



## Fixing the Hip – Ref 300

*with Victoria Smith*

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### TRANSCRIPT

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**Steven Bruce**

Good evening. Good evening. Great to have you with us. It's only a couple of weeks since I was talking to Carl Todd about the spino pelvic hip complex. And here we are, talking about the hip again, but you know, you can't get enough of a good thing, can you and there's certainly plenty of hips coming through the clinic doors. So I'm expecting that tonight will be a very useful, very helpful show for you. My guest is Victoria Smith. She's a physio who specialises in the lower limb and in the hip in particular, we had her on the show almost exactly a year ago. 300 and something days ago, talking then about femoral acetabular impingement syndrome. But like the shoulder, there's plenty of things that can go wrong with this kind of complicated joint. So this evening, we're going to be looking at gluteal tendinopathy, Victoria, welcome back.

**Victoria Smith**

Thank you for having me, Steven,

**Steven Bruce**

What have you been doing the last 364 days then?

**Victoria Smith**

Working hard, seeing lots of hips.

**Steven Bruce**

Yeah. Yeah. Is it lower limb? Or is it just hips?

**Victoria Smith**

So in the NHS, I see hips and knees, and then privately I tend to focus more on hips just because it's my special interest. And, yeah, that's generally what I tend to specialise in.

**Steven Bruce**

So why gluteal tendinopathy?

**Victoria Smith**

Well, it's a condition that's very common. It's the most common lower limb tendinopathy presented to GPs.

**Steven Bruce**

Can I clarify this, it's not just that's what GPs call it, like they call everything in the shoulder frozen shoulder or is it generally?

**Victoria Smith**

No, so often, actually GPs tend to call it trochanteric bursitis. We still get referrals through with that on, and then it had an umbrella term of greater trochanteric pain syndrome, which we still hear. But gluteal tendinopathy is a bit more specific, to actually what we think is driving the symptoms. And what the sort of research shows is that 23.5% of women over 50 and up to 70 have this condition. So less in men, but 8.5% in men, so it's much more common in women, especially around sort of the peri and menopause.

**Steven Bruce**

Yeah, I was gonna say there's all sorts of things that seem to happen to women at that sort of age. It really isn't worth being a woman over the age of 50.

**Victoria Smith**

I know. Yes. So there's definitely an impact with oestrogen levels, which we will sort of touch on as well as we get chatting, but yeah, it's a common condition that can be managed effectively. With physio, chiropractor, osteopath. So it's something that I thought would be great to share my knowledge with the audience and hopefully people can pick up something.

**Steven Bruce**

And I'll bet that we'll probably put a few myths to bed while we're about this, or at least clarify some diagnoses as well, because, well, I mean, you tell us how we're going to spot a gluteal tendinopathy.

**Victoria Smith**

So there's quite a common sight of pain. So we're looking at pain that's over the lateral hip, it can spread down the lateral thigh, sometimes to the knee, because the ITB does get involved.

**Steven Bruce**

So if you put that slide up with a picture on the screen.

**Victoria Smith**

That would help, wouldn't it. There we go. So, generally, this is the sort of main site of pain over the greater trochanter, which we'll sort of look at more on a model later. And this is the kind of general area that we will see, you can get some buttock pain with it, obviously, the gluteal muscles sort of sit around there, and occasionally the groin. But generally, when we say groin, it's not actually that sort of C sign type pain that we see with an arthritic hip, for example, or that articular pathology.

**Steven Bruce**

I think it might have been when you were on last time, we were talking about the site of pain for the actual socket itself. And it's a lot deeper than most people think, isn't it? You're much more in towards the groin.

**Victoria Smith**

Absolutely, so it's much more medial. And people tend to point in their groin or do this kind of a C sign type arc, which is quite a good indicator to say actually, this is more likely to be driven by the hip joint. It's unusual, we get that kind of pain with this condition. If we are sort of seeing that we'll probably think well, actually, we need to have a look at the hip joint in more detail. And there are certain tests we can do to have a look at that. But yeah, this is the common site of pain that people would present in clinic with. And it can go down to the knee but doesn't go past the knee.

**Steven Bruce**

Right. Well, you preempted me to a certain extent because I, obviously I saw your slides before we started the show. And I looked at that little pink oval there, that ellipse and thought, well, surely that's going to be misdiagnosed as TFL. Or it's going to be misdiagnosed as trochanteric bursitis. So how often are you

seeing misdiagnoses like that? And how common do you think it is that practitioners like ourselves, let alone GPs will miss diagnose it?

**Victoria Smith**

Very common. So trochanteric bursitis is the traditional term for this condition. But we know now that actually there's only about eight to 20% of cases of gluteal tendinopathy that present with what we now call bursal distension. So we've kind of moved away from the bursitis. Because actually, the current way of thinking is that actually isn't an inflammatory driven process. So you tend to find that the bursal distension occurs with gluteal tendinopathy, not as a standalone condition. So, but very often, it's diagnosed as gluteal.

**Steven Bruce**

Fascinating that you say that because I can remember, vaguely remember, I think we did a show like this long before you first came on the show. And somebody was saying that trochanteric bursitis is grossly over diagnosed, it's almost never the cause of pain in the hip.

**Victoria Smith**

Absolutely, absolutely. So it's very rare. But it's a standalone cause because there's a reason why the bursa has become swollen or distended. And it's usually due to compression, which we will talk in detail about as we go on. ITB pain, yes. So that can be linked in with this as well, which is why people get the pain down the thigh. So you can also get ITB fasciopathy. So you can get, you know, irritation of those fibres, too. So the two are linked in. And the ITB has got a lot of good blood supply and nerve endings. So yeah, it can be a potent driver of symptoms, too. So generally, it's treated, you can kind of manage both together by applying similar principles.

**Steven Bruce**

So when a patient comes in, and they say they've got pain in that little red ellipse area that we saw a minute ago, what is it that's going to start you thinking along the lines that this could be gluteal tendinopathy? What are their sort of predisposing factors?

**Victoria Smith**

Yeah, so when you ask them to pinpoint their symptoms, they would, generally, point to that spot over the greater trochanter as their main source of pain, and then they've got a spread down the leg. But often, they will sort of describe pain when they're loading their gluteal tendon. So walking uphill is a big one. Stepping down, going for a walk on uneven ground, lying on that side. So we've got that compression as well. So move that on.

**Steven Bruce**

Hold it down, it'll buzz and then it should start to work.

**Victoria Smith**

There we go. There we go. So yeah, so activities that involve standing on one leg. So obviously we don't just tend to stand around on one leg, but walking, hopping if they were an athlete maybe, sitting in a low chair. So there's a reason why all of these are aggravating factors, which we will cover in a minute. But

generally, it's down to either compression of the tendon. And that increased tensile load, which has a negative effect on the tendon.

**Steven Bruce**

This is about the stage in every broadcast when I have to say to the audience that I will share the slides as a handout afterwards, so we don't need to frantically write all this stuff down, it will get sent out in an email tomorrow.

**Victoria Smith**

So yeah, these are kind of general activities that the patient with this condition will often say, yeah, it's worse when I do this, when I walk fast, it makes it worse. Standing still is another big one. And that's often because of the position they're standing in. It's how you standing, exactly. And that's usually something we'll go through tonight as well.

**Steven Bruce**

Sitting in low chairs, especially with knees together. Well, I mean, would you count these as low chairs?

**Victoria Smith**

So I think where you've got your knee higher than your hip would be considered as a low chair. So it depends on height. So if you're tall, then a chair would be, this chair maybe would be low. But so with this condition, what we're looking for is compressive load through the gluteal tendons. So if you're sitting with the knees together, and if you're also sitting with a lumbar flexion, we've also got the thoracolumbar fascia, which also sort of feeds into the ITB. It's all kind of connected. So you're getting that increased passive tension through the ITB. Which is therefore compressing the tendon. I will go into that in more detail as we go.

**Steven Bruce**

Also, dare I say it, modesty dictates that more women will have their knees together, men tend to slouch with legs akimbo.

**Victoria Smith**

Absolutely. So yeah, it's that knee in from the hip, which increases that compressive load through the gluteal tendon. So all of these have that common denominator of compression or increasing tensile load.

**Steven Bruce**

Okay, a lot of this is sort of first thing you see on the patient when they walk into your treatment room, isn't it? I mean, how do they stand? And what do you get out of the history of what they've shared.

**Victoria Smith**

Absolutely, so it's great to observe them as we all do when they're walking down the corridor or getting up from a chair. Or how are they sat in the chair when they're waiting, and you're not watching them. So that's a great way to sort of spot their normal way of sitting and standing, they'll often try and hide that for you, or stand on their best behaviour.

**Steven Bruce**

I was sort of side lying at night as being a risk factor for SI joints. But yeah, I can see why it would be a factor here.

**Victoria Smith**

Yeah. So if we look at side lying, so here's your greater trochanter. And if you're lying on your side, you're compressing. So you've got your ITB over the top, you've got your gluteal tendon, got bursa as well. So actually, it's that compressive load, you can also get pain lying on the opposite side, because if you're dropping that hip into adduction, then again, you're putting compression through here. So it's that compressive load through the tendon.

**Steven Bruce**

While you've got that there, this is one of those things which I could never get my head around when I was doing a&p as a student. Obviously, the tendon runs a different course depending on the degree of flexion of the hip. So when is it at most stretch? When is it at most risk?

**Victoria Smith**

So in adduction.

**Steven Bruce**

Yes. So adduction with flexed hip or?

**Victoria Smith**

Adduction with flexion is that position where you're going to get most compression through. Yep. So also, in flexion, if you're in external rotation as well, because the gluteal minimus and medius in flexion are both internal rotators. So if you have them in end of range external rotation, then you're going to have more compression as well. So yeah, but the tendons insert onto the greater trochanter. You probably can't see, but you have facets on the greater trochanter. So they insert in different areas. So you've got gluteus medius for the front by the anterior fibres, insert on the lateral facet, and then you've got minimis insert anterior to that. And then the deep fibres or the posterior fibres insert on this superior posterior aspect of the facet. So you can actually sometimes through palpation think oh, okay, well, it's more likely to be that, you know, that muscle part of the tendon but it doesn't, it doesn't really matter. We're going to treat it the same. But yeah, it's just interesting to note that these are in different areas.

**Steven Bruce**

I saw on one of your slides that going on holiday is a risk factor for this. Yeah, which kind of sounds a bit counterintuitive.

**Victoria Smith**

Yes. It's quite a common theme that especially if you're going on a cruise, so for example, a lady who's maybe in her sort of 50s, 60s, maybe has a sedentary job, doesn't put a lot of load through her tendon normally, goes on a cruise and has a lot of stairs to climb and thinks, oh, you know what I'm going to get active on this holiday, I'm going to go up and down the stairs every time I go down for food or, you know, so they're increasing that load through their tendons, but their tendon isn't used to that and react

negatively to that. So that's quite a common one. Or, you know, they're on holiday, they're going for lots of walks, that they're not used to, or they're in a hilly area. So they're going to Bournemouth, which is really hilly, and they've gone out for lots and lots of walks, and their tendon, the capacity of the tendon just isn't there to actually cope with that increase in load. So there's a negative effect on the tendon, which then can cause this problem to start to become apparent. So yeah.

**Steven Bruce**

Any other weird ones we should know about, sort of provoking factors?

**Victoria Smith**

Health kicks. So you know, right. I'm gonna get fit.

**Steven Bruce**

As a January thing, is it?

**Victoria Smith**

January thing. Yep. So I'm going to start to get my steps in. So out comes the step count, and away we go. And the tendon's just not ready for that, if the load hasn't been built up gradually. Yeah, exactly. So health kicks can be detrimental to this condition as well.

**Steven Bruce**

So all those background factors, I guess they were aggravating factors as well. They're going to make it worse if you got it.

**Victoria Smith**

Yeah, exactly. So and also, you know, if you're going through sort of perimenopause, menopause, and your oestrogen levels are reducing, that has an effect on tendon turnover, the collagen turnover. So if you've got risk factors as well, so there's a sort of a jigsaw puzzle of risk factors, the more risk factors you have, the more potential you have to develop this condition.

**Steven Bruce**

Talk us through a bit about women's health there, because I know we get quite a lot of interest in women's health, because it is a major sort of problem area, I suppose. But menopause causes all sorts of changes. You've just outlined something there, does normal HRT offset those problems?

**Victoria Smith**

So there's a piece of research that shows HRT can really help with this problem, but only if the person's BMI is not considered to be high, in that population, it didn't have any impact. But yeah, HRT can definitely have an impact on the tendon health by restoring that balance. So yeah, that is a definite risk factor, if you know your patient has got issues with menopause, then it's well worth having a chat with the GP to see if that could help. And often it does. So yeah. If it's the right treatment for that person, then it can have a real positive impact on tendon pain.

**Steven Bruce**

You probably see this more than most, is it an actual thing that women and sort of perimenopausal will present with problems like this? And you might suggest to them, now's the time to go and get some hormonal rebalancing?

**Victoria Smith**

Definitely. Yeah, it's definitely time to suggest they go and check in with the GP and maybe get some blood tests. And then the GP obviously can sort of action that.

**Steven Bruce**

What's the GP going to look for in the blood test?

**Victoria Smith**

So not my area of expertise, but certainly looking at levels of oestrogen which is, so the oestrogen that will have an impact on tendon health. So there can be oestrogen pessaries and various but yeah, wouldn't like to say this is my area, but it's definitely something you could direct so you could sign posts, so okay, well, let's maybe try this as an option to try and help restore your tendon health.

**Steven Bruce**

So there's questions for you already.

**Victoria Smith**

Great.

**Steven Bruce**

One of them from Sara. Can we cast your mind back 364 days because she wants to know where the pain from camel pincer problem arises? Is that a deep hip pain or is it more lateral? Of course, you've covered that before.

**Victoria Smith**

Yeah, absolutely. But no. So if somebody who has an impingement, so pincer, or cam, they genuinely have pain either they point to their groin, or they do with a C sign type, sort of grip of their hip, because the pain is coming intraarticularly, so it's coming from within that hip joint. And that's generally where they feel it, they can feel a little bit going down the front of the thigh as well sometimes, but it's a different location to this position.

**Steven Bruce**

Sue wants to know whether tight jeans can cause this problem.

**Victoria Smith**

So tight jeans can have an impact on the lateral cutaneous nerve, and it can cause pain or symptoms through that but I guess it could affect gait. So, you know, if they're very tight, then it could maybe stop you from bringing your hip through a normal pattern and maybe increase more of a waddle so if they're extremely tight then I'd probably have a look at them with the jeans on and with the jeans off and see if



that did affect their gait patterning. But the compression of the sort of fabric of a jean, I wouldn't imagine would be enough to cause this condition, but it'd be looking at if it affected different things.

**Steven Bruce**

One of our viewers who's decided to remain anonymous asked, what sort of bed reduces the pressure and symptoms when they're side lying?

**Victoria Smith**

Yeah, it's a great question, actually. So, eggs, egg crate mattress toppers. So I don't know you've ever heard of an egg crate mattress. So they look like an egg crate, they're kind of the best at reducing compression when your side lying because of the sort of design. Memory foam don't tend to work the same because you sink into it. So you're still getting that compression through the side of the hip. So it's yeah, the egg crate mattress topper.

**Steven Bruce**

It's an annoying field advising people about buying expensive bits of nighttime equipment though.

**Victoria Smith**

It is, you're right, but the egg crate toppers are generally about 60 pounds. So they're not ridiculous. It's not like hundreds and hundreds. Yeah, you're right with saying that I think I often say this potentially may help at night. You know, research kind of shows this is the best topper to get and a hard mattress, obviously, you've got that increased compression. So what I tend to do is look at other ways we can accommodate side lying sleeping, and then maybe suggest that if nothing's working, because, you know, we will come on to, I'm just going to pop that one on there, which we sort of had a chat about earlier. Um, but yeah, it's sleeping is a real big part of this condition. So it is part a big part of the management.

**Steven Bruce**

Do you think it's a cause or more a maintaining factor?

**Victoria Smith**

Probably a bit of both, to be honest. Yeah. Because if you're a side liar, and they are a bony condition, bony sort of anatomy that can also make you more predisposed to develop this condition. So the compression through the hip there yeah, definitely could a reason why.

**Steven Bruce**

A couple more questions before we move on with what you intended to talk about.

**Victoria Smith**

No, I love questions. Questions are great.

**Steven Bruce**

This next viewer has decided not to be anonymous, they revealed themselves as guest 1793. And they say they have a patient who they think has this problem, suggested it to the GP and suggested they go for an MRI. The GP has come back and says it's the low back, probably arthritis. Interesting. So how do

we as osteopaths convince the GP to look elsewhere to get the right diagnosis? I suppose there's two parts there, well lots of parts, how do you talk to GPs to make them do what you want to do, but is it reasonable for the GP to misdiagnose this for low back arthritis?

**Victoria Smith**

It is, a common misdiagnosis is low back. Yeah. Because of the referral pattern. So if it is coming from a lower back, it's not specifically tender over the greater trochanter.

**Steven Bruce**

There's different qualities to referred pain isn't there?

**Victoria Smith**

Yeah, definitely. Definitely. So you might have more pins and needles, numbness, your distribution is probably different. So it's possibly coming more from the sort of spine, SIJ, into the buttock and then down the leg. Also different things would aggravate the pain. So you do your lumbar spine assessment, does flexion extension, you know, affect the pain.

**Steven Bruce**

You're gonna talk us through some provocative tests and things?

**Victoria Smith**

Definitely. So I think this is one of the key factors, is ensuring your diagnosis is correct. And you're happy with. Okay, yeah, I think this is definitely the driver. The other thing is, imaging is useful if you haven't made any progress with treatment. So it's making sure that yes, you've got the right diagnosis. You're modifying compression and load, you're working on the right management programme to increase the strength of the muscles, and then the load capacity of the tendon. So if you're thinking about imaging, it's because all of that hasn't worked. So you don't need imaging to, you know, to start treatment. It's something that you would do down the line if things had failed.

**Steven Bruce**

What would you choose then, would you go for ultrasound?

**Victoria Smith**

So MRI is the gold standard for diagnosing this because it looks at the whole area. So it would look at ultrasound. Yes, you can get a diagnosis of gluteal tendinopathy. It's cheaper and it's easier to obtain often, but the gold standard is MRI, because you can look at the quality of the tendon and the muscles and the bursa, just in more detail and it tends to give you more information and often you can look at the quality of the muscles as well. So, often studies have shown that people with this condition they tend to have have sort of fatty atrophy within the glute min and glute med, so you can see that on an MRI. So MRI just gives you that whole picture. But it's, yeah, we don't jump straight to that, it's working through, you know, good rehab, compressive strategies.

**Steven Bruce**

So getting to the other part of that question, which is how do you convince the GP? You're probably in a slightly different position to the osteopaths and chiropractors because you're an insider. And obviously, you're known as an expert in this. For the rest of the world, for the rest of us. What do we say? I mean, do we list a whole series of tests that we've done, which all indicate this, which the GP will know nothing about, because it's not what they do.

**Victoria Smith**

Yeah, I would say, the clinical picture points strongly to gluteal tendinopathy.

**Steven Bruce**

And we'll look at the tests.

**Victoria Smith**

Absolutely, which is really important. Looking at the test is a real key factor to diagnosis. But, you know, your clinical picture, the subjective history, all point to this as a condition. I guess, you kind of question what you're getting out of imaging. So is it going to change your management of this condition? Changing your management would mean really looking, is it a surgical candidate? Surgical candidates really are, the options for surgery are, have they got an underlying gluteal tear that needs addressing? Possibly. Some surgeons remove the bursa if that's an issue. It's not that common anymore, because we know that there's other factors driving it usually.

**Steven Bruce**

I was gonna say, it seems kind of like removing a symptom.

**Victoria Smith**

And it generally will come back so yeah, it's not common, that that happens anymore. Years ago, that was a real, okay, we'll remove the bursa, and we'll lengthen the ITB. That was a real kind of just bog-standard surgical approach for it, but things have changed since then.

**Steven Bruce**

Is anyone still doing that here?

**Victoria Smith**

Yeah, yeah, I know surgeons who still do that.

**Steven Bruce**

So in terms of lengthening the ITB, how does that affect stability?

**Victoria Smith**

Yes, usually. So again, what we used to think was this was caused by a tight ITB. Hence why our management was lightly stretching, stretching ITB, which we now know is an aggravating factor, so that will actually make symptoms worse. So, what we find now is that the ITB is actually lengthened because of the positions that the person with this condition generally gets themselves in, which we will look at with

the model. So it's usually a lengthened ITB. So actually, yeah, so surgically, lengthening the ITB actually, doesn't usually help. Because it's not usually the driving force.

**Steven Bruce**

I must say, I'm amused by ITBs because it's sort of, how do you know the ITB is tight? Well, if you poke it, it's sore, well I think if you poke anybody's ITB it's sore.

**Victoria Smith**

Absolutely. So Ober's test will potentially highlight, won't it? But yeah, it's a sore spot to touch, isn't it? I mean, you touch mine, and I'll be thrown through the roof. So it's looking clinically, is there actual stiffness and shortness to the ITB before you lengthen it, and sometimes that's more likely with a snapping hip. So we'd see some cases where a person's got a, you know, a short ITB. And I saw recently, there was a 16 year old girl presented in clinic in a wheelchair. She couldn't walk because her ITB was so shortened and lengthening that, she's like a different person. She's now got her life back. So there is a place for that. But often with this condition, it doesn't usually change symptoms.

**Steven Bruce**

I'm tempted to ask what caused it to shorten to that extent, but we won't go down that rabbit hole because I want to try and get these three questions out of the way, because then we can move on to what you came here to do.

**Victoria Smith**

So it's fine. I'm happy to answer questions.

**Steven Bruce**

Helen says hi, Victoria. I don't know if she knows you. But she says thanks for a really interesting topic. She's wondering how relevant you find the ankle and foot instability as predisposing factors. She finds it commonly with gluteus medius problems as it's such a stabiliser on the hip in one legged standing.

**Victoria Smith**

Yeah, no, absolutely. So foot and ankle problems is a definite other factor that we should be looking at in our objective assessment. So if they have a rigid foot, or if they have a foot that isn't stable, it will affect gait and it will affect the low transference up through the leg and can definitely have an impact. So it is also yeah, looking at other factors that we need to address and can address. So yeah, I agree. Definitely.

**Steven Bruce**

Okay. Again, this is not your area of expertise. You've already explained that so don't worry too much about this question, but Lawrence has asked whether you've heard instead of HRT for stabilising hormones, whether you've heard of magnesium supplements along with B vitamins. He's had one young lady who told me about him about it when she stopped taking the pill and the Mirena coil caused her pain.

**Victoria Smith**

Oh, okay. So yeah, not an area I sort of have invested too much time in reading. So I wouldn't really like to sort of yeah, comment on that.

**Steven Bruce**

And Dee says, do you recommend using orthopaedic knee sleep pillows to reduce hip pain compression when sleeping on your side? Are they useful?

**Victoria Smith**

Yes.

**Steven Bruce**

What's it's the difference in that from an ordinary pillow?

**Victoria Smith**

So, I have one myself, actually.

**Steven Bruce**

Did you bring it with you?

**Victoria Smith**

I should have brought it with me, shouldn't I? I did actually think that last night. Oh, I could take this and then I forgot. So they're usually a bit like a heart shape. And they're moulded so that your, it fits in between your thighs. So it's less cumbersome than a pillow. And also, it's a little bit thicker and a bit more firm. You can put one underneath here as well. So you generally have it here. And, yeah, I'm a big fan of those, I think they work really, really well. And you can get them fairly cheaply for about 20 pounds. So yeah, definitely worth a try. It just keeps the leg, the top leg from going down into that hip adduction position. So ya know, I would say, well worth 20 pounds.

**Steven Bruce**

Yeah, every practitioner I know is very fond of saying to people with sleep with a pillow between your knees just to prevent that adduction. Again, in my experience, largely because they have side problems, but I'm sure that others are doing it for this reason as well.

**Victoria Smith**

Yeah, absolutely. So it's just all about managing compression, managing that compressive load through the tendon, which can have a huge impact on symptom settling. So yeah, it's a big, big player in terms of management.

**Steven Bruce**

So anyway, where did we get to in your slides, we talked about provoking factors.

**Victoria Smith**

Provoking factors, yeah, so I think we've covered most of that, the only thing we didn't cover was sort of a fall onto the side.

**Steven Bruce**

Justin, can you bring that slide back up again, please.

**Victoria Smith**

So you might find someone say, oh, I fell, quite common one and landed onto that side that's painful. Also, someone slipped down the stairs or has a sort of, you know, where you trip and then you land heavily on your foot. So causing a big contraction of the gluteal muscles, that can be a sort of preceding factor. And then I think we've pretty much, recovery from injury or illness. That's just where you've maybe been inactive, and more sedentary than normal.

**Steven Bruce**

It's kind of like the fitness kick.

**Victoria Smith**

Yeah, it's just the opposite way round. Yeah. So you're thinking, I'm going to get back to normal. So with load, you can have a tendon that's not used to increase load, and you start to try to do more, or you can have where you've sort of been ill and haven't been putting your normal load through it. And they try to get back to normal. And the capacity of that tendon to withstand that tensile load isn't there. So both ways can have an impact.

**Steven Bruce**

What about car accidents. I asked this because I had a car accident the other day, and entirely my fault. And I had to slam on the brakes really, really hard. And two days later, I was astonished at the amount of hip pain I was getting. It went away very quickly. But I just wonder whether it could be another provoking factor.

**Victoria Smith**

Oh, great. Yeah. So sort of slamming into the clutch or the yeah, or the brake, or even if you have an impact from the side and the door hits your hip. Again, yeah, that could be an aggravating factor as well. So yeah, definitely.

**Steven Bruce**

Okay, so you're gonna talk to us about the physiologic process as well.

**Victoria Smith**

Yeah, I just sort of thought that if we understand basic sort of tendon structure, it helps understand why this condition can occur, and why we're doing the things we're doing to try to calm it down. So this is a kind of a basic tendon. You've got the tenocytes within it. And the extracellular matrix, that's what the ECM stands for. The tenocytes produce the extracellular matrix, and they also produce signalling molecules. So they're kind of in charge, they send signalling about, which helps with the homeostasis of the tendon. We've also got the collagen fibres, they run in a longitudinal, the fibres run longitudinally.

**Steven Bruce**

They're all blue.

**Victoria Smith**

They're all blue, and tenocytes are all pink. It's yeah, it's a very pastel coloured tendon, isn't it? Yep. So the collagen fibres allow for that transmission of load, that sort of load between the muscle and the bone where the tendon attaches. So really important that they're nicely structured. Then we have the gap junction. So this is where the tenocytes sort of chat if you like, and the messages are passed between them, detailing you know, how the tendon's structured and the capacity of the load in the tendon. And then we've got the proteoglycans, that they assemble the collagen fibres, and they maintain the form. And they act as a lubricant between those collagen fibres. They're really important in tendon health because they can, move on to the next slide actually, if that's enough time spent looking at that, it's just a kind of snapshot of what a tendon looks like, it's in the notes as well. So here we go. So you have small proteoglycans and large ones, you find small ones in a different zone of the tendon to the large one. So if we think about there's three zones in the tendon, there's a tensile zone, then the transition zone and then the compressive zone, so the tensile zone is further away from the bony attachment, and the compressive zone is the bone where the tendon attaches to the bone. So they're slightly different in the makeup. So the tensile zone is more collagen fibres, collagen tissue, and that's designed to withstand tensile load, so that longitudinal load. So the small proteoglycans, they assemble the pieces of collagen. And they're there working hard to try to ensure perfect alignment. So that tendon has that optimal strength. And they're a bit like a nursery. So they provide that the sort of nursery, the niche for the new tendon cells to grow. So we find them away from the compressive zone. This is relevant when we talk about load, mechanical load through a tendon. Then we have the large proteoglycans. So they actually attract water molecules, they bind the water molecules together. The reason for that is this is a sort of defence against compression. So if you've got a highly compressive area, then increasing the proteoglycans will absorb that compression and make the tendon more able to withstand that compressive load. But what that means is it's actually then less suited to that tensile load. So the longitudinal load through the tendon, so they can swell, and that's what you see if we use the achilles tendon as an example, when you see that swollen tendon, that's often a response to load. So it's the large proteoglycans are becoming more dominant, and they're swelling to try and protect the tendon. Okay.

**Steven Bruce**

Actually, is that an overreaction on their part? Or is it a helpful reaction? Or both?

**Victoria Smith**

It's kind of, it's both. Yeah. So the tenocytes are expressing that we need to have, we're being compressed, we need to protect, we to swell to give us that protection against the compression. So it is a reaction that can be helpful, but left unchecked, it can get out of control, and then that affects the tendon structure. So we have that negative impact.

**Steven Bruce**

You know, it was several years ago that we stopped saying tendinitis, wasn't it? It's not an inflammatory exudate, what you're saying. It's water being osmotically dragged into the tendon.

**Victoria Smith**

Yeah, you're right. We don't say it's an inflammatory model anymore. We say it's more of a compressive load, continuum model. So there's a lot of work by Cooke and Purdon, that have looked into tendinopathy. And that's the model that they largely use. So there isn't actually inflammation generally, isn't there. So yeah, we don't use that as a description of tendinopathy anymore. So the large proteoglycans, they are generally found in that compressive zone where the tendon attaches to the bone. And they're normal, they're part of the tendon structure. But if the tendons are getting more compressed, you will find more of them, which has a negative impact on tendon health. So what we'll find is the fibrous tissue sort of changes into more of a fibrocartilage. And as we get closer to the bone, we'll find that it changes more into that sort of calcified cartilage. And that's where you can start to see bony spurs where the tendon's changing its structure.

**Steven Bruce**

Up to what point is that reversible?

**Victoria Smith**

So within the model of tendinopathy, so there's the three stages, reactive tendinopathy is the first stage and then we've got disrepair. And then we've got degenerative tendon. So within the first stage, so reactive tendinopathy, very reversible with modified load, so modify the load, strengthen the gluteal muscles that are controlling that. And we can generally get it to disappear. In the second stage, the disrepair, it's still reversible, but it's harder to do that. And then in the final stage, the degenerative stage, it's not reversible. Okay, so spotting it early is key. So getting that diagnosis right is important. And yeah, just sort of identifying the compressive nature of what could be aggravating it. So it's important, we sort of understand that, I don't need to go into too much detail about it. But just understanding what's happening within that tendon, why it's becoming swollen, because if you have got an increase in the large proteoglycans, the tendon becomes fuller and thicker, actually, you're gonna get more compression through the ITB. So, it will then develop, because you've got that compressive impact load, you're going to get more of these and more. So it's important we stop that negative cycle.

**Steven Bruce**

Is that swelling helpful?

**Victoria Smith**

No, not in the gluteal tendon, but it is obviously in the achilles. So the similar sort of thing will be happening in the gluteal tendon. You can see that often on imaging, so an MRI or ultrasound would say thickened tendon.

**Steven Bruce**

While you're mentioning imaging, there's a question that came in from Kim a little while ago. She's said, doesn't the radiologist read the MRI? In which case, is it possible to see the scan? So her question is, can you actually see the scan? Well, of course, the patient can always get hold of that scan and can produce it for you. And as long as you've got the software to read an MRI on your computer, then you can look at it. But presumably, if you personally have referred someone for an MRI, you will direct the radiologist to look for specific or just general hip pathology.



**Victoria Smith**

Yeah, so if I'm referring for an MRI, if I'm requesting an MRI, I will write down the clinical findings, my kind of, could it be gluteal tendinopathy? Is there a gluteal tear. So yeah, you would always direct to if you're requesting imaging, what your kind of theory, your differential diagnosis is, which would, if you're requesting a hip MRI, they will MRI the whole hip and they will look at the joint and they will look at the tendon and the whole thing. So, but yeah, direction, often when we request an ultrasound, they want an exact, which area are we looking at here? And what are we expecting to find? Just to direct their imaging.

**Steven Bruce**

So again, back and back to Kim's question. I mean, do you actually look at the MRIs yourself? I mean, do you ever find things that the radiologist has missed perhaps?

**Victoria Smith**

Yeah, unlikely with MRI, because it's such a specialised image that obviously they've got a lot of training in. But you know, occasionally with probably, you can sometimes go oh, actually, is that a little bit of high signal there, you know, within that tendon, but it's unusual, generally, they're very good at their job. But, you know, every now and then you might notice some fatty atrophy within the muscle that maybe hadn't been reported on. So yeah, you could certainly spot that.

**Steven Bruce**

Yeah. Okay. I've got a few more questions. You've got another slide on physiology here that you wanted to cover as well.

**Victoria Smith**

So yeah, within the tendon, maintaining this homeostasis is really important. So this is what happens in a well-functioning tendon. So we have on the left, the negative and on the right, the positive, but it's all imbalanced. So we have enzymes called MMPs, matrix metalloproteinases, they are destructive to the extracellular matrix, so they will start to destroy that. Then we have on the other side, the tissue inhibitors of the MMPs. So they basically stop that happening. So we've got this nice balance of, it's normal within tendons to have that turnover. So if you are trying to increase your strength, or your capacity of your tendon, then you will have some, you know, cell death, and then you'll have it built back up again. And that's how you increase that load capacity. And then you've got the cytokines which can be pro catabolic, so destructive, or pro anabolic, building up. So this is happening all the time. And it's normal. And this maintains a nice, healthy tendon that can increase in capacity and isn't pain free and can absorb the load that you're putting it under. So this is just important that the balance is there. Otherwise, that's when we can start to run into into problems. Did you want to ask the question, or do you want me to finish this?

**Steven Bruce**

No, you finish this.

**Victoria Smith**

So regular positive loading is really where we're at. So there's a window of optimal loading and this is influenced by loads of different factors. So genetics, age, sex, lifetime loading history, prior injury, scar tissue, diabetes.

**Steven Bruce**

So this is a window in rehabilitation here.

**Victoria Smith**

Yeah, exactly. So a window of ensuring that the tendon is healthy with that load going through it. So if you went for a walk up a hill, your tendon is capable of doing that. But if you had diabetes, and you had blood sugars that were not being maintained, that would have a negative impact on that balance. So diabetes isn't being well controlled, does increase the expression of those MMPs, so that can have a negative impact.

**Steven Bruce**

Astonishing how much diabetes is involved.

**Victoria Smith**

Absolutely, absolutely.

**Steven Bruce**

It's a growing problem too.

**Victoria Smith**

Definitely. So that's just kind of showing that there's lots of factors towards having good tendon health. And it's worth knowing about other factors that can definitely be having an impact. So if you're not getting anywhere with what you think, okay, this is, I'm doing a good treatment here, I'm managing the compression, we've got a nice loaded programme, that's relevant to that person. But we're still struggling, is it something else that's having an impact are we not getting that window of optimal loading, which is important. So looking at the influence of mechanical loading, so mechanical load is a big driver on the biological processes within the tendon. And it's really important with how much capacity the tendon has with load, and also the structure of the tendon. So it's really a big player. So there's two different types of stress that certainly affect the gluteal tendon. So compressive stress being one. So where we've got that stress as adjacent to the tendon, which is what's happening within the ITB. So you've got the gluteal tendon inserting here, ITB sitting over it, and it's that compressive load through there. So when you have that either regularly or with maybe a large impact, like a fall, it's usually that buildup of continual low level compressive stress, that's what we usually see. And what happens there is you get an increased amount of those large proteoglycans building up in that tendon, increased MMPs, so you've got that destructive element going on. And then that will change the makeup of those tendon cells. So you can then develop those bony spurs, and it reduces the ability of the tendon to absorb that tensile force. So you're going for a walk, which maybe you think I would be able to cope with. But the tendon hasn't got that capacity to do that. So you can start to see a negative influence on the tendon. So just looking at a bony spur. So we've got a bony spur going on here. So where that compressive load has been affected, there's quite a lot going on within that greater trochanter, see a little bit on the other side as well. Yeah, and if you go lower down.

**Steven Bruce**

It's a little bit there but it's not nearly as degraded as the other side.

**Victoria Smith**

Not nearly the same. You can start to see little bony spurs up here as well, where the muscle is. You can see a little bit of one on the top. Yeah, absolutely. And here, so you can often see bony changes on X ray. It's not, you wouldn't use that to diagnose, but it certainly would help inform your sort of differential diagnosis.

**Steven Bruce**

I guess rather like MRIing somebody's spine, you probably see a lot of these where you've got all those changes but are no symptoms.

**Victoria Smith**

Absolutely. So you can certainly have changes on imaging, but no symptoms, in which case, we don't do anything about it because it's not symptomatic. So just looking at adaptation to compression. So this is kind of a very crude, childlike diagram, if you like, of what we have in that area. So we have the greater trochanter. We have then the sub gluteus medial bursa over the top, gluteus medius tendon, and the trochanteric bursa and then the ITB tendon. There's quite a lot of layering going on here. If we think if the ITB tendon is being, if you have that passive tension through it, then what can happen is you get that compressed compression all the way down through here. So you often then end up with ITB thickening, and then bursal distension, which you would have probably called bursitis in the past, you then get disruption of these nice longitudinal fibres and because you've got that increase in proteoglycans, and you've got the MMPs being expressed more so you don't have that lovely, nice longitudinal fibres. It's more chaotic. So that's then all of that together means you've got reduction in that capacity for the tendon to absorb the load.

**Steven Bruce**

I'm assuming that you say that it's more chaotic. That's all being shown on cadaveric studies, or?

**Victoria Smith**

Yeah, yeah, absolutely. So cadaveric studies, imaging. Yeah, absolutely. And you can get focal areas of change, it doesn't actually have to happen throughout the whole tendon. So you can get some very focal areas of where that disruption is happening.

**Steven Bruce**

This is all fascinating, we've got loads of questions coming in about it. We need to get off our asses and do some practical stuff. I'll give you a couple more questions. And we're gonna go over the treatment table and do some proper stuff over there. Alex wants to know how long it takes to go from reactive to the next stages.

**Victoria Smith**

There's no set timescale, really. It could be a quick progression, or it could be over months, if not years, depending on load. So it's all based on that loading. And whether you're identifying that removing that negative load.

**Steven Bruce**

Kim says, would a GP direct a radiologist to the same degree as you might.

**Victoria Smith**

They should, possibly not.

**Steven Bruce**

But the radiologist will know what they're looking for.

**Victoria Smith**

Exactly. So if you say lateral hip pain, could be even if they put gluteal trochanteric bursitis, they would know what to look for.

**Steven Bruce**

Okay. And final one before we move on to the other side. Beck says, although it's not thought to be inflammatory, is ice still helpful for vessel constriction, and reducing the swelling of the tendon?

**Victoria Smith**

Definitely. So no harm in trying ice or heat.

**Steven Bruce**

That's curious, I've never met anybody who's got definitive evidence for ice or for heat or for the amount of time you should apply them. They just seem to work.

**Victoria Smith**

It seems to work and some people prefer ice or prefer heat, don't they. So I would say if it works, yeah, try it and see what happens. So yeah, definitely. And, you know, if it helps relieve symptoms, then it's a winner, isn't it.

**Steven Bruce**

Should we go over to our model?

**Victoria Smith**

Yes, definitely. Perfect.

**Steven Bruce**

Right, what's the first observations then?

**Victoria Smith**

So this is a classic. So you can start normally for now, but what we want to sort of identify are reasons why you would develop this condition. And compression, as we've spoke about is a large one. So if you go back into that position, so what we're seeing here is hip adduction. So when the hip is adducted, we've got a passive tension running through the ITB. So we've got compression going through the gluteal

tendon that sits just underneath it, which is a real big player in terms of developing symptoms. So this is a real common classic position that people with this problem will stand in.

**Steven Bruce**

You actually said when we first got you into the studio, so you actually do quite commonly, you stand like that, don't you.

**Victoria Smith**

Yeah, absolutely. The other classic is, if you want to move into the other one we discussed earlier, so hip hanging. So hip hanging is a real common posture. But again, we've got that passive load going through the ITB, which is compressing. Also, if we look at when we're standing like this, if we think about the abductor muscles, so the abductor synergy, there's two levels of that.

**Steven Bruce**

So you said the abductor muscles.

**Victoria Smith**

Abductor muscles, yeah. So, we have the superficial muscles, and we have the deep muscles. The deep muscles are the gluteal medius and minimus. And they directly attach on to the greater trochanter as we know, the superficial muscles of this synergy are your upper part of the gluteal maximus or upper glute max. TFL, which sits here and vastus lateralis, which sits on the outside of the thigh. So, the upper glute max, which is here.

**Steven Bruce**

We should do that thing should, we should paint this onto the model while we're doing this.

**Victoria Smith**

Yeah, that would be good. So, upper glute max and TFL both insert onto the ITB. The vastus lateralis sits underneath it. It acts like an amplifier, so it doesn't actually have a direct attachment to the ITB. But it sort of increases the tendon, it pumps up underneath it. So what happens is standing in this position, because we're passively tensioning the ITB, we're actually giving a bit more of a help to the superficial or the ITB tension as we call them to do most of the stabilising when we're on one leg. So that will then increase the active tension through the ITB. And it will also reduce the deep gluteal muscles from doing their job which is actually, they control the pelvis better. So if the ITB tensioners are in charge of this pelvic control, you will tend to get that increased compression. So yeah, standing like this. And like this is really important, we identify that really quickly.

**Steven Bruce**

It's very hard to talk people out of those well ingrained habits though, isn't it, I sit with my legs crossed all the time, and I don't want to do it but I just do.

**Victoria Smith**

I think it's you can stand normally now, or whatever is normal for you. Yeah, I think really, it's about not putting people into fear of going oh, you could never sit like that, again, I would say if you're symptomatic,

then it's something we need to address. But if you haven't got symptoms, it's not ideal to sort of make people stand in this position. But if you're starting to develop, or you start to notice a little bit of tweak around that area, then it's something to identify, but giving cues is helpful. So you know, feel the weight in both feet the same. So obviously, yeah, bringing it into that position. And just making sure you can feel weight from the heel into the toes. Sometimes using a wall to lean into, actually having hands support can help, any kind of thing you can give to try to minimise that return, where people will return back to it. So sometimes having a little thing on the phone saying check your posture can be helpful, just any kind of cue you can have to get out of this compressive loading, which will then help reduce symptoms. So I think if people are in pain that they'd be more likely to get on board with it as well.

**Steven Bruce**

So we kind of leapt ahead of ourselves there a little bit, didn't we? Presumably we've now gone through the case histories. And now you're you're looking to prove your supposition that this is gluteal tendinopathy.

**Victoria Smith**

Absolutely, so your objective assessment is a real key factor. So looking at static postures, looking at how you functionally move, so when you sit down, sit to stand, are you going into that adduct position, looking at single leg tasks.

**Steven Bruce**

People who do that, that will be a clue that this could be tendinopathy.

**Victoria Smith**

Absolutely, absolutely. If that reproduces pain. So if doing this position, that movement, reproduces their symptoms then yeah, we've got another clue. It's another part of the puzzle ticked off. Also looking at single leg tasks. So maybe going upstairs as well, as they stand up onto a step, are they dropping into that hip adduction and stepping down as well. So maybe an athlete looking at hopping as they landed, they're landing in this position. So just, you probably need to tailor your objective assessment with functional tests, to what their activity level is.

**Steven Bruce**

So when you do that, just to clarify this, and you might need to face a camera to pick that one up. When somebody does that, dropping into that hip as they go upstairs, you're saying that that is a provocative factor that might have caused it. It's not something they're doing in response to a problem on the opposite side.

**Victoria Smith**

No, it's usually a provocative factor. Yes. So yeah, absolutely. So looking at anything, all functional movements, so sit to stand. Yeah, going upstairs. Walking is another big one. So how are they walking? Are they walking with their feet sort of coming right into midline? Are they running like that as well? Again, if they've not got symptoms, I don't touch people's running technique. But if they have got symptoms, exploring, okay, let's try just running within that parameter of your normal hip width. Or even just taking it out of, reduce the adduction and that crossover. Long strides as well tends to put more compression. So

if you're striding out when you're walking or running, you tend to end up in that kind of pelvic tilt position. So looking at walking, have they got a good push off from their toe? A bit like somebody asked about the question about foot and ankle, it's really important. Have they got that stability in the foot? Is their foot rigid? So they're actually coming into more of that abduction position.

**Steven Bruce**

What about the over pronators then

**Victoria Smith**

Absolutely. So over pronating.

**Steven Bruce**

If you're a supinator or an overpronator, or you got hallux rigidus or limitus.

**Victoria Smith**

Absolutely, weak calf strength as well. So, you know, looking at calf strength is a big player with hip function. So there's a nice piece of research that shows when you push off, if you haven't got that ability to push off, then what you'll tend to do is use your hip flexors to bring the hip through, rather than push the hip through. So if we think about what TFL does, that's a hip flexor. So, you know, it's just looking at the sort of general strength but yeah, foot and ankle, and also pelvic control, you know, are they sort of a little bit more rotated one way than the other. So therefore, when they're walking, that's going to affect their gait and thoracic rotation. So, just looking at all of that within the gait.

**Steven Bruce**

So, anterior hip on the left will give you a left tendinopathy?

**Victoria Smith**

No, it won't give you that. It's just, it might be a factor within looking at how their gait is changed. Yeah, standing like that, you know, with a slightly less rotated pelvis when you're stepping through, it won't give you tendinopathy. But it might be a factor in terms of why your gait patterning isn't optimal.

**Steven Bruce**

So take us through some more of your assessment here.

**Victoria Smith**

So, in terms of objective assessment, you also want to have a look at, we want to make sure our diagnosis is right. So looking at some tests that will prove us right. So there isn't one specific test, there's no one specific test. So it's using a cluster of tests, which will give us that sort of green light to think, yeah, I think we're on the right lines here. So you're putting a subjective together, you're looking at objective posture, how you're standing, you're looking at strength as well, which we'll come on to. But specifically trying to get that diagnosis right. There's a few tests that we use that are kind of proven within the research to be the best if you like. So while we're standing we'll go through, we'll use Steven as a wall, if that's okay. So sustain standing on one leg. So if you put your fingertip on Steven's back, and then we're going to lift this leg, so you're standing on one leg, you're lifting this leg off the floor. So this is the test, this is the hip that

we're testing. It's the sustained stance test. Quite often in a hip that's painful, this will bring the symptoms on straightaway. And you'll say, where are you feeling it, and it's usually here, if you're not getting anything straightaway, then you can wait 30 seconds and see if that reproduces the person's pain. And what you'll often see is that lateral shift, if you go into yep, you'll often see this, so again, we've got that compression and often dropping down into adduction, as well. So this is a test, you can pop that leg back down again. So it's ruling the conditioning. Okay. So if it's positive, it could be likely they've got gluteal tendinopathy.

**Steven Bruce**

Reproducing the more or less the exact pain that they usually have.

**Victoria Smith**

Absolutely, yes, that's my pain. So if it's reproducing pain in their back, but their concern is here, then it's negative, it's got to be a reproduction of their exact pain. So this is a test that we would use within our battery of tests to try and hone in on that diagnosis, it's quite easy to do. And it's functional. So it's yeah, it's a nice test to look at. But on its own, it's not going to give you that definitive diagnosis. So the other tests that we tend to use within this battery are lying down. So if we get you lying down. So if you're lying aside, first of all, so on this side.

**Steven Bruce**

So this is the side we suspect?

**Victoria Smith**

This is the side we suspect. Yes. So one of the cardinal signs of gluteal tendinopathy is pain over the greater trochanter. Okay, so to find the greater trochanter, it's obviously it's that sort of normally part of the of the femur, but if you start in the iliac crest, and just run your hand over and down the mid thigh, you'll come across that sort of area that sticks out. So that's where the greater trochanter is. So palpation and tenderness of that has to be positive for us to have a positive diagnosis of gluteal tendinopathy. So this has to be positive, along with one or two of the other tests that we're doing.

**Steven Bruce**

And at the moment, hips are more or less in neutral, aren't they?

**Victoria Smith**

Yeah, it doesn't really matter so much how they're lying. I mean, yeah, if we're being picky we'd pull the hips back a little bit, but it's more about palpation and making sure that that spot is tender. If it's not, it's not going to be gluteal tendinopathy. So that's when you maybe think, okay, maybe it's coming from the spine, or is it the hip joint that's involved more? But yeah, that's got to be positive.

**Steven Bruce**

So why might it be tender there and not be gluteal tendinopathy? What could it be?



**Victoria Smith**

So it could be the spine. So you could have a referral pattern coming down from the spine, it could be the hip joint, so we just need to explore those in more detail. But yeah, if you're getting all the other tests, but that's not positive, then it's not likely to be gluteal tendinopathy. So this will rule it out. So if it's not tender, it's not gluteal tendinopathy. So, if we get you on your back now. So, the literature shows that tests that have a compressive force and also an increased tensile load. So where the muscle's active, they are the most likely to reproduce a positive, because they're doing the increased tensile load and the compression together. So one test that we use, I'm going to use this leg, is the fader. So you can do Fader and Fader plus R, so that's with resistance. Okay, so we're going to take the hip into flexion, into adduction. And then external rotation. Okay, so we're really compressing the gluteal tendon here against the greater trochanter. And we've got that adduction and flexion. So we've got the ITB in that lengthened positions, we've got passive tension going through it. Okay, so this is the Fader test.

**Steven Bruce**

Just out of curiosity, how much force are you going to put into that?

**Victoria Smith**

So I'm just taking it into that position. So I've not got any force going through there at the moment, the next step is to add some force in. So what I'm going to say is, I want you to bring your foot back to neutral. So I want you to bring your foot back this way, okay. And I want to try to resist me. So I'm going to just put you back into that position. That's it. And now I want you to resist, that's it. So by adding that tensile load with compression, they often go yep, that's exactly the pain. Again, we're looking for reproduction of their symptoms. So that's a nice test to do. And then if we get you on your side again. So we've got adduction. So inside lying, we're going to go down into passive adduction. So we want the hip to be in relative neutral, so it's not flexed, not extended. And often that again, we've got that passive tension through ITB that will reproduce symptoms, but we can also add that tensile load. So if you try to, I'm gonna try and resist you push you down, you try and take your leg back up to the ceiling. Okay? So just adding that resistance in, while the hip is in adduction will often reproduce the pain here. So they're the kind of main tests that we'd use. If you're on your back, Faber's isn't shown to be massively helpful. But it can be quite good to help with diagnostics. So if you move into that Faber's position, sometimes it might reproduce their pain. It's not one we would sort of use as a routine, but it can be quite helpful to work out if you're not sure where the pain is coming from. If it reproduces hip pain, or it brings pain on in the back, you might think, oh, okay, maybe we need to look more along those lines. So it can be helpful to sort of a diagnosis. So they're the tests that we would definitely use to try.

**Steven Bruce**

So now we've ruled it in, what are you gonna do about it?

**Victoria Smith**

So what we need to do here is look at, first of all, are there any underlying health issues that could be having an impact on this, okay, so things like statins can potentially have a negative impact on tendon health, they can increase the expression of those MMPs, as we said, that can have a destructive impact on tendon health.

**Steven Bruce**

I've seen a bit of research recently, where I'm guessing the pharmacological producers of these things have said, oh, no, the supposed muscle pain and muscular skeletal brains produced by these drugs. It's not really true. And yet people like yourself, and Malcolm Kendrick say, well, actually...

**Victoria Smith**

There's a potential risk there.

**Steven Bruce**

Hard to believe, isn't it?

**Victoria Smith**

Yeah, definitely.

**Steven Bruce**

Because they're very good at producing these studies to say no, no statins are perfectly safe and harmless.

**Victoria Smith**

I think that if their pain came on, you know, within that time scale of them starting the statins, it would be something to definitely explore. There's a certain group of antibiotics, fluoroquinolones, they can also have a negative impact on tendon health. So again, if they're taking those and the symptoms started around the same time, it's definitely worth exploring that as an option. So they're all on the slides that will be sent out. And then blood sugars as well, do they have diabetes? Are they managing their blood glucose levels, if they're not is that again, having an impact on their tendon health, and that will be really important to address at the beginning. So a good subjective history, is a key factor to just, you know, go through, I've written, they're all on the slides, so people can still use that to help. But just to identify those factors that maybe you're missing, and maybe a key reason why you're not getting any sort of benefit. So all those factors kind of looked into, then what we would start to look at is how we manage the pain. So reducing that compressive load is really, really important. So looking at positions, nighttime, really important, because that's often when they have a lot of their pain, so side lying, if you move into side lying for me. So, trying to, if you can, trying to avoid lying on the side where we have the most pain is important, people will say, but I can't because I wake up and I'm on that side. And that's just one of those things but trying to reduce the amount of time spent in this position.

**Steven Bruce**

Would it be right to suppose this is very rarely, if ever bilateral?

**Victoria Smith**

It can be bilateral, but I think if it is you probably want to be looking at the lumbar spine first to say, okay, is that driving these symptoms.

**Steven Bruce**

All those postural factors are likely to be predominantly one sided.

**Victoria Smith**

Yeah, it's more common to be one sided. But yeah, you can get it bilaterally. But yeah, it's not as common. So we want to just try and minimise that compressive load in lying. So on your side, as we spoke about earlier, you can either have a pillow between the knees, some people prefer, if you bring this leg back, some people will actually prefer to have a pillow there. So if they sleep in that kind of position, then they probably wouldn't find a pillow between the knees comfortable. So actually just increasing that height there by putting a pillow there can help. The pillow we spoke about earlier can really help as well. So the sort of knee orthopaedic pillow can help. And also actually putting a pillow underneath the arm can help. Because if we're dropping down here, actually can you see it does have an impact on the hip. So it might be that you actually need to put something here to just take away that rotation through the thorax, which will have an impact here.

**Steven Bruce**

You should get commission from a pillow company or something.

**Victoria Smith**

I should be, shouldn't I? I should have said, by the way, what's your percentage? So the other thing is, ladies who have wide hips, so there is a type anatomy, coxa vara, where you've got more prominent greater trochanters, so that potentially can cause them to have more compression when they're lying down. But also ladies who have got very narrow waists. So a narrower waist will mean if that waist is narrower, you tend to drop down into more relative hip adduction. So what you can use, I'm just gonna grab a towel. So what you can do is, if you roll a small towel, and then just put it underneath their waist, so for you, that wouldn't work because you're not it wouldn't change anything. But if you've got that really narrow waist and wider hips, then that can just offset and it can just reduce that load through here, and also through here as well. So that's often a nice tip to sort of employ.

**Steven Bruce**

Again, it's going to be difficult to keep in place.

**Victoria Smith**

It can be I mean, I would try. You can only start like that. And if you're a restless sleeper, then you're probably going to move but, and the other thing is before you go to sleep, so if you go on your back. So often people will say, when I read and there'll be reading with their knees bent, and they're sort of in that position. So minimising what you do before you go to bed.

**Steven Bruce**

Laptop propped up on the knees.

**Victoria Smith**

Exactly, Kindle on a pillow there. So just minimising those positions of compression before we go to sleep. So in this position, rather than doing that, just put a pillow underneath the knees so that you've got the pelvis in a much nicer position. And also sort of not sitting on your side all scrunched up. Again, there are positions that are okay, I'm not saying you should never sit like this ever. But if you're symptomatic, we need to really reduce that compression. So there are ways of helping that.

**Steven Bruce**

What about, as opposed to passive interventions like this, are there positive interventions to rehab?

**Victoria Smith**

Absolutely. So compression and rehab go hand in hand. So one without the other generally doesn't work. So it's removing compression, but also it's looking at the muscle function. So we've tested the gluteal muscles. And actually, research shows that in symptomatic patients, they're about 25 to 32% weaker than the population without symptoms. So a big issue is yeah, definitely improving that strength around the gluteal muscles. So depending on, obviously you want to target your management plan to your patient. So if you've got somebody that's highly irritable, you would probably start at a different point to somebody who's a little bit sore when they walk up a hill. So you'd want to make sure you're starting at the right point for that person. But I think if we start at the beginning, because a lot of people coming into clinic are those highly irritable patients. So I'm just going to grab a pillow and a belt. So isometric exercises can be a really nice starting point for somebody who's in quite a lot of pain. So just relax your legs over there. So isometrics are sort of proven that they can have a real positive impact on pain. So what I tend to get people to do probably, I just grabbed one of my belts but a thicker belt would be better, but you want something that's not a band, not a Thera band, because it will give you want something that's solid. So as they push into it, it doesn't really move. So if you take the legs a little bit wider, so isometrics in lying or in slight hip abduction, and then if we put a belt around the top of just above the knee, what you're going to imagine you're doing is just sort of trying to almost slide your feet apart. So he was going to take your legs, that's it, into the band, or the belt. And what we're trying to activate is those deep gluteal muscles. So there's varying sort of length of time in the research, varying between 10 seconds to 45 seconds. So 45 second hold, and then having a 45 second rest in between and doing that maybe...

**Steven Bruce**

45 seconds?

**Victoria Smith**

Yeah, that's one way that the LEAP trial, which is a big piece of research from 2018, they suggested 10 second holds and do it five times. So I think it's really what works for that patient. But isometrics can have a real positive impact on pain inhibition, and also can start to get those deep muscles starting to work.

**Steven Bruce**

That's not something I'd heard before about my isometrics specifically working towards pain inhibition.

**Victoria Smith**

Yeah, definitely.

**Steven Bruce**

Is there a chance that you're exercising a damaged tendon here is there a chance that it's going to aggravate the problem?

**Victoria Smith**

Yes. So when you're starting to address tendon issues, it's monitoring their response. So monitor the response to that load. So we want to build the tendon's capacity to take that increased load, whether that's going for a walk or climbing a mountain, but you always monitor it. At night, if you're kind of calming the tendon down and you add loading, if they get night pain again, that's a definite sign that yeah, that was too much. And monitoring pain levels. So if the pain levels go up, more than sort of two on the scale, and that response stays for more than 24 hours, then it's a sign it's too much.

**Steven Bruce**

So in terms of your guidance to a patient doing this, are you just gonna say, just do that abduction to a point where you can just feel pain coming on, or?

**Victoria Smith**

This shouldn't really cause pain with this exercise. So as we start to load tendons, it is okay to feel pain in a tendon, as long as it's within that traffic light of green, amber red. So, but yeah, this shouldn't cause pain, it should actually make you feel a bit better. It's important when you're doing it, though, that you're not using this outside, this lateral corner of the hip, because that will be your TFL, which is a ITB tensioner. So it's important that they know where to feel it working. So they should feel it sort of around this lateral gluteal area, but they shouldn't feel it at the front of the hip. So it's just gently, just, that's it, just pushing into the belt, and then holding it and then letting go. So that's a nice way to start introducing.

**Steven Bruce**

We're gonna have to get a move on, we're nearly out of time.

**Victoria Smith**

No way, are we really? Oh, my word, I thought we'd been like 40 minutes in. So I suppose you can do his standing as well. But we won't go into that now. So a nice way of starting to increase the load to the tendon. If you bend your knees up for me, that's it. So bridging is a nice exercise that we can start off with because you can progress it. So if we bend your knees up a little bit more, so if you do it with your feet down here, that's okay, but you'll be biasing your hamstrings a bit more. So we don't necessarily want those to work too much today. So with a bridge, again, we want to check what's going on here. We don't want that. And what I like to do is just add a little bit of a small pelvic tilt in, but making sure they're not doing it using the upper glute max. So do a small tilt for me. So relax down again. So you're not lifting off the bed. You're just tilting these knobbely bones towards your ribs and your ribs down towards there. Okay, perfect.

**Steven Bruce**

Big knobbely bones.

**Victoria Smith**

I call them the knobbely bones on the front of the pelvis. Anatomically correct. So what we're going to do now is we're going to just a little push through the heels. And then we're going to try and use these muscles here to lift up off the bed. So we want to be feeling it, that's it, we want to be feeling it in that lateral kind of corner of the glutes, lift a bit higher. So this is your first nice double leg exercise to do.

Again, you want to be looking at weight, so you don't want to be shifting off that painful side, because you want to be getting the tendons to tolerate that load. So from there, you can do a sort of a little hip thrusts, so up and down without going all the way down. As they go down just trying to just relax their gluteal muscles and then use them to bring them back up again. Now, to make this harder, you can move into an offset bridge. So if you go all the way down, so we want to say work this leg, we're going to put this heel closer to the bottom. Okay, so we're now going to work this leg a little bit more, same movement, we're going to go up and into that bridge a little bit higher.

**Steven Bruce**

Can you feel the difference?

**Model**

Yeah.

**Victoria Smith**

So you can feel your loading that side more. So again, if they're very irritable, then where are you feeling it, just to make sure they're feeling it in the right place, and then come back down again, the next step is transitioning into a single leg. Now, this is often quite hard. And often what people will do is, if you go onto one leg for me to do a single leg bridge, so that's it, if you lift up, what they'll often do is start dropping at this point, and they can't, they can't correct it no matter what they do. So then you're kind of in a position where you think, right, we need to start moving things on. But I'm not happy to give that as an exercise, you can come down. The transitional is adding load into the bridge. So you would add load onto their tummy.

**Steven Bruce**

In the form of?

**Victoria Smith**

Well, if you're in a gym, a plate would be great.

**Steven Bruce**

But don't you want your patients to do this at home as well?

**Victoria Smith**

Yes, exactly. So if they don't go to a gym, which is most common, you can use home items to try and increase the load. So if you think...

**Steven Bruce**

Your cat, for example.

**Victoria Smith**

Yeah, exactly, your child, get your child on there. So if you think one litre of water is one kilogramme, so if you get a rucksack, you could get a large milk container, fill it with water actually don't maybe spill, you

can quite easily get up to five kilogrammes, if not more, by just increasing that load in a rucksack or a bag. So that's a really nice way to start to build up the difference between double leg and single leg.

**Steven Bruce**

Every day, five times a day?

**Victoria Smith**

I would get them to do it every day. And I like them to set the reps. So really, if you're trying to build up strength in the muscle, then you want to be getting them to work. You don't really need them to be 20. You want them to be doing maybe up to between sort of three and eight maybe, where the last rep they do is oh, I can only do one or two more.

**Steven Bruce**

I'm so glad you said that. Because I thought we've had Claire mentioned on the show talking about strength training before and if you give us something different.

**Victoria Smith**

Absolutely. I know I love Claire Minshull's stuff. I think she's fantastic.

**Steven Bruce**

Yeah, but it's five reps to failure. 45 reps per week is her mantra, isn't it for strength training.

**Victoria Smith**

Absolutely. So it's not about how many reps you can do, it's about increasing that load. So that your tendon is developing that capacity to work within that. But yeah, there's no point sending them away doing 50, we're not going to get any increase in strength of that muscle. So then you should find after you know, doing that, okay, now let's try going on to one leg, so you can try just to hover. So if you lift up onto one leg, so that's your kind of first port of call. And then you can have the long lever, which is much harder. So you're lifting up there. And then you can just do a little pull, so you're not going all the way down and then bring it back up again, build the difference.

**Steven Bruce**

You're sorry you came here.

**Victoria Smith**

She's already said that she's actually had a big workout yesterday. To make that hard, you could put the hands across the chest, again, you're taking that stability away from here. So bridging is a nice way to start. But we also want to add in some functional movements, as well. And also we want to add in some frontal plane loading. So where we're taking the hip away from the body,

**Steven Bruce**

Can you demonstrate that in two minutes?

**Victoria Smith**

I think I can. So a real nice way to start frontal plane loading is a sidestep. Okay. So, again, looks easy, but what you'll probably often find is, as they sidestep, what they might be doing is this, so you're trying to avoid, so standing with their hands on a worktop kitchen, stepping, and then looking at that control as you go over that hip, so that they're not dropping into here. Next progression is to maybe add a band, so around the feet, so you could add a Thera band, and then you're doing that same movement, take your hands away, again.

**Steven Bruce**

Keeping it under tension the whole time.

**Victoria Smith**

So, no, so it'll be tensioned up as you come here, and then it will slack as you bring the foot in. Then the next step there is to add, maybe I use sliding disks, but they could stand on a slippery surface with a foot on a tea towel with a band around their toe and you're sliding the hip out, and then you're bringing it back in again. So Pilates reformers are quite good for that. Again, so we're looking at that kind of patterning where that they're kind of dropping across this way. Or if this is the leg that's painful, as they take the hip out, we don't want that happening. It's just looking at that nice control. So we haven't got that sideways shift or compensations. So that's a very quick way of going through frontal load, frontal plane loading.

**Steven Bruce**

Do you want to? Can you do that on one of your disks and just demonstrate on one of your disks very quickly?

**Victoria Smith**

Of course I can.

**Steven Bruce**

But do it in front of the table this time. This is a slippery floor and a tea towel.

**Victoria Smith**

So what we're doing is we're going to go into that movement and then bring it back in again, you could put a band around the toes to increase that load, and you want, you want to start working into quite a heavy load as they can tolerate it. So you start with your minimum progression, then you build it up again.

**Steven Bruce**

And by abducting your left leg, you're working the left.

**Victoria Smith**

I'm working the left, but I'm also working on the right as well to stabilise so you can do it on both sides. So we're working the abductors in that in a range. Okay, so it's important that we do add that into the programme, along with functional work, which is, you know, squats, step ups, all monitoring, that that will shift.



**Steven Bruce**

You had some other things you're gonna show us, we're gonna have a stop, we're running out of time, I want to go and sit down, because I got a couple more questions I'd like to address. Thank you so much for being so patient with us. Very quickly, very, very quickly, before we finish this. I've been saving this one, somebody who calls themselves Physio Elite says what do you think about shockwave for conditions like this?

**Victoria Smith**

Yeah, so the research is, yeah, it's not all there. But actually, what people find they do get positive results from it. So certainly, if somebody has failed with good management, then yeah, I think it definitely is worth a try. You're not going to do any sort of detrimental harm to the tendon. So yeah, you know, I think there are sort of definitely lots of physios out there who've started using it. And I think, yeah, it's definitely worth a try.

**Steven Bruce**

Yeah. And if shockwave works, then it suggests that actually manual physical digging in with your fingers and your elbows could have some beneficial effects as well, if you do it, right. Do you ever do that?

**Victoria Smith**

I don't tend to, but I do use sort of dry needling around the area. If I've got any areas, upper glute max, maybe TFL. To try and reduce that sort of activity. I'm just wary of compression. So you've just got to be very sensitive. And I probably wouldn't get anyone to do any sort of deep heavy massage work over this area, because you can start with topics just remembering the compression and that you're not increasing that. Okay.

**Steven Bruce**

Jason says, would the constructive rest position be useful? Now I don't know what that means, do you?

**Victoria Smith**

No.

**Steven Bruce**

Okay, it's probably too late for us to get an explanation from Jason that moment. So we'll shelve that one for now. Larry has asked about deep friction, which you kind of answered that one already, it's not too much over compressive force anyway. Lawrence says, when you talk about weak muscles, he finds that people can have very tight muscles. I find this to be a learned tension and can also manifest as a functional weakness. Isometric exercises can increase tension, won't this contribute to the weakness.

**Victoria Smith**

Yeah, absolutely. So you can have co contractions. So you can definitely have people who guard as a response to pain. So I completely agree with that. Yes. So it's choosing the right person. If you've got somebody who's guarding and is very stiff within their whole musculature around the area, then absolutely, you'd want to teach them how to relax there first. And then you could maybe look at isometrics

once you were happy, they weren't going to grip and guard. So no, I think that's a really valid point. And something I definitely do myself. Yeah.

**Steven Bruce**

Just had a question come in here. Gee says, please, can you advise about the best exercise prevention for hip impingement in patients in their 40s and 50s, I know we weren't talking about impingement here.

**Victoria Smith**

So it's avoiding any positions really of extreme flexion, internal rotation. So it's trying to make sure that the deep control is working well as well. So looking at those gluteus minimus, so all the muscles that have an attachment onto the capsule of the hip, make sure that they all work so you've got that precision of movement. So bridging, single leg bridging is great. There's probably a whole new topic we could discuss to be honest.

**Steven Bruce**

I have no doubt we're gonna get you back.

**Victoria Smith**

FAIS is definitely a condition you kind of work on individually, but yeah, avoiding those positions that you know, so avoiding any kind of deep squats or any forced hip flexion or even the opposite where you're trying to really force the hip into a position that doesn't want to go in so forced adductor stretches, forced hip flexion stretches just where you're really putting that joint into a position it doesn't really like.

**Steven Bruce**

And last question. Lawrence says, I think it's the same Lawrence. I've seen a cadaver dissection demonstrating a septum from the posterior aspect of the ITB into the linea aspera. It separates vastus lateralis from the short head of the biceps with both muscles attached to it. Do you feel that it has any bearing on what's going on higher up?

**Victoria Smith**

Say vastus lateralis definitely, because it does, it acts as an amplifier. So you're going to increase that tension. So if you've got a really large vastus lateralis, then absolutely, that's going to have an impact in the tension of the ITB. So it's looking at that whole muscle, that abductor synergy, and working, you know, looking at what you need to maybe sort of decrease and what you need to increase the strength of so yeah, absolutely.

**Steven Bruce**

Okay. Actually, there's one more I saw this come in earlier on. And if you talk really quickly, we might get an answer to this one. Keith says, I thought sitting stretches the glutes, the femur moving forward, increasing the load on the bursa. And you were talking about sitting being?

**Victoria Smith**

Yes. So if you're sitting in deep flexion, or on a low chair, then yes, you are. So the posterior glute med does have an extensor component. But yeah, flexion generally, in flexion, you are increasing the lack of lumbar fascia compression, so it will have a negative impact on the gluteal tendon.

**Steven Bruce**

Well, I reckon this 533 People are going to be thanking you for some things. So Victoria, thank you very much. It's been great, hasn't it?

**Victoria Smith**

I cannot believe how quickly it went. I've still got loads to tell you about.

**Steven Bruce**

We would love to get you back.

**Victoria Smith**

Definitely.

**Steven Bruce**

I'm not seeing all that feedback on here. But I will get that feedback later. But it's been great fun. It's been very, very, very interesting stuff. Well, there you go. We are out of time. As I said, I really hope that that was a suitable mix of science theory and practical skills for you. And of course, I'm really hoping it's really useful in clinic for you as well. Let us know what you think because I'd love to get Vittorio back in again, if that's what you'd like us to do. Now, looking ahead to next Wednesday lunchtime, we've got a case-based discussion lined up for you. If you haven't attended one before, don't be shy, there's always a massive experience being shared. So even if you don't have a case of your own to discuss, it's really worthwhile. The show after that is on Tuesday, the 16th. When I have got the delightful Serena Simmons in the studio, Serena will be talking about imposter syndrome, how to deal with your own inner demons. It will be more than that of course, it'll be an expert psychological examination of the way we deliver treatment. Lots about that all important skill communication. As I said, Serena is absolutely lovely and so, so knowledgeable. So that's an evening show starting 730 on the 16th, that's Tuesday. And we talked about dry needling just a few minutes ago. And our dry needling course is almost upon us. Simeon Niel Asher flying in from Tel Aviv, Professor Bob Gerwin flying in from Baltimore, you will seldom find two such international experts in the same room. We've got three places left on the course we had when we started the show. And the course runs from the 19th to the 21st of this month. And seriously, this is the absolute best course on dry needling that you'll ever come across anywhere in my opinion. I can't promise we will ever manage to get these two together again. So the link is on the screen. There are three places left and it's first come first served. That's all for me. Thank you for joining us. Enjoy the rest of your evening and good night from all of us here.