. A supinated foot's more likely to give you a policeman's heel-type condition, which is obviously-

APM: Because of the lack of shock absorption?

Emma Supple: That's right, because your plantar, you're bashing up the heel, you're beating up your heel and that's where your heel pad atrophy comes from. So they're quite straight forward to manage, it's just good footwear.

APM: Policeman's heel is a term that a lot of patients will come to our clinics with because they've been told by a doctor, a GP, that they've got policeman's heel. Do you think GPs are specific, or is it a frozen shoulder-type term where they just say if you've got a pain in your shoulder, it's a frozen shoulder, you've got a pain in your heel, it's a policeman's heel?

Emma Supple: Actually, it's plantar fasciitis, whether they be a 10 year old or a 90 year old. So I think in the 90 year old you need to be thinking osteoporosis, and with the 12 year old it's not plantar fasciitis, it's Sever's, it's osteochondritis dissecans. So no, we just see them saying, “Heel pain, heel pain.” I always smile when the local GP gives them my leaflet that I've wrote 20-odd years ago saying-

APM: Well that's good, isn't it?

Emma Supple: Yeah, it's very good. Just kept going.

- But the question was about whether GP's themselves are likely to be particularly precise in their diagnosis of a cause of heel pain.

- They usually do prescribe it and diagnose it as plantar fascitis. I can't think of many instances that I can think of where it's been policeman's heel, central bursitis.

- Okay, I'm gonna read this question. It's quite a long one. I don't know who it's come from but whoever it is says, "I have a patient with Charcot-Marie-Tooth "who has a distorted foot and ankle which has caused "a large amount of hip and knee and back problem. "So far she's struggled to get much assistance "with her foot function on the NHS "and just some boots to support the excessive inversion "and ankle collapse. "Could you advise anything that she or I can do to help. "Is there a potential surgical option or does the nerve "issue of CMT make it ineffective?"

- I have quite a few clients with CMT and the answer is then--

- Would you describe what that means, because there might be some people watching who not familiar-

- Charcot-Marie-Tooth, it's one of the neurological conditions where there's aberrance in the nerves and you end up with these champagne legs, these inverted champagne bottle legs and very supinated feet and different types of sensation through the limbs. It's also been associated more with, I understand, audio disturbances and sense of imbalance, so obviously falls is very important. So with your CMTs you're really increase, encouraging their stability. Stability's really important with anybody with Charcot-Marie-Tooth and that sensation of stability you want to increase, so my care for them is total contact orthotics, so they're fully contoured orthotics. They're

generally made out of EVA. They're feet are generally supinated. You can get them into shoes and your casted orthotics, this is nothing over the counter here. These are specialized orthotics and you're making them out of EVA with a bit of cork. Proper, I would say, old-fashioned, orthotics. And what they do is they meet every single portion of that person's foot. Oftentimes they have a lot of callus, because of the way that they're stomping their feet down because of the nerve problems, the issues.

- And then the pressure is being more evenly spread over the sole.

- They need as much as the pressure distributed as you possibly can and in my experience, that's worked really well.

- Okay.

- So I would say to your questioner, get them referred into the foot and ankle team on the NHS and ask them to be seen by the neurology team and they should have a podiatrist attached to that.

- What is the state of play with podiatry in the NHS, though, because in this particular county, there's virtually nothing unless you're a diabetic.

- Okay, well, I trained to work in the NHS full time and I did my huge stint in the NHS full time, but certainly the NHS has rationalized foot treatments and when I was first trained--

- In this county, that means cut it.

- Yeah, it's rational. If you were under 18, over 65, mentally or physically handicapped and pregnant, those were the only criteria that you could obtain podiatry, so just from the language, you can see just how archaic that was and so anybody with working feet wasn't seen anyway, so podiatrists almost had to go out into private practice, rather like osteopathy, to find our clients because they're just not coming through the doors in the NHS and they're being rationed. So most NHS departments now only see high risk. They have criteria-led systems where you, it counts you on your vascularity, it counts on your neurology systems. You have to be, not even being purely diabetic is enough. You could be living well with diabetes and not see a podiatrist. That's all under the care of your general practitioner. Can we have a conversation about that please?

- Well see, I guess I meant if they've got diabetic neuropathy, then they will start to get all-over care for that, including podiatry perhaps, but--

- No, it doesn't work quite like that, so podiatry is increasingly, I think the statistics are 72% of all podiatrists now have blended careers, part NHS, part private practice, which is a really interesting challenge for us as a profession and certainly as the College of Podiatry, we will certainly be working more on that. I'm almost exclusively full-time private practice now. I have done some NHS recently and that's been really interesting, going back in and looking at how they run the systems. So the MSK work is still there but you

do have to ask your patients, sort of fight your way through. They are still there.

- We could probably have a very long conversation about the net effect on the NHS's budget of excluding so many podiatric or other conditions and making them seek private healthcare and maybe if they can afford private healthcare, then that's good for the NHS, but maybe not.

- I'm on record of saying anybody who needs a knee replacement should have seen a podiatrist in the first place. We're really important, really important, and we're often forgotten. So many of the times, the conversations about the health services, doctors and nurses, and of course, as osteopaths, you're shouty about it. And we're saying, "And us too." Therapists as well, physios, occupational therapists, we're all invaluable and how we contribute is really important.

- I have another question in here from Kevin, going back to steroid injections and he says he's been told by two surgeons that steroid injections actually degrade and weaken the soft tissue structures around the injection site, quite harmful for the body and he's pleased that you haven't promoted them. Treatment is always the answer for me, so I guess by treatment he means hands on physical treatment.

- Well he's right, steroid injection does weaken and atrophy the tissues and that's why the rule of thumb is no more than three, but when you have got acute plantar fasciitis and it is debilitating and you have exhausted all of the conservative treatments and it's really painful, that steroid injection can break that pain cycle and give you really good relief, so my rule is you do the injection, normally you expect a sort of 60, 70% improvement, which is a lot, and then you can do the second injection. If you get zero in response, then you don't bother with a second one. You obviously have to pick your patients and then there are cases in the literature. I saw one recently where there's a septic abscess was caused. That's very unusual, which is why it was written up, but yes, steroid injections have to be approached with caution.

- Yeah, okay. Can we move on to Morton's neuroma?

- Yeah.

- Before we get down into--

- Yes, more steroids.

- Yeah, well I thought it was a useful reason to go on to, but there's always lots of questions about it. And the first I've got here, unnamed again, is what do you recommend for Morton's neuromas. Do inserts work? And this person has several patients who have had cortisone injections with no real results. Any advice or comments on that?

- Yeah, Morton's neuroma, plantar digital neuritis, PDN, is a really painful debilitating condition. People live with chronic heel pain and they get their

lives sorted around it. People really despair when they've got a trapped nerve in the forefoot. It really stops them in their tracks, almost literally and I always say, "What were you going to wear on your feet "if you go and see the Queen?" And I actually got invited to the Queen's garden party so of course I was on shoe patrol and I was fascinated to see some people had their shoes in their hands. That's how painful their feet are. And plantar digital neuritis, Morton's neuroma, will make you take your shoe off, no matter where you are, because it is like a knife. It's so painful. I've had touches of it in my own life, so I know that it can be so painful.

- Yeah I'm sure we've all had plenty of patients who've had it and finding the right answer is obviously the golden what's it here.

- Yeah, so people are, patients who've got it, are not stupid. They will immediately retreat into a comfortable pair of shoes and oftentimes that makes it worse. And that's one of the key things is the identifying of what your foot type and in my experience it's the dancer's foot type that has to get to the ground and that range of motion as these dancers' feet get to ground contact and that's where the splaying on the forefoot happens, so where the medial and the plantar nerve cross is like Clapham Junction and that's obviously between your third and your fourth metarsaline space. I've got my lovely foot here. And that's obviously where it happens. And of course, when you actually pull this skeleton apart--

- Let me hold that up so the camera can see it a bit better, put it that way around.

- Can you see? So don't forget, this is one of my favorite things to show all student that the foot actually splits in half at this point. You could actually drive a chainsaw through it and it would be very effective. And that's where the bumping and the grinding of the plantar nerve happens, so you need to prevent that. That's your most important thing. So you can do several things. You can splay the toes. We have some crazy yoga sandals at Supplefeet, which are absolutely fabulous. They have a thick base and they literally allow the toes to splay out. There's quite a few shoes now on the market that allow that to happen. The Vibrum Barefoot.

- Five Fingers, yeah.

- Yeah, anything that reminds the human anatomy that it needs some space and even if it's toilet roll at the end of the day, in between the toes, pedicure spacers, just get the toes separated, get your feet into some ice, put some topical anti-inflammatory on it and stop that absolute pain of the inflammation.

- Do metatarsal arch inserts help?

- I don't think so, but I know a lot of people that swear by them. A lot of people have these domes and they put them underneath. Personally, I loathe them, but that's my opinion. So my moment of clarity was than anything you put under the foot is increasing this forefoot pressure and

trapping this nerve even more. A trapped nerve becomes a swollen nerve, the swollen nerve becomes the benign tumor and there you have it, that audible Mulder's click and off we go, steroid injections can be very well. But really you're talking about prevention here. This is another overuse injury, so this is where I think everything has to happen at the back of the foot. So you need to cantilever all the weight that you can to the back of the foot. You need to have straps and buckles that are not compressing the nerve. If you've got a tendency towards a plantar neuroma, you have to sit out Marilyn Monroe stilettos. You need to have strictly dancing type shoes which allows this to go out. You also have to always remember the advice is always, this nerve, whilst we talk about it from the top, very much from the sole of the foot, it's quite close, and so thin soled shoes are an absolute nightmare. You need to make sure that the shoe's got some thickness and that might be taking your favorite pair of shoes to the cobbler and thickening up the sole. That works as well.

- You're on a hiding to nothing here, aren't you, because you spoke a moment ago about preventative care. Now if you say to the average young lady anywhere in this country, stop wearing those nice, tight, fashionable shoes and stick on some nice comfy wide shoes with thick padded soles, she's gonna tell you where to shove them, isn't she?

- Well, you've cut me off before I've got started.

- Oh sorry.

- So these more, people with the foot pain have already tried the heavy clumpy shoes because that's common sense, my foot's hurting, I'll wear a comfortable shoe, and actually it makes matters worse because they're actually taking their high-arched dancer's foot and splaying the foot further, moving into your ballet pumps, et cetera, so they're trying to fix it themselves, because that's what people do and this really is where my inspiration for my supple arches came from because I realized that you needed to allow the movement to occur in this metatarsal area and cantilever the weight back. So that was sort of my moment of ta-da where I realized that a moment of force at the back, just to allow the arch to open and then you've got a moment, so just change the forces through the forefoot. So Morton's neuroma is really complicated, far more complicated than we give it credit for, and I wonder as to why that is. It's obviously due to shoes, but the rules are fairly, take the weight to the back of the foot, don't clog the foot up with thick insole pads, that just makes matters worse, might be momentarily more comfortable, but it isn't, make sure the shoes are fastened at the back, so like Mary Janes, Strictly Come Dancing--

- How are you shifting the weight to the back of the shoe, physically?

- Physically, with a strap.

- Okay, so--

- So you're holding it so it doesn't lurch forward. This is where--

- That's gonna be tough with me, isn't it, because what sort of shoe do you require men--

- They don't tend to get Morton's neuroma in the same way that ladies do and when they do, you're talking about quite identifiable bio-mechanical factors and then you've got the space within the shoe, but you really do need to be dealing with 3/4 length orthotics and not full-length. That's the way I look at it and then I have my Supple Arches here that this is very small and these sit at the back of the foot. These are great for neuromas because of the way that they cantilever the weight to the back and allow the pressure off. And then don't dismiss surgical management for neuromas. It's got a very, very high effectiveness rate.

- By which you mean steroid injections first?

- I mean, surgically excising the swollen benign tumor, because it's the high 90s, which no procedure has an effectiveness rate in the high 90s and neuroma surgery does because people are in so much pain that they don't really care and they just want it out. Having said that, we have stump neuromas to deal with. They are a very challenging second--

- Stump neuroma.

- Stump neuroma, so if you've excised the nerve to remove the tumor and then that cut nerve starts to blossom and mushroom, then that's a stump neuroma and that's a very painful condition to manage, but--

- And management for it would be more excision?

- More surgery, steroids, conservative, challenging, challenging. To the point where you would think twice about having it.

-This is what, it's probably, well I don't mean to interrupt you and I do apologize for it.

- That's okay.

- It's probably worth people actually looking up some images of Morton's neuroma, isn't it, because when you see what is dragged out of a foot, it's monstrous, it's huge.

- It can be.

- They're great big cabbage-shaped things coming off--

- But they always go, that's the thing that I'd love your audience just to remember. Plantar fasciitis always resolves, self resolves. Verrucas always self resolve. Neuromas always self resolve.

- You're talking yourself out of a job.

- I'm just saying that, waiting lists that were famous when we had two years' waiting lists, which is another reason why podiatric surgery happened, because these huge waiting lists, but if you had a neuroma on that list for two years, a lot of times you'd get to day of surgery and pains had gone. As we get older and the tissues slacken off, the neuroma pressure isn't there so much, so neuromas are very, very painful when they're happening, but you can take the pressure off. I'm a huge advocate for dance trainers and I'm fascinated at the moment for the trainer design to have changed. You may not be up on this, but the Louis Vuitton 700 pounders, they are actually like a dance trainer now and what a dance trainer does is it holds the back of the foot in one position and allows the forefoot to travel and move and for the people who've got a neuroma, who've got a mobile forefoot, that works really well, so I recommend dance trainers a lot.

- I never thought we'd be advertising Louis Vuitton on this program.

- They've got amazing, so the trainers have moved from these sort of box, fresh, white things of various names and brands to these fugly--

- Fugly?

- Fugly, F-U-G-L-Y, fugly dance trainer type things and the idea now is that they're, to sell more, that they've got these rear foots that are doing a different thing to the forefoot, which from a podiatry perspective is fascinating because what I'm always saying to my clients is the world has been tarmacked. Everywhere we're going now, what our ancestors have passed down the line very successfully, your foot type, is now being forced to walk on hard, flat surface everywhere and that's one of the reasons why neuromas are so endemic.

- I've got a question flagged up with a yellow marker here and it's from Sarah and she says, "This is most sense I've ever heard anyone "speak about Morton's neuroma, actually makes a lot, "thank you, they're so painful." And apparently she's sitting outside still and doing her CPT. Thanks Sarah.

- Thank you Sarah.

- That's very useful stuff. But I stopped you when you'd just been talking about stump neuroma and surgical success with those and you were about to say something else about surgery, sorry.

- The risk of a stump neuroma is significant, so you would have really wanted to have exhausted your non-operative. I've certainly done my fair share of neuroma surgeries. Very satisfying. As you say, it comes out looking like an alien because it's got the arms going up into the two digits, it's got the actual tumor itself, and then it's got the nerve, so it does look like a stick man with a potbelly. That's your ideal neuroma. But I think really, from my perspective, I've really learned that you can calm this all down and also the imaging, this is where your question about imaging comes up, radiography imagining department is very good at identifying neuromas now. And the size is important. There's some evidence about how much pain you get from

four to six millimeters is going to become quite clinically, but I think if you scan people's feet, you're going to see there are slight swellings in quite a lot of nerves that are completely asymptomatic or only give you a bite in some particular pairs of shoes. I once had a 1920 style pair of shoes and I'd had perfectly fine feet up until then, and the way that they crossed over the top of my feet in the straps, obviously just caught that medial plantar nerve complex. They had to go in the bin. And sometimes that's the case. Your foot, your shoe, some shoes will hurt. Get rid of them.

- Okay, non-surgical options, then, include steroid injections and you said--

- Yes, they work really well.

- They do work well?

- Yes, very well.

- On occasions, they don't work at all. Is that because they've been misdirected or just because they are always people who don't respond to a steroid treatment.

- Imaging is helping enormously here, because you see, you've got plantar plate injuries, are becoming quite interesting. Second toe capsulitis. A lot of people say, "I've definitely got a neuroma "in the second and third metatarsal space." I'm always slightly, my clinical side says, well if it's the second and third, I'm not going to assume it's a neuroma from happenstance. If it's a third and fourth, I'll accept it because I know my anatomy and obviously, anatomy varies, but between the third and fourth, you know you've got a neuroma and you've got to deal with it and it's that movement, that abductory flex, so if someone's pronating as they pronate and as they go to re-supinate, that's where all the whirlpool of motion happens and oftentimes the foot is showing you exactly where that pressure is. They'll be a corn or a callus. Don't forget, these corns and calluses are invaluable of showing you exactly where the pressure is. They're like a big red flag saying, "I'm here! "This is where the pressure is, happy." And that's what you need to focus on and your job is to nudge that force somewhere else because you can't get people to walk on their hands, so your job is to move that force somewhere else, get it out of the way.

- So what's going on in the second and third interspace, then, if that's not a neuroma.

- So, second and third space is more often than not, in my clinical experience, functional hallux limitus.

- Okay, which we'll come to then, because I definitely want to come back to that one. I just want to make sure I haven't got any more questions here about Morton's neuroma. Someone sent in a question about dance trainers, like BLOCH's.

- Yeah, love them.

- I have no, this is all about shoes, I've got no idea.

- BLOCH dance trainers are particularly good and there are a lot of copies, but she's right, whoever that questioner is right, they're right, they're very good.

- So is this great preemptive medicine for all of us? If we get young patients in who are into dance--

- Absolutely.

- Of whatever sort, we say, "Look, get some sensible trainers," whether they're Louis Vuitton or BLOCHS or whatever else, but that would make a difference to their possible outcomes.

- Know your foot type. Have you got a hobbit foot type, have you got a pronated foot type, have you got dancer's foot type? Know your perfect heel height, I think that's such an important thing. We don't tell the boys, but they're wearing heeled trainers. They're wearing the Nike Air Max's, the Nike 97s, I think they're fabulous. I really don't think Nike knows what a great trainer they've made in the 1997s because of the way that it molds around the foot, it's such a good shoe and it's got a heel, so for the boys and the girls with a high subtalar joint axis, prone to heel pain, prone to neuromas, prone to forefoot issues, you're actually putting them into a heeled shoe. It works enormously. Don't forget, I'm old enough to have gone through fashion and when I was training, we had everybody was in a Doc Marten. My life was so easy. Wear that orthotic, but go into a Doc Marten. Do this, don't do this. And then we went through this crazy phase of ballet pumps, which caused no end of trouble. We're not coming back out of it again, where school uniform policies are much more proactive, much fairer to the human foot and I know that parents were delighted that you could buy a shoe for five pounds and it was flat.

- I'm going to come back to that perfect heel height in a minute and if I forget, please remind me, because I think it's very important, isn't it?

- It's very important.

- But somebody, Robin, has asked is there a way to accurately differentiate neuroma from metatarsalgia?

- Well metatarsalgia is just your bucket term for my foot hurts, so can we just put that one to one side. Morton's neuroma is, there was a lovely article about how males have named every single part of the human body, fallopian tubes, Morton's neuroma, Durlacher corn, et cetera, et cetera, and so I think it's fairer to call it a plantar digital neuritis and sometimes it can affect more than one plantar digital nerve, but in the main it affects this third and fourth Clapham junction and so I would immediately move it away from metatarsalgia, straightaway.

- The other causes of metatarsalgia are--

- Corns, callus.

- Of pain over the metatarsal area.

- Corns, callus, yeah. Buckling of the toes, extense of tendons, any forefoot issue comes under metatarsalgia.

- Alright, that is very useful to know, actually, yeah. Okay, so we're gonna go back to your perfect heel height. Now can I borrow your foot for a second. Am I right in thinking that it is much more common for what I would call a forefoot equinus to occur in women? I see so much more of that than I think I see in men.

- You're probably right from an adaptive perspective, but men have perfect heel heights of four inches, too.

- Right.

- Because their subtalar joint is also set at the angle that they've inherited and so my hobby in the Tubes is seeing, is checking out who's got a perfect heel height. It's very easy, because you can see them sitting in the Tube with their feet up and then other people have got their feet plantar grade and then--

- Okay, well talk to, what do you mean by perfect heel height, how do you know what perfect heel height is?

- So it's a phrase that I coined a long time ago now just to say if you know your perfect heel height then if it's say, two inches, then that heel height brings the ground up to meet your foot and architecturally makes your foot just that bit more sound. It does not, the law of perfect heel height does not negate the law of common sense, so you can't play tennis in a perfect heel height of four inches, even if you have got a dancer's foot and you're more comfortable. And I think the law of perfect heel height is a really useful way of saying, especially to women, saying this is why your high heels are quite comfortable and you swear blind that you can go all day in that heel height. You can, because that meets your actual physical foot.

- I have so many female patients who are pleased and astounded when I say to them, don't go for flat shoes, heels are, not stilettos, but I mean, heels are more comfortable, because I'm saying, look, I think you've got this forefoot equinus, therefore your heel is meant to be that far off the ground, so stick something under it and stop making your ankle work harder than it should.

- Forefoot equinus is hard sell, isn't it?

- Well, it's a term I feel comfortable with, you know

- Yeah, forefoot equinus is a very useful term, but I just find it a hard sell, so I just say, "Just imagine a line extending "from your heel to your forefoot "and that's your perfect heel height."

- I just tell them to go feet like a horse.

- Yeah, I use that. I've not yet found the phraseology where that has worked for me, so, I'm here to learn. So perfect heel height just gives them a prescription and say, okay, your perfect heel height is an inch and a half. And that's really.

- How do you know? How do you measure it?

- What's the physical?

- I just, I measure.

- I measure it with a ruler and protractor and it's--

- When they're lying supine on your examination table?

- When they're extending their foot in front of me, I get them to point their foot so it's in relaxed stance and then you just make an imaginary line from their heel bone, an imaginary line down from their big toe and you meet in the middle. So it's very imaginary lines, but it does work. And it's quite, especially for those with a high perfect heel height, it does explain a lot.

- But a lot of people are more flexible, both in the ankle, in terms of the extensibility of their triceps complex and also in the mid-foot, aren't they? So just because they are in that relaxed position, it might not mean they need a heel.

- No, I'm saying it's to do with how the talus is set. At what angle is it set within your ankle mortis? Some people's is set at quite a low angle, so imagine your sort of knitting needle effect, that's at a low angle, so their foot's at fairly plantar grade and they can't wear a heel at all and the most they'll wear is a wedge, like a platform, because don't forget the conversation I have with clients is, okay, so you're wearing clumpy boots at the moment. And what happens if you're going to go to a wedding or a party and that's a really interesting conversation to have with people, because the shoe that they used to wear to see the "corupatus" would be like the sensible shoe, but actually we're having much more engaging conversations now. And then you're starting to have to say, but then you need to cantilever the foot, so it's all to do with bringing the ground up to meet the foot rather than waiting for the foot to move down and then adapt. That's where the problems happen.

- Robin has sent in a follow-up to his recent question which, if you remember, was is there a way to accurately differentiate neuroma from metatarsalgia and he says, "Is that to say the nerve is the only tissue "that causes pain?" Is that kind of thing, by definition, I suppose a nerve is the only tissue that can measure pain. It can--

- It will certainly factor the pain. When you've got a swelling, a benign tumor, which is a neuroma, then that is sort of like, it sort of takes up the

space. It's like a space-occupying lesion, isn't it? So after that, you're looking at a swelling into the joints, you're looking at capsulitis. When we were going to move on to functional hallux limitus, and secondary to functional hallux limitus, is a stressing out of the lesser metatarsals and then you have pain into the lesser metatarsals. There's another interesting line now with atrophy and people not using their intrinsic foot muscles, so they're actually atrophying and you see that in diabetics, small muscle atrophy, so that again, that's really useful in gauging, getting people to use their muscles on their feet. I always say you don't need a six pack, but you do need it on your feet. You do need to make sure that those few foot muscles that there are on the foot are as strong as you can make them.

- And you are, I'm sure, aware of this, but we did a broadcast with Matt Walden on the math of core stability, I think it was, and in that broadcast, he was talking about exercises which would strengthen the intrinsic, the postural muscles of the foot, so worth a look if you want to come up with some exercises that might help your patients in that regard, unless you've got some that you particularly like to recommend.

- Well the Royal Ballet School, they encourage everyone to sort of draw up the knuckles, because of course, in order to get into pointe shoes, you have to have enormous core strength. You have to have enormous foot strength and so their exercise is very simple. It's just drawing up the toes, seeing the knuckles of your feet, the metatarsals, and then relaxing. And they encourage that for about 40 times a day, so if you can get to 40 times a day, that's quite good. It's holding the arch quite tight, seeing those metatarsals relax and release.

- How long do you hold it for?

- Couple of seconds. I always say that these interossei lumbacore muscles are like anchovy muscles, they don't have a lot of motor power to them and then can cramp out quite quickly, so don't worry about that. Just shake it out and start again. This is absolutely just drawing up and then you can go to drawing up pieces of material, drawing up pencils, but the concept is get that foot strong because strong feet keep you out of trouble. It's weak feet that cause most of the foot pains that I see.

- I guess we are a society which tends now towards weak feet, are we not?

- Absolutely!

- We spend a lot less time on our feet.

- Absolutely, we're in an obesogenic environment. We're in our cars, we're using them as wheelchairs, we're not out and about, we've got shoes, yes, huge amount, so foot strengthening exercises are--

- I've got another question here. You've mentioned a couple of times of the setting of the angle of the talus and this question from an anonymous

viewer is what causes the setting of the talus? Is it muscular tension or bony?

- Bony.

- Okay.

- Which comes first? Bone. Bone, bone, bone ,it's always interesting

- So that's gonna be a genetic, that's gonna be an inherited characteristic?

- It's always genetic, yeah. And it's interesting. If you, I went to a lecture recently, a wonderful lady who, professor somebody, she was doing dinosaurs and they dig out the bones from the ground and then can say where the tendons were, where the forces were, so it's always bones first, really, really interesting. Bones do everything.

- Do you remember we had a phone call a few days ago and I remind you, this is a 90 minute broadcast and you made a noise which was a bit like, oh my god, what are we gonna talk about for 90 minutes? We've got half an hour left and I am no where near through these questions.

- Sorry.

- No no, not at all, this is great! This is really good stuff. And I do want to get on to talking about hallux limitus or rigidus, because--

- They are some really important subjects.

- Yeah, and one question, it just reminded me of it, is one about improving the windlass mechanism in here which of course, you tell us about hallux problems.

- The good old windlass.

- Yeah.

- So in order to function, it's controlled falling and controlled movement, you're moving forward. So one leg has to brace and one leg has to swing past. - And in the doing so, you want your big toe joint, all of your body weight goes through your big toe joint. No matter how many years I'm a podiatrist, if I just focused on the first MPTJ, I have enough work to do forever. And so whatever is making that joint jam up is a huge issue because at the point of you need to fulcrum across that moment, it's jamming, we have a problem. And that can be a long metatarsal which you've inherited. That could be a bunion that's causing an outward movement and then a whiplash in that can cause problems. Generally speaking, it's the cousin to a hallux valgus and you've got functional limitus, functioning limited range of motion when you call upon it.

- What is a normal range of motion? How would you measure that in hallux then?

- Okay, so when you've got a client sitting in front of you and they've got their leg stretched out in front of you and they've got relaxed movement and there's no crepitus and it's gliding, everything's happy, that's fine.

- You're not looking for a particular angle of movement.

- You're not looking for a particular. You're just looking for no crepitus, no actual sort of osteoarthrosis changes in the here and now. But you can already see if there's enlargement across the knuckle, then you can see that there's some changes. One of the ways I talk about it is in the game of chess, if when you castle your king, and the idea is that the body knows this MPTJ is under stress, so it starts to castle it. It starts to square it off and then that, of course, makes matters worse. So, when they meet ground contact and that whole joint becomes as rigid as this plastic model, then that's where mayhem starts to happen. So, the next joint is at the cuneiform or it's at the phalanx and either way, you've got trouble. The other thing I think that we forget, you might not forget, but I think a lot of people forget, is that the big toe, the hallux, has only got two bones whereas every other digit has three. There is obviously some talk about the actual hallux is actually the two proximal phalanxes and then the metatarsal is actually the toe. We can have a conversation about that.

- So, one of the things I've noticed in some patients is that there's a very, very evident degree of hyperextension of that at the interphalangeal joint.

- That's because they've got functional hallux limitus.

- Because of that functional limitus.

- That's right. So they've called for that movement. It hasn't come. Human body will find it. It will come from somewhere. It will either come from a trigger toe, where they have a toe that sits up and then they'll have a damaged nail. They'll get enlargement of the joint itself. They'll start to get this sort of dorsal humping, this forefoot derangement that's very common. We see that in 16, 17 year old girls. The phase of the ballet pumps is really interesting. There was quite a lot of young girls turning up in accident emergency with huge amount of medial arch pain because the windlass mechanism was being scuppered by these flat ballet pumps. They genetically, anatomically got functional hallux limitus, albeit in very early stages, and then the musculature was suffering. Of course, they were having all the x-rays, nothing to see. Wiggling their toes in the air, nothing to happen, but it's at the moment of function that it was all happening. So, the answer to the question about the metatarsalgia is that the second MPTJ then has to do some work and this is where any buckling, any callus formation, the second toe will do the work and it's half the size of the big toe and it doesn't want to do it and it will do anything to cope. This is where your stress fractures come in. This is where your hammertoes, your corns, your callus, the buckling. It will cope in some way, or not.

- How does it manage that, because if you're getting no extension of this toe, presumably you can't get that one to extend either, because this one's just staying rigid. So you're gonna get a build-up of pressure underneath the distal part of the hallux and around the medial side of the hallux.

- Everybody's unique and everyone's different and it could do any of those things. But in the main, you have to just remember the three, numbers two, three and four work together. So number one and number five do their own thing. They have their own range of motion. They can do their own thing. They've got their own musculature. Whereas, two, three and four work in tandem. So, what you're actually doing is, it's like that old, what is that, that Newton's ball, what was that called.

- Yes, Newton's cradle.

- Newton's cradle. You think of it like that. It's actually moving like a Newton's cradle and it's passing the forces down.

- So, what do we do about it?

- Which is why you get people with huge amounts of callus. You enable as much range of motion at the first MPT joint as you physically can and that is footwear, orthotics, insoles. So, a small heel is very important. So, a man's quarter inch brogue is perfect. So, you're bringing the ground to meet feet and you're just opening up the range of motion. So, if they're absolutely flat, they're not gonna have any range of motion. If you just lift the heel slightly, you'll give them a little bit of range of motion. All they need to go into the next step. They're actually starting to adapt to changes across that joint, then what you don't want to have is a shoe that rolls up, like a slipper. You want a shoe that's got a nice, firm base so they can push off the next step without compromising a joint that's already under attack and vulnerable. So, a lot of times, it's pick up a shoe, roll it up, put it on the shelf. If you've actually got a proper men's brogue shoe, I wear brogues as well. They're really good shoes for functional hallux limitus. Orthotics are very useful, First Ray Cutouts. Have you heard of First Ray Cutouts?

- Yes

- So, First Ray is obviously the first ray, which is this whole structure right up to here. You can cut the first MPTJ. You can go right up to the midfoot and they can work quite well.

- Okay, so just allowing it to drop slightly.

- You open up, whatever you've got, whatever you've inherited, open it up and make it function.

- Now, back to that windlass mechanism then.

- Which is the windlass mechanism.

- Can you explain what the, there may be people who'd like you to recap on what the windlass mechanism does.

- So, at the point of functionality, so the windlass mechanism, you've got structures coming from the heel bone, which is one of the reasons--

- Turn that one sideways to the camera so people see it.

- Sorry, so at the point of function, this is one of the reasons why you get heel pain, as it's a pull on the medial aspect of the calcanium right to the tip of the hallux and you need it to function and bend. The idea is that it winds up and then relaxes down. Don't forget, you've got a lateral and medial sesamoid complex sitting within the flexor tendon, which are supposed to move up and down around. One of the jobs in bunion surgery is that you have to release them because there's quite a lot of manipulation and I would say that from an MSK perspective, we don't manipulate these sesamoids enough, but we certainly have to move them out of the way in bunion surgery and releasing the sesamoids is really important. Sesamoid function is very important.

- That windlass mechanism, in my training, is what is designed to cause the locking of the foot so that you can get propulsion over the first ray. Raising resupinates the foot into its locked position ready for toe off.

- Yes, I was taught that a long time ago. Sort of root around, read things, which were very useful in their time. They came with the Roadure orthotics, those orange, rigid ones. We're moving much more now to flexible ones. If someone comes to see me and they've got rigid orthotics, I'm very polite about it, but I really do move them to the side, 'cause we need feet to flex and be human and move. The supination, the resupination is very important but that's more coming from mid-foot than it is from the windlass. Windlass is purely first MPTJ, in my understanding but we can get a biomechanist to come in and tell you more.

- Okay, so what more do we have on windlass mechanism? The question was out, could we improve the windlass mechanism and I guess what you said about getting a first ray to redo the function is going to help us with that. Now, I'm gonna apologize in advance. I'm sure I'm not gonna get through all these questions and I am taking them now in a slightly random order but let me ask one about children, here. Claire has said her children, aged two and a half and four and a half, hardly ever wear shoes around the house and the garden, much like her, and she gets so much grief for it from the in-laws. Should she discourage it, in other words, should she put them in shoes, Thank you for some fascinating CPD, she adds.

- Thank you. No. Children's bare feet should be one of their pairs of shoes. It's a really important thing, you know, just getting the children's feet out and about is so important. So bare foot, as far as I'm concerned, is a really valid part and should be part of their everyday shoes.

- How much do children's feet change between childhood and adulthood, is another question that's come in.

- Enormously, and I'm very, very grateful to Start-Rite, because they still do children's shoes up to a size 11, and as I have a 14-year-old boy. What you have to remember about children's feet is they grow in different segments and a child's foot is not the same as an adult foot. Even when it's enormous, size 10, size 11, it has a different set of, sort of, lengths between the calcanium and the midfoot of the toes and it can go off in any direction, 'cause remember, growth plates are open and they close in different stages. So, children's feet are growing at a rapid rate. So, having a child's shoe that has a good, stable heel cup is the most important thing. I personally like Start-Rite shoes, because boys' shoes and girls' shoes have this medial heel stiffness in, and that's a really good shoe. But, the rule of thumb is that, if you pick up a shoe and you can press down the medial heel, like a slipper, put it back on the shelf. That's not gonna help. So, a child's shoe, we've seen leaps and bounds in children's shoes. Clark's, the other day, measured my daughter's feet and it was an iPad and it was all technical. It was just great. Really, really amazing stuff. But, the shoes have got to be flexible in the sole, a good, stable heel cup and a small heel to counter-balance these flat surfaces we're walking on all the time.

- You talked about the changing, relative shape of the foot as children grow. I've always been slightly puzzled about how you work out what the correct shape. Theare above~~ the parabola of the metatarsals, aren't they? Well, I'm never quite sure how you measure what is an accurate parabola.

- You can.

- Good

- 142.2 degrees is supposed to be the normal.

- So, how do you know it's a long second ray or--

- You can see it. So, the question is, I can't change, if you've got a long second toe or a functional hallux valgus, I can't change that but I can tell you that, if you were to pursue that path between now and whenever, then you're more like to get arthritis in that joint or you're more like to get X, Y, Zed. The dentists have an advantage over us here. They get a spare pair. We only get what we get. So, metatarsal parabola is only important for me as a surgeon, for making sure that I maintain the parabola. So, Wilson's osteotomy, for example, shortened the metatarsals too much, so it was an easy procedure to do to correct a bunion, but it left everybody with like five centimeters missing of metatarsal. That scuppered metatarsal parabola.

- I'm only smiling because I've been asked if we can pause the show, because we've had what is described as our first APM baby. Robin says the baby is crying the house down and could we pause the show while he sorts him out. Well, no we can't, but congratulations to Robin anyway. Great to

hear that and Claire says I mustn't be rude about babies and I won't be rude about babies at all.

- We love babies. Love babies' feet.

- Delighted for Robin, good for him. Sorry about the crying, but there we go. There have been several questions about types of footwear. Also, we talked about dancer's pumps earlier on, dancer's trainers earlier on. What about Birkenstock sandals. What about FitFlops and flip-flops and things like that. What's your opinion on those things?

- Birkenstocks are a wonderful shoe. Absolutely hopeless of me because I have a dancer's foot type. I have a high perfect heel height and I can't tolerate that flatness, that right angles. So, if someone's got a low subtalar joint and has a low moderate right-angle foot, they're fantastic and that's why some people will swear that that's the best shoe ever, because it suits their foot type. Flip-flops are the universal shoe. They sell in their billions. They're worn across the planet. They're a marvelous shoe. They can be a problem in our culture, because we tend to go out of winter shoes into flip-flops, take our weak foot, put them into a foot that demands strength and it can cause quite a lot of problems. It's quite a useful tool when someone's presenting to you in the autumn, to say "Where have you been on summer holidays?" Oftentimes, foot pain, medial foot pain, lateral foot pain's associated with some flip-flop usage. That's nothing against the flip-flop. I grew up in flip-flips. I grew up in Africa. So, I swear by flip-flips, but I recognize that they can exacerbate foot conditions. FitFlops, which is the patented version by Marcia Kilgore, they're fantastic. What they're great at, is they have a thick base, they have a heel and they have got quite a good upper. If you actually look at the FitFlop, it comes up quite high onto the foot and again, so that suits your foot type.

- But there again, are they dependent on your perfect heel height?

- They're less dependent on perfect heel, because they've got a bit.

- Okay, there you are. What have we got here? Your recommendations for children's shoes where they need a wide fit. Start-Rite are a bit narrow for this person's son. This is supposed to be about people's patients, not their family, but.

- Well, Start-Rite. Go online. I buy my children's shoes online and they go up to H, is it H, G, H. I think they even go higher. Speak to them. They're a brilliant company and that's their speciality. So, the average is G now. It used to be an F. I'm fairly sure they go to H, I, and if you've got that fat a foot in a baby, it's no big deal. That's normal. If you've got a big foot, then look to the American market, 'cause they've got obesity, you know, looming large. I quite like the Brooks Trainers make and I like New Balance because it's got different width fittings. Those days of finding the shoes for difficult feet are so gone now. There's a company called Narrow Feetures, F-double E-T-U-R-E-S and they did narrow shoes online. Also, I always say to clients, if you've got a troublesome foot and you know it's gonna give you trouble,

buying your shoes online gives you so much more rights to send them back, because if you buy them in a shoe shop, technically, you don't have to give them back, because that's how shoe shops work. I'm not trying to get a huge returns policy going on here but actually that's quite a useful thing to do.

- Yeah and a lot of them will take returns. Postage and return is free, isn't it.

- They have to. It's part of online commerce. They have to.

- We're getting on and I don't want to go too far without talking about this. You were described as an inventor in your bio and you have invented these. Can you tell us a bit about these.

- The journey behind this piece of plastic, it's been quite extensive. I was starting to get pain in my feet wearing my high heels and I wasn't admitting it because that wouldn't have been a good idea. I like my high heels.

- Higher than these? These are what, three inch?

- These are not so high. Yeah, they were in higher. Don't forget, we've gone through a phase of gladiator shoes, killer heels. My feet were already starting to hurt. I remember it vividly, the moment of sort of ah-ha and realizing that if I just put a moment of force just under behind the calcanium and just cantelever the weight backwards and that's where the idea of the SuppleArch, 'cause I'm Emma Supple, came about. It's been such a journey. I got picked up by an American company who owned their own television studio and they rang and they said, they didn't have a name at that point, they were going to sell five million of them, which is an awful lot. I sort of sat down and said, "Oh gosh". They were going to call them Comfy Heels, so they were experimenting with different women and I was just so encouraged that people were realizing they could put this piece of plastic in the back of your shoe, cantilevers the weight to the back, takes some of the pressure off the forefoot momentarily and buys you time in your high heels. But, I also have them in my walking boots and my children wear them. So, that was my story as an inventor. Then, we had extraordinary ... When they are finally very successful, I'm going to come back to you and say, this is the bit where it went really difficult. People were ringing up, saying, "I'd like to buy them," and they're saying, "We're just practicing the advert." No one actually got to try them. It was the most frustrating thing and I know social media is now in our phones everywhere but this was only a couple years ago. So, it was just extraordinary. So, we've had to go all the way back to starting point. I have the patent on them in Britain. I have it in Europe and I was holding the global, international patents. I've learnt so much about intellectual property and you were talking earlier about whether you should or you shouldn't. I agree but when you've got a huge global company about to go global, I had to have the patents. I've still got it. I still think they're absolutely amazing. I'm wearing them in my heels now. My daughter's just gone to prom and she wore four inch high heels with the SuppleArches. They still need some science proof going on behind them but it's very exciting that just such a simple piece of plastic--

- So are they commercially available? I think if any of these people watching today want to use these

- They are from Supplefeet, yes.

- Supplefeet, which is Emma's company, of course. Dare I ask what do they sell for?

- 20 pounds.

- Right, so 20 quid. That's what we pay for them or what we charge our patients for them?

- That's what I charge but I can do special deals. The idea is to get them. One day, they will be a lot more inexpensive so they can be in multiple pairs of shoes. But, it is an exciting part.

- But it's pretty easy to fit between shoes, aren't they? It's not as though they're a huge full-length insole that's got to be wedged, forced down into women's heel.

- Correct

- And, who are they designed for? You mentioned high heels, pain wearing high heels

- They're designed for neuroma's. They're very useful in high heel wearing so that your feet don't hurt you throughout the day. My son used to call them his shooting insoles because they also, the bits of research we've done using S-scan, is their increased stability. It's a quite useful trick, giving that moment of force in the center aspect of the foot just right at the back here where the spring ligament is. It's really quite interesting how that increased the stability. More work to be done on that, but I'm quite encouraged about sway, so when I've got teenagers and they're wobbling around like gazelles in their first pair of high heel shoes, 'cause it's an art to learn how to wear a shoe. They lean their heads forward, stick their bottoms out and they're just all over the place. When you put the SuppleArch in, there's a moment where they just sort of stand straighter and I think that's to do with proprioception and just a calming down of the whole structure. So, they're working incredibly well but it is just, as the inventor, I've discovered that as a podiatrist, it's not normal to have invented my own insoles. Either that's not the normal path or use everybody else's. So, it's been frustrating and exciting and exhilarating and maddening and challenging, all at the same time.

- It's a really interesting concept to have come up with, isn't it because most insoles say, well if your hallux doesn't work, we'll lift up these toes and we'll make a gap for that toe and we'll fix that problem. That's not an obvious solution in the same way that other orthotics or--

- These are your arch-free-ers, if you like. So, my moment, sort of like, if how was, the negative space in the arch of your foot is there for a God-given reason and it needs to be enabled. You need to enable space. So, if I was to hurt my arm today or something, I would splint it temporarily and I think it's quite challenging to say to my profession, "Stop splinting feet in totality". This is where my feelings about rigid orthotics are. If we're splinting feet really all the time, that's going to cause problems. I had a client only recently. He had foot pain. I looked at the orthotics and they were almost full-length rigid and he said, "But when I take them off, my feet go uh." Well, that's not really a surprise. It's a bit like whale corsets. We really need these feet to be moving and engaging. It's really important.

- Now, we've got 10 minutes left and before, perhaps we should just re-emphasize that you might be on the point of watching something big here if these take off and you sell five million of these next week.

- One day, one day.

- Actually, I'd be really, really interested to see how effective these are and possibly through my own patients if we can get hold of some but maybe our viewers would like to try them as well, but certainly through whatever research that you are engaging in.

- The amount of times I have taken out my own shoes and gone to rescue somebody has got ridiculous. But yes, I am a frustrated inventor at the moment.

- Well, I'll tell you what. We got you on the show on the recommendation of one of our members, of course. Emma, I think, her name.

- Emily. Emily Beckloff.

- Emily, sorry, yes. Sorry Emily, my mind doesn't work terribly well when I'm under pressure like this. But I called you and I thought, "Oh my God, it's someone who's invented something, they're gonna want to float these things," and I checked, of course. You know, these are totally unlike anything else I've seen, so I'm really, really interested to see how they work out and fascinated by the theory behind, which sounds very plausible, of course, which is the first stage in getting a successful medical outcome.

- Getting a British patent was wonderful.

- Well, yeah, I bet.

- I remember,

- on the day that it came through, I spent the glorious day just clicking through everybody else's inventions and it was all to do with fracking. It was almost everybody had invented something and someone had invented something about a pram and they're all just pencil drawings. It really is just

quite amazing, people's inventiveness and to do with taps, a lot of things to do with taps that day.

- But, we'll try to keep abreast of what happens with these because it will be nice.

- It'll be nice to use this as my impetus 'cause I have retreated a little bit and go, "Oh gosh, that was so painful," but I do need to engage because as I said, if you've got a good idea and it works, you need to be getting it out there.

- Yeah, absolutely, absolutely and then if people don't know about it, then they can't try it and find out that it works for me. So, we need to crank on 'cause we have eight minutes left now. Tim, you asked a question about metatarsalgia and you were concerned that it might have been answered earlier on. It was answered earlier on, so if you don't mind, I'll pass over your question here and hopefully you'll be able to see that either in the text summary or in the recording. What have we got here? At what age can you determine the perfect heel height, or does it just change, if necessary, as people grow?

- Any age. Not in babies, 'cause they've got that lovely fat pad but any age and that is advice I should give to young tiptoe walkers. I have quite a few four-, five-year-old tiptoe walkers in my clinic and it's to do with the fact that they're just going straight to the most obvious, most comfortable position, which is in the heel. Not appropriate, but as long as they can obtain heel contact, they don't have an osseous bony block. We're not talking about really serious conditions like vertical talus. It's to do with the fact that--

- These are very concerned parents with children who are quite old who are still toe-walking, and so, what do you do with them?

- I tell them to go ahead of me down the corridor and invariably, they are making heel contact. If they're not making heel contact at all, then we can do x-rays and we're just checking for bony block. Occasionally, you find a bony block and then you make a decision as to whether or not you release that or not surgically. It really depends on what it's doing to the foot. If it's putting it into like a spasm, has pain just all the time, fix it. Don't forget, we've got a whole conversation to be had about subtalar joint arthrodesis and all of that. That's another conversation.

- But if they're not suitable for surgery, it will just resolve itself?

- If they're a tiptoe walker who can achieve heel contact, it's usually because they've got a high heel height, pronate foot type and it's just economical for them to go on tiptoe. I always liken it to a piece of grass. It says, "Do not walk on the grass" and everyone's walked across the grass because it's the most convenient thing to do.

- So what do you do for them?

- I just reassure them and tell them just not to wear a flat ballet pump, do some heel squats so that they actually, with the heel squats on the ground, it's very easy for them to go on their heels, get those calf muscles stretched out.

- Right, lengthy question. How does Emma feel about, the old barefoot minimal footware question again. This is from Robin; how does Emma feel about barefoot minimal footware for conditions like Morton's? It seems counter-intuitive, but I've found that by removing impact absorption and restriction of shoes, it allows the feet to move and articulate and also it's forced me to modify my walking to take advantage of the foot's natural impact-absorbing ability.

- These memory foam shoes have caused a nightmare. I often spend consultations removing mattresses from people's shoes. I call it shoe furniture and if you've got a neuroma or that kind of entrapment, tarsal-tunnel type thing, shoe furniture is gonna make things worse, which is one of the reasons why I went down the concept, the creativity of SuppleArches, is enabling the foot to do what it can do within its own parameters, is really important to me. So, those mattress foam Sketcher-type insoles, I am ripping those out every day. I don't think it's an accident that pool shoes were clogs and were well tolerated. Obviously, they had issues but they made you push stuff. You need something to push you off and propulse you into the next step and that's not through a soft, sacky element.

- You're not the first person to criticize Sketchers because we all have patients who swear by them. They love them, but you know, something--

- But they're presenting to me in foot pain, so I get rid of that argument straight away and say, "Well that's fine, but you've got foot pain". So, I'm not buying that argument.

- Okay, regarding orthotics, do you only recommend the EVA formed ones, or is another type just as good, says Liz.

- The EVA ones I only ever use in diabetic CMT. I use them very rarely in quite a unique set of circumstances. The majority of times, I use a company called Firefly in Northern Ireland, who are very good with me there. My general prescription is a properly-made orthotic from a proper cast. I'm an old-fashioned podiatrist. I cast out the deformity so I don't get them to stand in a cast. I actually hold the foot and I hold it in the correct position and then maintain the correction so that my neutral cast is the correct picture. Then, Firefly do their work. I tend to have semi-flexible polypropylene orthotics. I tend to cover them in 1.5 puff, which is a non-slip and they're beautifully contoured to the foot. I mostly don't compromise first MPTJ function. I'm uncomfortable with a lifetime's of impinging that function any further than I have to and that's my general thing but most of the time now--

- When you say compromising, how do you mean compromising?

- If you're jamming up the joint through your intervention, then I think that you have to look at that carefully.

- So you always put a cut-out in, or--

- Mostly. I think OTC orthotics now are so good. Over the counters, they're so readily available. We carry, in Supplefeet, about 40 variations so that we can fit them to different clients. Rarely do I need to fit them with a spoke anymore.

- A question about SuppleArches. What's meant by small, medium and large? What size do they fit?

-Small is three to four, medium is five to six, large is six to seven and extra-large is not yet in production, is nine upwards. That's a very observant question.

- Someone's obviously been looking you up while we've been talking.

- I'm feeling the impetus now.

- If you can deal with these very quickly, that would be great. These will be the last questions. What are the surgical procedures that podiatric surgeons would be better at than an orthopod. For example, ligament shortening, joint debridement. I acknowledge hallux valgus but more common, we didn't even talk about hallux valgus--

- Second toe surgery. You know, the most difficult surgery any of us can do and get a good result is second toe surgery because there's so much. If you think about your digital finger, it rotates and has triaxial movement. It's the same for your second toe, so a good surgeon with good results is, look to their second toe work.

- Okay, what sort of things would they be doing?

- Hammertoes, rebalancing, plantar plate repairs, Weil osteotomies. If it's not just the second toe and it's starting to impact on the second metatarsal, that's quite difficult surgery. I enjoy it.

- But an orthopod could do it if they did lots of--

- Of course, of course, but it's knowing the fact that the second toe is compromising because of the functionality of the hallux. I would say that, I remember standing up in one of the conferences in North Britain, saying, "Well, the reason that that's happened is 'cause that's got a functional hallux limitus. Look at the x-ray. There's a short first met," and you could see people go oh, never thought of that. So, it's movement. Movement is so important.

- And the last question here. If we see someone with foot pain that we don't understand, do we refer to someone like you--

- Yes, please.

- Or a non-surgical podiatrist or a corn-cutter. I can't remember what the people are called when they hunt podiatry

- Harsh. Enough. I'll call you a massage therapist, in that case.

- How do we know who to refer to whom?

- Podiatrist. So, if you go on feetforlife.org is our College of Podiatry's website, put in your local post code, get in touch with your local podiatrists and start good relationship. From my perspective, working with an osteopath is fascinating because I can stabilize at ground level, that's my job. Then, everything else is osteopathy, physiotherapy, that's out of my territory. George will then say, "Well, the pelvis is fine. "I can sort all that out. "Your job is here; it's actually in the foot." And so, between us, I give him permission to go off and do the work that he needs to do and he gives me permission to focus on where I'm working. So, it's really important relations, very synergistic. A couple of times, we see people together and say, "Well, I think it's this" and obviously, he's incredibly helpful when it's leg length discrepancies at soft tissue and identifying that. It's an invaluable relationship, really is.

- Well, there's been quite a bit of synergy this evening, I'd say. I'm sorry we didn't get on to cover everything, like hallux valgus and so on, but it's been fantastic having you in the studio. Thank you so much.

- My pleasure.

- We will keep an eye on what's happening with the SuppleArches and hopefully we'll get some interest from people who might try them out with their own patients if that's a good idea from your perspective. But, a wealth of information and very, very useful for us in clinic. Quite above anything else, which is what we always aim for in these broadcasts. Thank you again. And thank you for joining us. It's been a very hot evening here in our studio but a very enjoyable one for me and I hope for you as well.