

Airing Pain Programme 73: Foot pain

Taking care of our feet, plus, why we need toes.

About ten per cent of the adult population experience disabling levels of foot pain. Producer Paul Evans hears from the experts about professional help, self-management and why we need toes!

Gordon Hendry explains what podiatrists do – and it doesn't involve using a hammer and chisel to lop off a bunion – and why we should appreciate the complex and clever structures that are our feet (and toes). More women than men are affected by foot pain. Jody Riskowski weighs up whether tight-fitting shoes are to blame.

As a former elite athlete retired because of injury, Riskowski shares her experiences of rehabilitation and gives tips for finding the middle ground between overdoing it and over-resting, while Kathryn Martin tackles the issues around getting active despite foot pain.

Paul Evans: This is ***Airing Pain***, the programme brought to you by Pain Concern, a UK charity providing information and support for people with pain, our families, friends and healthcare professionals, through campaigns, these podcasts, literature, research projects and its helpline.

This edition has been funded by the footwear retailer Schuh, which is highly appropriate because it's about foot pain.

Gordon Hendry is a podiatrist and a lecturer in musculoskeletal rehabilitation with the Musculoskeletal Health Research Group at Glasgow Caledonian University. The group collaborated with the University of Aberdeen's epidemiology centre to present a foot pain workshop at the 2015 British Pain Society's Annual Scientific Meeting.

Now I suppose I take my feet for granted, even though – I'm sure I'll be corrected if I'm wrong – they're probably the most used and pressurised part of my body.

Gordon Hendry: You would be pretty correct in saying that actually. There is a quote out there, I think it was Socrates: 'if your feet hurt, you hurt all over'. And there is this idea now, the foot being the key load-bearing structure of the body, that's subject to a lot of high stresses and strains.

We know from epidemiological research there's probably about ten per cent of the adult population that will have disabling foot pain, disabling being that for at least a day in a month they will be unable to perform a task due to the level of foot pain. We know that far less seek care for that disabling foot pain and we don't really understand why that is – it's either people aren't aware of what help they can get, or they just carry on regardless and they power through, or they perhaps self manage to varying degrees of success.

From my own professional background maybe we're at fault slightly, in that I think if you asked everyone at this conference what a podiatrist is probably very small percentages would be able to tell you what they are and what they do, relative to maybe physiotherapy, which is very well known by comparison.

Evans: Okay, what's a podiatrist, what does he or she do?

Hendry: I'd left the door open for that. Well, I suppose in terms of mechanical foot pain, a podiatrist is an allied health professional that will be capable of performing a diagnosis to determine the cause of your foot pain and apply non medical, conservative management strategies to relieve that foot pain. Podiatrists also have many other roles related to diabetic foot care, for example, foot ulceration's a key problem, but in terms of foot pain from my perspective, the role is very much based around mechanical, conservative therapies for improving posture and function, such as normal human ambulation and walking.

Evans: Gordon Hendry. So who gets foot pain and why do they get it? Jody Riskowski of Glasgow Caledonian University:

Jody Riskowski: In general, we see women typically get more foot pain; in general, people who are older tend to get more foot pain; in general, people who have made poor footwear choices – and some of that still is questionable – tend to have more foot pain. So the poor footwear choices might be women with high heels – some studies say that is a problem, other studies say that's not a problem and a lot of that is because we ask them when they have foot pain, 'what shoes did you wear?' So they think of all the bad things, it's called a 'recall bias' – you think of all the bad things, things you feel guilty about, 'oh, maybe I shouldn't have worn heels 16 hours a day when I was 20'.

Evans: Other than wearing high heels, which I don't [laughter], what can cause foot pain?

Riskowski: We think of it as being a loading issue, so how you're putting force onto the foot, wearing ill-fitting shoes may play a role, wearing high heels – that may play a role. With regard to how does it arise, we don't have good answers, because you can look at people, say, you can't run all the time, but then you go to some marathoner and you go, 'but they're

putting in hundreds of miles a week but they don't have foot pain and I can't run for three miles without doing it'.

So clearly, somehow, somebody is doing something different, but we just don't have a good understanding of what that something is that they are doing to be able to allow them to run without pain, or what they're doing that brings on foot pain when they run.

Evans: I think the answer is we're all built differently.

Riskowski: Yes [laughter], I do think there's something to do with that.

Hendry: We would expect that the majority of patients coming to a podiatry service – and any NHS podiatry service – they would have foot pain and the goal would be to manage that foot pain. But there are some situations where there is pain higher up in the connecting chain, so whether there is back pain, knee pain, where there is some evidence to suggest that perhaps realigning the foot can result in benefit.

So I know from colleagues that I know from Australia that have used foot orthoses – that to you and I would be an insole – and the insole is being used to correct foot posture to try and relieve back pain that has supposedly been caused by some disruption to the connecting chain. Also foot orthoses have been known to be used for relief of knee pain, and there is a specific mechanical target that looks as if it could be modified by using a foot orthotic and you're effectively changing the direction of a force going through the knee joint to prevent further deterioration in terms of osteoarthritis and relieve pain.

Evans: You mentioned the term realigning the foot. [**Hendry:** Yes.] What do you mean? My foot sits on the bottom of my leg and it points forward.

Hendry: Yes, that's right, well compared to the knee joint, which is effectively a single hinge, the foot is a far more complex structure. So you've actually got 33 joints in the foot, so in terms of adequately and concisely describing realignment it is actually very difficult. But if you take a heel bone and you look at it from behind, one of the key movements of that heel bone, if you think about it moving in a clockwise or anti-clockwise rotation when you're walking, there is some evidence suggesting that extremes of that rotation, in either direction, might result in development of foot pain via various different tissue stresses and strains. And the idea is that by building up on one side of the heel bone we can alter that rotation and bring the big hand closer to the 12 o'clock position.

Evans: That's Gordon Hendry of Glasgow Caledonian University, which as I mentioned, is collaborating with the University of Aberdeen's epidemiology centre, where Kathryn Martin is a lecturer.

Kathryn Martin: I lead a programme on physical activity research, which is part of the rheumatic and musculoskeletal programme. And I'm interested in understanding and exploring the patterns and problems of physical activity and, actually, sedentary behaviour among older adults as well as those who have rheumatic and musculoskeletal conditions. Additionally, I'm interested in developing theory based interventions, behavioural interventions, to increase individuals participating in physical activity, as well as finding ways in which we can support individuals who want to be more active in maintaining their physical activity through different transitional periods in their life.

Evans: Physical activity is one of the big issues faced by people with chronic pain conditions.

Martin: Yes and physical activity is a wonderful way where individuals who have chronic pain, or different pain as a result of other conditions, can actually manage their symptoms, and especially fatigue as being another symptom. Unfortunately, individuals with chronic pain face this cycle – it's fear, avoidance, pain, then a continuation where they just keep not engaging in physical activity – so it's important to break that cycle and have individuals engage so they can really manage their symptoms well.

Evans: The cycle being, 'I have pain, if I exercise it will make me worse, so I exercise even less, therefore my pain gets worse' [**Martin:** That's right.] and it spirals.

Martin: And there's a deconditioning element as well in that. But you're absolutely right, where individuals are fearful of pain and they avoid that activity that they believe might cause them pain, so then individuals can become de-conditioned if they stop being physically active, which then brings on more pain and so forth.

Evans: So how do you break that circle?

Martin: That's a really great question and one which I think many of us are interested in really understanding and researching further. I think that it's complex and individuals, even without chronic pain, face many different barriers to being physically active, and getting off their sofa and stop watching television.

Evans: You see the biggest thing that's made me start exercising, I have chronic pain, I have fibromyalgia, but the biggest thing that has got me off my backside is being diagnosed with type 2 diabetes.

Martin: Interesting.

Evans: It's the fright.

Martin: Of what would happen with that additional condition? [**Evans:** Yeah] And have you found that it has improved your fibromyalgia symptoms? Less fatigue, less pain?

Now, I've turned the interview onto you, Paul.

Evans: It has actually. I still pay for it.

Martin: Sure, overdoing it?

Evans: Overdoing it, yeah.

Martin: Activity pacing tends to be a type of management strategy that is often encouraged by clinicians like occupational therapists or physiotherapists, even podiatrists, where individuals are encouraged to sort of adopt a strategy where they don't over exert. So they're doing enough where they are getting themselves to engage in more activity, but up to a threshold where they know if they cross that threshold, they will induce pain. So it's finding a right balance and pacing oneself into doing activity, so if one can adopt an activity pacing strategy oftentimes that might help.

The evidence is lacking, especially in the foot pain area so often in public health and clinicians will say the simplest way to get active is to get out and go walking. It's usually very low impact, it's easy to do – individuals can simply go out their door and walk. But for individuals with foot pain I think that this is a very complex and not an easy activity to do, because it causes pain. And so, not everyone has access to a swimming pool, which is recommended for a lot of adults, especially those with chronic pain and foot pain in particular, so access to swimming pools is not always easy, so walking is one of those activities that for many people without foot pain is easy to do, but if you have foot pain you may not be as inclined to do.

Evans: And it's incredibly easy to give advice to somebody who doesn't walk, who doesn't do any exercise, but actually putting yourself into that person's mind-set [**Martin:** ...or shoes], or shoes [laughter] is quite difficult.

Martin: Yes, I think so. I think foot pain is complex in that there are a lot of different ideologies, ways in which a person may have foot pain. Sometimes it's brought on by trauma and over time goes away. The natural history of foot pain is not very well understood, so once someone has started to develop foot pain, what sort of goes on at the soft tissue, or even at the bone and the joint, that's not very well known. And spontaneous resolution, or how things resolve, even without intervention or any sort of clinical intervention, is still not known. But if you don't have that knowledge about how things progress and you just say to someone 'just go out and walk', I think that can be complex and hard for that person.

Hendry: There's an awful lot of risk factors associated with foot pain – so the obvious ones are: obesity; lack of physical activity; aging just generally with loss of skeletal muscle, that kind of thing and footwear is the big one as well, poor footwear. So one of the key points of the talk today will be, people tend to go to a podiatrist, say with a bunion – that's one of the most common problems – and they'll go with a bunion and say 'I'm having some problems with this'.

There does appear to be a lack of understanding that a podiatrist, they're there for relief and get you back on your feet and get you back doing what you want to be doing. Some people think that a podiatrist is maybe going to get the hammer and chisel out and make drastic changes and make that toe nice and straight again. It's just not going to happen, so I suppose the key thing about what we try and do is, it's managing the whole person; it's if weight is the problem, weight loss would be a target, whether that be through exercise or controlled meal portions or whatever. There's certainly lots of exercises that people can do, so self-managing is becoming very important. That's the point – that just providing an insole or a mechanical device, in most cases, won't be a cure all. It's just part of something that's going to be an overall management package that we can advise upon.

Evans: What is a bunion? I've seen a bunion, so what is it?

Hendry: The traditional thought behind a bunion was that it was a bursa overlying the big toe joint. The technical term that we use is hallux abducto valgus and that's just a bit long winded. And in very basic terms, it's when the great toe, let's say on the left foot, deviates towards the left hand side even further, leaving you with a bony prominence that can then cause a whole load of other problems. So instead of load going to your big toe, it tends to move to the smaller toes and they can't withstand those forces and they can tend to claw and you get high pressure areas and areas of friction and particularly at that bony prominence. That becomes very problematic for shoes, particularly for females as well, who

want to wear pointy, narrow, dolly shoes and it can become very uncomfortable. In a lot of people it's not painful – to throw that curveball out there – and it's just an aesthetic issue, but that tends to be the people who have got good accommodating footwear, that otherwise keep fit and well and that kind of thing.

Evans: How important is the big toe?

Hendry: Do you know, I've got some friends that would actually laugh at that because they always wind me up and say that – as a podiatrist – you don't need toes, they just seem pointless. You do need toes, absolutely. The key thing I would say is that if you've ever come across a diabetic patient, who for various reasons has ended up having a toe amputated, one of the main issues there is, because they lose the ability to roll off of that toe, you've got five toes worth of stress and strain going through four remaining toes, so therefore they can't withstand that and then further problems occur in terms of deterioration of overall foot function.

So toes are very vital. And a good way to think about it is if your foot was just a solid block with toes attached, your foot would be rolling off of that solid block and there would be incredibly high areas of pressure where you would be rolling off. But the extension of having toes there means you've got these little flexible structures that have got muscles that can control both above and below to push down and withstand those forces, so, yes, they are very important and we do need them to walk properly.

Evans: Which brings us neatly to the mechanics of walking – Jody Riskowski:

Riskowski: Most of my area has been around foot pain. And so we're looking at what are appropriate loading strategies. So, when you walk how is it you're actually putting weight onto the foot and what's a good amount of weight and what's a bad amount of weight and how many times are you doing that? So again, somebody who walks a lot is doing that a lot and somebody who doesn't walk a lot is doing that less. And so we're looking at what are these cumulative loading and how does that influence pain trajectory.

Evans: Hang on, you're losing me now. When I walk I put one foot in front of the other.

[Laughter]

Riskowski: Yes and how do you do that, what lands on the ground first?

Evans: I've no idea. I've never thought about it. It's my heel first and then it follows through onto the ball of my foot, but it's something I don't have to think about, is it?

Riskowski: But do you have foot pain?

Evans: No, I don't, but I have knee pain.

Riskowski: Ah, even those people walk differently and will modify how they walk at the foot level to handle how the force is then transmitted up to the knee. And so there are a lot of foot interventions and therapies that are actually acting to modify the knee. And when you have foot pain, again, you're going to walk differently. So if you have pain in the heel, you generally won't always walk with the heel touching down first, you'll walk more with the arch touching down first and the forefoot, the ball of the foot, but you still need some bit of loading on the heel. So you need to have a normal gait strategy where the heel loads, but you're also bringing down the midfoot and the forefoot as well. Versus if somebody has fore foot pain they're not going to push as much, so their gait speed, their walking speed will be lower and then how do you act to have an intervention – an orthotic type of intervention and/or manual muscle massage or trigger point release – what does that actually do to help relieve some of the pressure and tension that's felt during walking?

Evans: Well I've noticed with my knee pain – which is not a chronic condition, I'm hoping it will go after physiotherapy in a couple of weeks' time, but I've had it for a couple of weeks – what I've noticed is my walking has changed completely. I'm putting much more weight onto the good leg and altering my posture. That's what you're talking about, everything is linked.

Riskowski: Yeah, and noticing there's a song something like the thighbone's connected to the leg bone, connected to the hip bone. I think sometimes we forget that as researchers, you know like my area's the foot, but actually the foot is connected to the ankle, which is connected to your tibia, your calf, which is connected to the knee and the hip, seeing the whole piece together, it's hard, it's complex. [Laughter]

Evans: Complex indeed. Now, as I record this edition of *Airing Pain* the 2015 Rugby World Cup is in full swing and, as with any sport played at the top level, the science and expertise to get and maintain those elite athletes bodies in top shape never ceases to amaze me.

So, can anything be learnt from how the bodies of the super fit are managed, to help those of the super unfit? Well Jody Riskowski was an elite athlete in the United States, until an accident ended that side of her career. Since then she's worked with people right across the fitness spectrum, from Olympic athletes to those who may do little, or no exercise as a result of chronic pain.

Riskowski: Some people, on both ends of the spectrum, if you will, of physical activity and physical function, are like, 'but if I just push through it. I know that if I continue to do it...' and what they're continuing to do might not actually be something that helps, or may lead to

other further complications. And then there are the people on the other end that are like, 'I can't do it because it hurts, I can't do things.'

And you go, 'actually it's a balance'. There's always, when you have pain, you want to limit that pain, of course. But there's always, if you're doing something new, you can get new types of pain, muscle that hasn't been used before might actually become painful, it's just delayed onset muscle soreness (DOMS), and it's a normal part of developing a skill or activity, or in your day-to-day activities. So if you haven't, for example, cycled for a long time, yeah, your muscles might hurt the next day, but it's not a bad thing. It's a good thing that you went through that.

So there is having that understanding of what is pain and what does it actually tell you about what's happening within the body and it's hard, it's hard to know. [Laughter]

Evans: One thing with people with chronic pain who have been physically fit at some point in their life, trying to get back to that is a huge obstacle, because they will never get back to that. How do you change somebody's expectations?

Riskowski: We were just having this conversation about, what is the mental health side of chronic pain and of pain in general and that goes right alongside – even just with aging and, again, working with athletes, you watch athletes that at some point, no matter what, there is always going to be a drop off in performance. And you see it along the spectrum with masters athletes that train and train and train, there's always going to be a drop with aging. And it is the biggest part, they think, 'oh I just need to train harder. I just need to do this more, I just need...' You know, and it's again going into that cycle where it actually is not the healthy thing to do.

But it is working with the mind and saying what are reasonable expectations, with regard to, again, athletes, or with regard to just the general population, of what are reasonable expectations in terms of the amount of activity that you should be doing. One thing we talk about is activity pacing – so how much activity you should be doing at one particular set of time. And then rest is important, you know, taking whatever appropriate rest is needed, not prolonged rest.

But, doing the right amount of activity at the right bite-sized moments, and that's an important area to start looking at. We have a lot of ways to measure activity, most people who have a smartphone have capabilities of measuring activity. But the challenge is – how do you get the right bite-sized activity and should your smartphone then be saying, 'wait a

minute, take a rest'. Or giving you the, 'wait a minute, you should be doing something right now'.

And so, how can we look at activity pacing, with individuals with chronic pain and then working with the mindset of it – what is appropriate and how do you handle what limitations you may have as a part of your disease or condition?

I broke my back when I was 17, so I was a national level athlete in the US, to the next day not being able to get out of bed. How do you deal with that mentally? And I think that needs to come right alongside with chronic conditions, is the mental side of it. And it's often, I think, pushed under the rug or you want to be brave and you don't need that piece, but most people do need that piece, of how do you develop resiliency when you have those types of conditions, or you have something that's a chronic condition that you can have for the rest of your life.

Evans: An elite athlete, say, a marathon runner, you often hear the term 'going through the pain barrier', as if that's a good thing. At the other end, my end if you like, that is a bad thing. So you having been there, and having broken your back, how did you adjust your mind?

Riskowski: I went through the same thing probably everyone would do. It's like, okay so I can't use this, so I'm going to transfer and I'm going to go all out at something else. So when I was doing my rehab we did these arm ergometers, that's just the cycling with your arms. And I remember some of the therapists saying to the coaches, 'she went all out, she's going to be hurting tomorrow', because nobody was telling me 'that's enough', they would just say 'here's what you should do'. And so I did that, but then I thought 'I need to do a little bit more because I can, you know, I'm fit I should be able to'. That's where we get into, should a smartphone be able to, should there be an external monitoring system within it that lets you know what the appropriate amounts of activity are and how you should be working with, what you should be doing and should not be doing?

Evans: I have a smartphone app and I have one of these things on my arm, which I've taken off at the moment, which tells me that I must walk ten thousand paces a day. It doesn't tell me, 'well, some people should walk that, but, actually, you'd be better off with a thousand today and maybe five thousand tomorrow,. How do you set that limit?

Riskowski: You know that's the thing that we need research for, because we don't know and we don't know exactly how those limits should be applied across conditions, or across different populations. So somebody that comes in and is very fit and active, prior to some either traumatic conditions, or a new onset, those are going to be different than somebody

that's not as fit and active coming in. And then how do you get them to be a little bit more fit and active, whereas the individual that was already active, how do you then say 'here's what a lesser degree of activity might be for now, at least to get you through a flare up condition or an ideally short, acute period where you just need to get, as they say, over the hump and back to a place where you're more in that normal state'.

Evans: I, half-jokingly, said to the physiotherapist who's working on my knee, if I was an elite athlete, I'd have a team of 12 people around me, if I was a racehorse, I'd be shot. [Laughter] Or put out to stud...

That was Jody Riskowski of Glasgow Caledonian University.

I'll just remind you that whilst we in Pain Concern believe the information and opinions on **Airing Pain** are accurate and sound, based on the best judgements available, you should always consult your health professional on any matter relating to your health and wellbeing. He or she is the only person who knows you, your circumstances, and therefore the appropriate action to take on your behalf.

Don't forget that you can download any edition of **Airing Pain** – and this is number 73 would you believe, videos that we've produced for our barriers to self management in primary care research project, resources and information from our website which is painconcern.org.uk

Now going back to the start of this edition of **Airing Pain**, you'll recall that I was speaking with podiatrist Gordon Hendry as he was preparing to run a workshop at the British Pain Society Annual Scientific Meeting. So what was he about to tell them?

Hendry: I'll certainly be highlighting that we don't know everything, yet, and there's a lot of work still ongoing. It does appear that foot pain appears to be a problem that is managed reasonably well, but it could certainly be improved substantially. And one of the things I'm going to be talking about today is the fact that a lot of foot problems have these horrible umbrella terms, so one of the obvious ones is 'heel pain'. Now heel pain can be 50 different things, in terms of actually what's going on beneath the skin when you get down to cellular level. And the management strategies will have varying degrees of success based on what the actual problem there is. But the main focus will be trying to give the audience a greater perspective about what podiatrists try to do and it's very much about altering mechanics of the foot, centred on tissue-stress theory, which is if there is a threshold by which a kind of tissue starts to damage and becomes inflamed and painful, there must be an element of prevention possible, so we can prevent that damage from taking place and relieving pain by proxy almost, indirectly.

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