Academy of PHYSICAL MEDICINE

Shoulder Impingement

with Jo Gibson

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TRANSCRIPT

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Steven Bruce
I'm going to welcome back Jo Gibson. She's been in the studio with us before talking about the shoulder. We've been trying to get her back in for a very long time, we had to postpone one of the shows a few months back, which you may remember. But we've got her in this evening and we're going to talk primarily about shoulder impingement. But if you've seen anything of Jo before, you'll know that she's an expert on the shoulder, she's lectured internationally, she's part of the Liverpool upper limb unit in hospital there, she has her own practice. She's a true genius where the shoulder's concerned. I hope that does you credit, Jo. Welcome to the Academy.

Jo Gibson
I wondered who you were describing Steven, that's so kind. Thank you.

Steven Bruce
You went down a storm last time you were with us, because everybody was so impressed with your approach to the shoulder. When we were talking before we went live, and I said, this will be popular because everybody thinks of the shoulder as being a complicated joint and you said, yeah, but it's so simple. Well, that's, that's exactly the sort of thing which attracts our people to this show, I think. How are things with you anyway, are you busy now?

Jo Gibson
Yeah, very busy. It's been a weird old time, very early during COVID I got redeployed to a role in psychological first aid, which is essentially supporting staff, had some training and then we had to provide the staff hubs. So that was my first lockdown. And then more latterly, I've actually got back to treating patients which has been lovely, I still do a little bit of the psychological first aid role, but extensively I'm back in the practice doing face to face, which is fantastic. At the hospital a lot of what we're doing is still done by telephone or video, but we are starting to see patients in some of the clinics again, particularly if we can't make decisions over the phone or the video. So, some semblance of normality, but I still can't get used to wearing visors, face masks and goodness knows what else to be able to treat my patients. So, a very difficult world now.

Steven Bruce
Well, I think our audience are probably now largely seeing patients in clinic, but I suspect that they would welcome any advice you have for triaging people or diagnosing problems over video links and things like that. But we're going to talk about shoulder impingement, we probably want to start with the basics there, don't we and describe exactly what's going on.

Jo Gibson
Well, first, I guess the first thing I have to say is why we want to call it shoulder impingement. In physio world for sure, there's been a real rail against that terminology but I think if we're honest, if you're somebody with shoulder pain and you go to search it on the internet, there's absolutely no doubt that as a term it's still very widely used by general practitioners and certainly orthopedic surgeons who don't

necessarily specialize in the shoulder. So, I guess the first place to start is really why that terminology has been challenged. And I think that's really because of our increased understanding of the actual underlying pathology. So where as Charles Neer, who really wrote nothing more than a set of opinion papers, it was never really very robust research, but he described this model where you lost out on the genetic lottery with a certain shaped acromion, you were more likely to get osteophyte or a spur, if you like, over time and that that then caused this impingement on the superior aspects of the cuff. And if that persisted, you're more likely to develop partial thickness and ultimately full thickness tears. But one of the fundamental flaws of that model is that if you actually look at rotator cuff tears themselves, the predominant number of rotator cuff tears actually exist on the articular side of the cuff, not on the bursal side, where you'd expect them to be if you had true impingement. Similarly, we have lots of studies now, I mean, there was one as far back as 2000 by a guy called Morrison, who essentially looked at over 550 patients, x rayed them all, just straightforward, non-traumatic shoulder pain. And even those patients who had a large spur on their x ray still had a 65 to 70% chance of getting better. Now, when you match that with the fact we've now got things like the CSAW trial, the FIMPACT trial that essentially looked at comparing to see both procedures surgically. So just putting a camera in and taking it out, as opposed to actually shaving off a bit of bone. Again, there is no difference in outcome between those two interventions. And importantly, when we look at patients at a year post intervention, there's also no difference when you compare those things with physiotherapy. So, I guess the first reason we're moving away from that model is because impingement as it was originally modeled, we don't have a good evidence base to support that. But I think you could argue a case that our understanding now is more about rather than this top-down model, it's more of bottom-up model in that the cuff for whatever reason, the shoulder muscles don't do their job, so we may well get some superior translation that loads that coracoacromial ligament but again, that's not without contention. The other thing that's really interesting, and again, I'm sure we'll get to talking about it, when we look at the factors that really seem to influence how well people do with our interventions. It's very little about some of the physical things that we can measure. It's a lot about communication, and psychosocial and lifestyle factors. And I think, again, when you actually look at the term impingement, and you look at qualitative studies, what they're absolutely clear about is that there's some patients that immediately sets them up to fail with our rehabilitation interventions. So, a doctor says, you've got an impingement is a bit of bone pressing on your rotator cuff. And fundamentally, why on earth would you engage we have been scared to death of something sticking in the muscle. So, there was a lovely quantitative study by colleague of mine, Andrew cuff, that again, showed very clearly that depending on the words that the surgeon use, was a real game changer in terms of whether patients engaged or not. So, I guess the move away from the term impingement is as I said, one because the original model just isn't well supported by modern research to in that it can be fear inducing for some of our patients. And but also three that kind of that impingement model isn't terribly helpful in informing our rehab, because essentially, we just don't have the evidence that we can absolutely nail structured as follows.

Steven Bruce

I imagine that term impingement doesn't just affect the patient does it also affects the practitioner because if you as a physio or we as osteopath, chiropractors, if we're saying to a patient, Oh, right, you've got shoulder

impingement, we are thinking subconsciously, well, there may be a limited amount I can do to fix that. And that will translate to the patient as well transfer to the patient. We know, you know, treatment.

Jo Gibson
Yeah, and I think that's a fantastic point, but also why it's brilliant to have the opportunity to do things like this, because the bottom line is if you look at our success rate with the population with shoulder pain, with no history of trauma, essentially, we successfully looked at 80% of people and as I said comparable with surgery. So, I think what's really interesting is any clinicians watching should feel really in the driving seat, because physio, osteopathy, rehabilitation approaches are really supported now, it's just making sure that we do the right things to give our patients the kind of best chance of a good outcome. And I think if you look at the common theme of perhaps why clinicians are a little bit perhaps negative about the potential outcome, because of that model we've been brought up on, it is often as well as that we're perhaps not realistic about the amount of time that it takes. So, if you look at timescales for recovery, if you get somebody who's just got a first episode of shoulder pain, the evidence is really clear that on average it will take 12 weeks to get better, or certainly 80% improvement. And that's somebody with no negative prognostic factors. But as soon as you have somebody that's had an ultrasound scan that shows you might have some degenerative pathology in that rotator cuff, then essentially, you can double that recovery period. And it's the same with some of the negative psychosocial and lifestyle factors as well. But what I would really stress is that actually, some very simple things can make a big difference as long as you do them for long enough. And importantly, you make it relevant for the patient in front of you. So, it's a really good time for us rehab professionals.

Steven Bruce
Do you think that ultrasound scan is also a negative psychosocial factor? Because again, you're saying to someone, you've got degeneration or you've got calcification or whatever you want to call it.

Jo Gibson
So, you know what, Steven, that's such a fantastic question, because it goes full circle to the comment you made before about impingement potentially inducing fear for the practitioner as well as the patient. I don't like, well, it's not that I don't like but I don't use ultrasound. I have access to it in the clinic very easily and if somebody's fallen over and I think they've got a tear, then it's very, very useful. But in somebody with non-traumatic shoulder pain, you're absolutely right, if you're told you've got a tear, even if it's normal, age related change, the likelihood of you engaging with rehab, particularly if you have negative beliefs about what that tear means, go down dramatically and again, I think there's good evidence to support that. So, our pathway is, we don't x-ray, unless somebody's stiff and we're thinking it's a frozen shoulder or if they've had a history of trauma. But actually, if you look at surveys of practitioners that use ultrasound as part of their practice, they will say that there's huge merit in being able to scan the other shoulder and saying, Look, you've got exactly the same in your other shoulder and that's not causing you pain. Now, again, I think that's where we have to see us as clinicians and our belief system and what we find useful will influence our confidence and how we present that to a patient. I work in a tertiary unit where we get lots of patients that have failed with previous physio or rehabilitation. And the fact is that actually I know that a lot of those

patients if you said to them, oh, look, you've got the same the other shoulder it doesn't hurt, they'll be asking me, well, when's it going to start hurting? So, for me, my job is far easier if I don't even have to introduce that as an issue from the outset. But I think that's why the way I approach assessment in trying to change somebody's symptoms is a very powerful way of challenging beliefs if people have had an ultrasound scan or some imaging from their general practitioner before.

Steven Bruce
You mentioned x-rays for frozen shoulder, that's a new one, what do you get from the x-ray with a frozen shoulder?

Jo Gibson
Well, it's really a kind of point of contention at the moment, the British Elbow and Shoulder Society pathway, which I was involved in, used to say you have to x-ray, and have a normal x-ray to be able to say that you've got a frozen shoulder. And essentially, it's because frozen shoulder is the most common presentation for misdiagnosis of malignancy. So, in the pathway, my hospital where I work ,is, we have to x-ray to be able to do an injection or do a hydrodilatation. However, there was again, a really lovely paper by Robert says how not that long ago, that actually looked at physios that advanced practice roles and over 300 patients. And basically, what he showed very clearly, is that with a sound subjective examination, these things didn't fit. The clinicians were very good at picking up the ones that either had arthritis, had a malignancy or some other cause of their stiffness, not frozen shoulder. So essentially, it sounded like a frozen shoulder, presented like a frozen shoulder, it was a frozen shoulder and the clinician was very good at picking that up. And I think that's a really powerful message. Because if you're working somewhere where you can't get quick access to x-ray, there's absolutely no doubt with somebody in the developing frozen shoulder, the earlier you can get an intra articular injection, the more you'll impact their pain and shorten that recovery phase.

Steven Bruce
When you were talking about the trials earlier on, you mentioned the CSAW trial and one other, I can't remember the name of that one.

Jo Gibson
The FIMPACT trial.

Steven Bruce
FIMPACT, right. From that, is it possible to assess, this is probably back to front really considering what we're gonna be talking about, but is it possible to assess which patients are likely to do well with surgical intervention? Or was it simply the case, the outcomes are equally good?

Jo Gibson
Well, again, great question. I think the bottom line is, if you look at all those studies, one of the key features of entry into the study is that patients have failed rehabilitation. Now, when you actually look at the duration

of time that people had had rehabilitation, arguably, a lot of them just hadn't had it for long enough. And so, when you certainly when you look at the CSAW trial, they had a control group that had no intervention at all, that were sat on a waiting list. Now we know we have an effect when patients are involved in a research trial, they're bought in, they might not have an intervention, but they're obviously made to feel special because they have measurements done and they're part of something. And we know that that can have a positive effect on their symptoms. And certainly, in that study, there was an improvement in the control group who had no intervention, no surgery at all. Now, it wasn't as significant as the ones who had surgery, but importantly, it shows us that there is this element of time as well. So no, they'd all had a previous episode of rehab. But as I say, I would argue that in a couple of those studies, patients hadn't had sufficient time to see if the rehab had worked. And I think the other thing that's important about your question is just because somebody doesn't do well with rehab, doesn't automatically mean they'll do well with surgery. Now, interestingly, one very useful prognostic factor, if you've had somebody who you're convinced you've done all the right things, they're just not getting better. If they have a positive effect of subacromial injection, so a significant improvement in pain, they're a group that you can be pretty confident they're going to do well with surgery. If they don't have a positive response to injection, then my surgeons would be very reluctant to operate because they would highly suspect that, if you like, that person is not getting better more to do with lifestyle factors and tissue health or psychosocial factors than any particular local problem with their shoulder.

Steven Bruce
And those people who do go for surgery, they're still shaving the acromion are they?

Jo Gibson
Well, again, it's really interesting. There's been a massive change in surgical practice. Now, I have this argument, well, not argument, this positive discussion with my surgeons quite often, because in the NHS, we hardly do any subacromial decompressions at all. If they're doing a rotator cuff repair or an AC joint excision or there's some other pathology they're addressing, they'll quite often do subacromial decompression at the same time. 1) because they believe it releases growth factors which help healing, but 2) because they still can't get away from this model of creating more space. I would say that in shoulder surgeons in the NHS, the number of pure subacromial decompressions has gone down dramatically. However, when you look at private practice, I would say that the reduction doesn't match that that we see in the NHS. And the bottom line is it's a quick, easy operation. And I think what we have to be very honest about, what we see in back pain studies, knee pain studies, shoulder pain studies, is we can basically say, look, people got better no matter what you did. The fact is 30% or 40% of patients will tell you they're better because they don't like what's being done. And they'll just go and seek care elsewhere. And often that means they'll go and pay for it because there's automatically a belief that it must be something different or better.

Steven Bruce
We had some questions in about malignancy, I'm afraid. Two people have asked about malignancy. One, Salame, has asked which malignant viscera refer to the shoulder? And Jason has asked how often the correlation is made between frozen shoulder and malignancy and are there any specific cancers?

Jo Gibson
Certainly, in terms of, I was actually preparing this for a lecture earlier on, I should have this all on hand, about 70% of all primary bone cancers are in the upper limb. And I think the important thing to say is where we're brought up on the fact people have unremitting pain, they've got night pain, night sweats, fatigue, etc. Often in the early stages, whether it's metastatic disease or a primary bone cancer, it can actually present very mechanically, and the key thing is never losing that element of suspicion. So what's really scary when you look at case studies about patients who are originally diagnosed with frozen shoulder, because the belief is it takes one to three years to get better, these people were actually treated for 18 months, two years, even though they never got through that painful phase and pain was escalating, before they were investigated, and essentially then found to have some underlying malignancy. So, when you look at things like liver cancer and you look at gallbladder cancer, you look at some of those, those can present initially as shoulder pain. That can be the initial presentation. Obviously, things like a pancoast tumor in the upper lobe of your lung, but there's no doubt things like breast cancer, prostate cancer, liver, kidney and thyroid are the five most common that metastasize to the shoulder.

Steven Bruce
Less of a chronic thing as well, but heart conditions can also refer to the shoulder, can't they?

Jo Gibson
Oh, absolutely. In terms of visceral referral, gallbladder, the heart, the diaphragm, obviously, those are probably the main ones. But the other thing is also-

Steven Bruce
There aren't any left, Jo!

Jo Gibson
Yeah, and I've had two ladies who had ectopic pregnancies, and they presented with acute onset shoulder pain, that was their first presentation. But again, it's just that lack of a mechanical picture when things aren't going the way that you think. In fact, another, going along with pulmonary route and the heart, I had a guy the other day, and it just didn't resonate, I just wasn't happy. It was a colleague who had spoken to him on the phone, he'd reached into a bin and lifted something heavy. So, it sounded like he could have strained something. But he had horrible thoracic pain from, really kind of piercing from his chest through to his thorax, and the thing that was the game changer for me is it was worse when he was lying down. And that's a very typical presentation of pericarditis, which obviously can be acute or can be chronic. And sure enough, when we got him checked out, he had pericarditis, but it's just never losing that element of suspicion. I think what's really interesting, if you look at the red flag literature, and you look at malignancy in the shoulder, is

actually generally if somebody's had a history of cancer, clinicians are much more vigilant and much quicker at picking things up. But in the absence of that history of cancer, then there's often much more of a delay before people start investigating. I think that's why it's very helpful that most common shoulder pathologies are pretty straightforward and pretty easy to identify. So as soon as somebody is not ticking the boxes or fitting into that or there's something weird about what makes their pain worse or better, I have quite a low threshold to investigate.

Steven Bruce
We've also had, I know it says here to talk about shoulder impingement and we put that title up deliberately because it's a bit contentious. But we're also we're getting lots of questions now about frozen shoulders as well. Katerina has asked whether frozen shoulders require a steroid injection or saline? I presume hydrodilatation is what she's talking about.

Jo Gibson
Yeah, I always love the questions coming on here. I remember last time, Steven, it definitely kept me on my toes. So, the bottom line is that the best thing you can do for somebody in a stage one frozen shoulder, so the onset, horrible pain, can't sleep etc. is an intra-articular steroid injection. Now, radiologists, orthopods, various specialists will tell you that hydrodilatation is superior. There is no evidence whatsoever that if you do that injection under pressure, it has any additional benefits. So, if you look at patients, maybe in the first six weeks, there's a marginal increase in external rotation range, but at 12 weeks and beyond, there's no difference. And certainly, in terms of pain relief, no difference at all. And generally, it's much quicker to access an intra-articular injection, then it is a hydrodilatation. And when we think why we're doing the injection, what we know about frozen shoulder is essentially we get an upregulation of myofibroblasts and fibroblasts within that capsule of constructs and what the injection does is basically suppress that. So, the earlier we can do it, the better. Now in terms of what you have to again, look at, is if you look at what happens in hydrodilatation, generally you go to radiology, there's a whole lot of fancy stuff around it, people are in gowns, there's a lot of drama in terms of those contextual effects. So that's something that's being looked at the moment in terms of comparing patients that might have had an injection that didn't work, and then they have a hydrodilatation. But I think the other thing that's really important to just mention here is you always hear patients who say, I had a hydrodilatation, it was a miracle cure, I got all my movement back. Guys, they weren't frozen shoulder in the first place. The fact is, muscle stiffness can masquerade as a frozen shoulder. So again, your subjective history should really give you the clues of whether it is a true shoulder or not. But really the most important thing is just to get a steroid intra-articular injection as quickly as possible, if they're struggling to sleep and your rehab's not working.

Steven Bruce
I remember talking to Simon Lambert, one of the orthopedic consultants at the Royal National Orthopaedic Hospital several years ago on one of these shows, and he expressed a degree of incredulity that hydrodilatation could work because he was doubting the fact that you could put enough pressure into the capsule to actually make a vast amount of difference. Interesting, we've had a question from Pip who says, literally yesterday, she had a patient who'd had a hydro dilatation but she couldn't face something a second

one because it was incredibly painful. Do they wear off and is the second one recommended? Now we can infer from what you've just said that the first one wasn't recommended either.

Jo Gibson
I think that's what you're saying about Simon Lambert. The fact is all the studies that have looked at hydrodilatation have shown it doesn't stretch the capsule because the capsule's contracted it's far too strong for 10 or 20 or 30 milliliters of saline to stretch. You don't have to tear it to get a therapeutic effect and it does tear it, it tears at the part that's not stiff. And again, because it's under pressure, if you've got a true frozen shoulder, it can be really painful. So for me in that situation, I'd be more interested in doing an intra articular injection and getting her into hydrotherapy. So interestingly, hydrotherapy, and that's done in a hot pool, not your local swimming pool, it's a bit chilly, but that damp heat with supported mobilization really seems to have some additional benefit in patients that are struggling to progress.

Steven Bruce
I don't know if this question is one that you can answer because Ian has asked whether steroid injections are better than the Niel-Asher technique? Do you know, Simeon?

Jo Gibson
I know the Niel-Asher technique, I've never had the privilege of meeting Simeon, but I'd love to have that conversation with him in a room. There was a really lovely study by Louisa Hollman and they took five patients with a diagnosis of frozen shoulder, took them to theatre, put them to sleep and they had a dramatic increase in range. If you look at the contracture of a frozen shoulder, it's like Dupuytren's, so with the greatest of respect, any mobilization, manual therapy technique, the evidence is clear, we cannot deform or change that. So, I would suggest that it's more of a functional frozen shoulder and more of a muscle stiffness driven issue. If it's responding to a specific muscle or manual therapy technique.

Steven Bruce
Interesting, it would be lovely to get you in the same room as Simeon because when I was talking to Simon Lambert, Simeon was in the room at the time, it was a double interview. And it was great fun, it was a lovely discussion between the two. And Simeon, of course, knows more about how his technique works, which relies a lot on trigger points rather than mobilization. But maybe that's a discussion for another time. John has asked what features you would use to define a frozen shoulder?

Jo Gibson
So, the most important thing is age. So, if you look at, basically if somebody's in their 50s, they're far more likely to be a frozen shoulder, all the usual risk factors. The general age range that's reported in the literature is 40 to 60. But a recent UK FROST study that was over 700 patients, everybody was in their 50s. And kind of around 55/56 is the peak instance. Clearly if you've got somebody with diabetes or thyroid problems, you might get them in their late 40s, but essentially, it's that lack of any key history of trauma, they might say they reached into the back of the car or they picked up some shopping but no dramatic history of trauma. But again, that fairly fast escalation of pain over a few weeks and crucially that significant sleep disturbance

with reducing external rotation in neutral. So, flexion abduction, not so interested in, external rotation is the game changer. So that's subjective history, the age, whether they've got any risk factors, the level of pain that they're getting, because night pain in frozen shoulder typically is pretty horrid compared to a lot of our other shoulder pathologies.

Steven Bruce
Which I guess would probably raise an awful lot of people's concern about the possible differential diagnosis of malignancy somewhere, that sort of horrible night pain.

Jo Gibson
Yeah, absolutely. But again, I think you know, there's still that positional element. And again, it's those descriptors of pain. So, location of pain is another one in terms of frozen shoulder, that very kind of deltoid region. And interestingly, about a third of patients get real deltoid insertion pain, which correlates very highly with innervation of the capsule. So again, I think what's really important about your point is, it's combinations of features, it's not one thing. The right age, the right onset, the right location of pain, the right things making it worse, and the sleep disturbance, those things together, kind of raise my suspicion that this could be a frozen shoulder. But clearly all those past medical history and their general health factors come into it as well.

Steven Bruce
An interesting one here, Robin has sent in an observation which, again, it touches on that sort of psychological aspect, because he says, if he gets a patient who has seen a GP first, he no longer or rarely hears the term impingement GPs, almost invariably, say you've got frozen shoulder. Which, of course, again, that must, in the patient's mind, raise some horrible fear of three years of painful lack of movement and no sleep, mustn't it? Because they will look it up on the internet.

Jo Gibson
They will indeed. I think that what's really interesting is actually they don't mind the label frozen shoulder because they believe it can thaw, that to them gives them a positive thing that something can be done to undo the freezing. The problem is exactly, as you said, is reading that it could take three, four, even longer years to get better. But again, if you look at the UK FROST study that came out a few weeks ago, whether you do an MUA, you do a capsule release, you do physio, they all do the same. And actually, what we didn't have was a control group, because all the patients were seen in secondary care. So, by that very definition, they're a group that aren't happy with their management. And when you look at the quality of studies, actually patients cope with being told it will take time, if they're told by somebody that's confident in the diagnosis, confident in the pathology. And he's absolutely right, the number of patients I see that have been told they've got a frozen shoulder, and then I've got to very kindly tell them, well, the good news is it isn't, which means it can probably get better a whole lot quicker. But that's generally because they do this when they lift up. And if you ask GPs about assessing external rotation in neutral, it's a step too far. And I'm not being rude because we tried to teach them, they just wanted the key things that would make a difference.

Steven Bruce
I always feel very sensitive about being rude about GPs on this show, because it's very easy to do that. But without taking into account the fact that they're not orthopedic specialists, they're not musculoskeletal specialists, but they have a huge amount of knowledge in a huge amount of areas where the rest of us fall very, very short. And we better put a gap in the questions so we can get back to talking about what we're meant to be talking about. You talked about diagnosis, what's your physical procedure for diagnosing shoulders?

Jo Gibson
So really, my diagnosis is based on my subjective history. So, 80% of my diagnosis is the story the patient tells me. My objective assessment *audio problems* So my objective assessment itself, actually, things aren't fitting, and I want to look a little bit further afield. But essentially, I'm going to have a look at their neck, a look at their shoulder, look at their painful movements, make sure they're not stiff, and then see if I can change how the muscle's moving. But I can go through some of those things with you that would be helpful?

Steven Bruce
Yeah, I think it would, and in particularly whatever special tests you use and which ones we can rely on, if any, because so many of them are, they're fairly vague aren't they?

Jo Gibson
They are very vague. And I think the issue is particularly in things like non-traumatic shoulder pain, things like Hawkins and Kennedy and near impingement test probably shouldn't really figure in our practice anymore, because they kind of tell us what we already know, somebody's shoulder hurts. But let me get Will, my son, who's very kindly agreed to be here this evening, and talk you through. The things you have to do for your mum.

Steven Bruce
Will, it's very kind of you, thank you very much for joining us. A bit of a break from Business Studies, I think, isn't it?

Jo Gibson
Yeah, a little bit different but he's a long serving model on my online courses, so he's very used to it, bless him. And so, the key as I said, the key thing is if somebody comes to me, it's their story that really gives me the hints, if you like, so if somebody has been in the gym and there's been a clear change in load then I might think more of a reactive tendinopathy. But let's say he's just come in with insidious onset shoulder pain that he can't really give me any particular reason. The evidence is pretty clear that 1) we struggle to differentiate between cuff, bursar and the other nociceptive structures in the shoulder but importantly, we shouldn't feel disempowered by that, because also, the evidence is clear that you don't need to, there's some fundamental principles that seem to give us best value. So, let's say, Will's got some shoulder pain on his right shoulder, the first thing I'm going to do is make sure he's not stiff. Now, in terms of where people

typically get stiff, it will either be external rotation in neutral, or it will be internal rotation in neutral. Now, you'll notice I'm not doing combined movements of rotation, I'm just looking at a pure rotation movement. And that's because it will just turn sideways in terms of the capsule, it's this kind of anterior superior and posterior superior capsule, and when we tend to see thickening in the capsule or the bursa. Now, again, I just look at him and compare side to side, so if he does it on both sides, and to be honest, if I don't see a significant side to side difference then I'm not that interested, okay. I know that sounds awful, I clearly look like I'm interested, but in terms of, I'm not thinking there's anything there that's going to limit my ability to target the muscle system. Now I then ask Will to just do our normal kind of elevation and abduction, and just look at his quality of movements. So, let's say he's got some pain around 120 degrees, I'd look at the same in terms of abduction, I look at the front just in terms of watching his face and getting an impression of how confident he is to move. And then I will look at the back. Now the thing is, if we look at the evidence about the scapula, now, the good news is guys, there is just no point spending ages and ages looking at it. The bottom line is if somebody does their painful movements, so if Will lifts both arms up and then comes back down again, I may see asymmetry but one asymmetry is very normal. So essentially if I took 100 people with shoulder pain, 100 people who'd never had shoulder pain and lined them all up and videoed their shoulders, we'd see an equal distribution. But more importantly, the only measures that have any reliability are the ones where the patient is static and neutral. And they have no correlation with what happens when somebody moves. So, using the goniometer on your iPhone or measuring from the spine, guys is just not a good use of your time. But I'll show you what's a better use of your time in just a minute.

Steven Bruce
I'm so pleased you've said that. I remember many years ago, but I remember in college being told we've got to look for scapulothoracic rhythm and see the asymmetries and thinking, half the time I couldn't see what I was being told was there and the rest of the time I was thinking, well, I'm not quite sure. Anyway, I'm glad you said I don't have to bother.

Jo Gibson
The amount of money I spent on trying to work out what the guru at the front of the room was seeing. And I was delighted when the research came out and went, Jo, it's fine. It was all good. So, I made sure he's not stiff, I just have a look at whatever his general movement is. Then importantly, I asked the patient what their biggest problem is. So, let's say for Will, that he's most bothered by elevating his arm and he can't get above 120 degrees on this side because it's painful. So, my next approach is to do symptom modification. Now, if we kind of look at what we currently understand about the shoulder, the most we have is something to do with load and whether it's coping with load. But we also know that very simple things like making a fist, giving some resistance have the potential to change how the muscle system is working. So, my go to in terms of symptom modification, if this movement hurts, the first thing I'll do is just get them to bend the arm, to change load, make a fist, because that just essentially facilitates that feed forward, it'll get them ready for action in the shoulder muscles, and then get him to repeat the movements and see if it's less painful. Yes, no. Now in some of your acute shoulder pain patients that will make a difference straightaway. And clearly, that's pretty easy to do as an exercise. If I'm honest, the majority of patients I see have had symptoms for a long period of time, so it's sometimes needs a little bit more. Now when we look at Karen

Ginn's lovely research, what she shows us very clearly is in elevation, the poserior cuff should be working harder in terms of the rotator cuff, in extension subscap should work harder. And so, it's only really in abduction in the scapular plane that the cuff truly cocontracts. So, let's say I've got Will to do this and it hasn't made a difference to his pain, then the next obvious thing to do is just to remind that posterior cuff to do its job because again, if we look at the limited evidence that we have one common theme to people with nontraumatic shoulder pain is a loss of external rotation force production or strength. Now whether I agree that it's always a strength deficit, we can talk about until the cows come home. But the fact is, that's what the evidence suggests. And so, what I do is get Will to just push very gently on my hands, and follow me up to the ceiling. So essentially, now what I've done is reduced load, reminded things to get going and given them a bit of resistance and seen does that change his pain? Yes, no. Now, that will work in a lot of your patients, because it just changes that movement strategy. If that still hasn't worked, and we've still got pain, then the next thing I can do is the scapular assistance test. And this is the one thing that has some relevance and some evidence to support it. So lovely Rachel Chester, who's done a lot of prognostic research shows in her study, that if you can change somebody's pain with the scapular assistance test, they were 80%-85% likely to get better with rehabilitation, which is pretty powerful. Now, if I get Will to still do that short lever movement, the scapula assistance is literally just pushing on the inferior angle, but also just pulling the scapula into posterior tilt. So as Will moves up, I literally push it into upward rotation and protraction. But again, you can see this originally was thought to be about being a very biomechanical basis in terms of increasing the subacromial space but remember, that's not well supported. But what am I also doing? I'm unloading that shoulder even more and giving a sensory input around the thorax and the scapula. So, Will, if you just do that again. And so again, it's another unloading procedure. Now, what's really important about this, and I always see this as my foundation exercise, is whichever of those maneuvers changes his pain informs my exercise. Now, very occasionally, those things won't work. So, another neat trick that's very useful, both in your rehab and your assessment, is just looking at the impact of the kinetic chain. The longer patients have had pain, the more likely they adopt these compensation strategies. And actually, our research has shown move the arm away from the body, rather than using the body to make life easier for the shoulder. So, we can kind of recreate the unloading effects of using the rest of the body in just normal movements by adding on a step to what Will was doing before. So, let's say I haven't been able to change his pain, then what I can get him to do is just do a step, probably start with the opposite leg, so step forward as he comes up. Now, again, if that's the deal breaker, and he goes, well, that feels fantastic, then great. Now, what I'm asking Will is how does that feel, I'm not saying I need to get rid of your pain, I just say we're going to do a few things and see how it feels to move. If he says that feels easier, lighter, less painful, awesome, because that gives him a very powerful message, that just getting his muscles working differently changes his pain, so he's in the driving seat. So, in terms of how that then informs an exercise, really, whichever improvement test makes the difference, just informs the first exercise that I use. So, if I get Will, you just want a gentle tension on the band at shoulder width. So, let's say that posterior cuff made the difference, then, again, if you use the kinetic chain, it's just much easier for patients to override those compensations but it makes it easier to get that local system doing its job. So, then Will's just literally going to push it up to the ceiling as he does a step forward. And that's his first exercise. Now, how many of these do I do? I don't want the patient to fatigue. Because again, this, to me is motor learning. It's just about reestablishing efficient movements. Generally, if you look at the literature, we want between 20 and 70

repetitions. But essentially, depending on what the patient can do, I've got other exercise options but it's very important to me that they have an exercise based on the thing that changed their pain. Now, the only difference is essentially, if the scapular assistance test made the difference, and I'm not going to make poor Will do this because it will rip his armpit hairs out, is that you basically use the band and-

Steven Bruce
Go on, go on. I'm sure he won't mind.

Jo Gibson
No, I did this with him when we were filming once and it took a long time for him to speak to me again. So, I'm going to learn from experience. Again, I can just have the band around the back, around the lateral border of my wrist, because I want cuff and scapular working together, and just do exactly the same thing. So, I'm just getting that kind of sensory input that replicates the scapular. Now sometimes that's not quite enough for patients. So, you could do it with a ball against the wall or me standing against it and doing a squat with the ball behind, still with that loop of theraband because you want the whole system working together. But again, just basically, if you like, replicating the thing that changed their pain the most. And you can apply that same procedure whether it's an abduction problem, an external rotation position, unload, wake it up, give it a bit of resistance and if all else fails, do your scapular assistance test.

Steven Bruce
Robin has asked, is Will a good actor or does he have a sore right shoulder?

Jo Gibson
He's just a fantastic actor and he gets paid well. Or not.

Steven Bruce
Well, Robin says you have a sore right shoulder whether you like it or not. Thank you, Will. Sally's asked, Sally actually said, Dear APM team, could Jo send us the link to those papers that you talked about earlier on? So that's very polite. So dear Sally, yes, we will definitely send you links to those papers one way or the other. Rebecca has asked what you mean by internal external rotation in neutral.

Jo Gibson
So literally just purely looking at external rotation as a pure movement. And then down here, just looking at internal rotation. So, I'm just looking where the olecranon is and comparing side to side.

Steven Bruce
So basically, no flexion, no extension, no abduction at the shoulder joint, just rotation at the shoulder joint.

Jo Gibson
Yeah, because again, if these are problem movements for the patient, hand behind head and hand behind back, then, of course, they're useful to assess, but they don't locate where stiffness is in the joint. So, if

you've got somebody who's after surgery, or who's just a resolving frozen shoulder, we know external rotation will be their worst movement. But actually, using rotation in these different positions is a really lovely way to target the part of the joint to get your maximum treatment effect.

Steven Bruce
All right. Okay. Thank you. I'm sorry, we've got you standing there, Well, while all these questions which are not related to you are coming in. Paul has said is frozen shoulder a first indication of Parkinson's? Which is something I'd never heard before.

Jo Gibson
I'm so sorry, Steven, say that again.

Steven Bruce
Is a frozen shoulder a first indication of Parkinson's? I've never heard that before.

Jo Gibson
Oh, no, he's absolutely right. There is a case series that looked at atypical presentations of frozen shoulder. But again, it's more to do, there's a higher association of getting a frozen shoulder if you've got Parkinson's. And what was really important about his comment is, if you look at postdoc studies with people who get stiff or patients who get a frozen shoulder, 15% to 20% will have undiagnosed thyroid issues or diabetes. But again, if you had somebody who came to see you, who had any other features to Parkinson, but presenting with that stiffness, you'd have a very low threshold to investigate if they weren't already aware. So no, he's absolutely right, there has been shown to be an association. But again, we have to be careful that it's just not a muscle tone driven stiffness and it is actually a true frozen shoulder.

Steven Bruce
Right. You mentioned diabetes a couple of times, and I think it's well known that you're more prone to frozen shoulder if you have it. Jan's asked why it's a contributing factor and is it both types of diabetes?

Jo Gibson
So yes, now this is really interesting. If you look at the literature- Will, I might let you just get your T shirt on, because for the next part you can escape out if you want to- so yeah, in terms of diabetes, it's a really interesting one, if you look at most of the literature, it's absolutely clear that type one's more of a risk than type two, it's all to do with various blood chemicals and stuff, that if you like have an impact at a cellular level on driving these fibrotic reactions and stuff, so it's a lot to do with general tissue health. Now, having said that, the UK FROST study that I mentioned before, with the over 700 patients, actually only about 15% had frozen shoulder and then the majority were actually type two. So that's the first study that's really clear with that. And certainly, even in your type two, the evidence previously suggested that if you're medication controlled, you're more likely to get frozen shoulder than if you're diet controlled. So basically, the more severe, the bigger the risk. There's also a big genetic predisposition, if somebody in your family's

had a frozen shoulder before, but it's just all to do with the cellular level and that interaction that's caused by the deficiencies, if you like by the diabetes.

Steven Bruce
You mentioned, Hawkins Kennedy sign earlier on, you haven't mentioned all the proper tests for shoulder, you know, full can, empty can and all that sort of stuff. Do you do not do any of those at all anymore?

Jo Gibson
Well, if somebody came to me, and I haven't got any suspicion that they might have a frozen shoulder, sorry, they haven't got a rotator cuff tear, then I probably wouldn't. I might do a quick screen just comparing side to side but I actually use an assessment of the cuff in prone, which we can look at in just a minute. But again, it's an important question because what I do is if somebody comes in and I want to rule out a rotator cuff tear, now if you look at when a rotator cuff tear is relevant, essentially if somebody tells you they fell over or they had an overstretch injury, they had immediate onset of pain and loss of function, they are far more likely to have a relevant rotator cuff tear. Somebody who fell over, hurt themselves, but if you like the pain and dysfunction didn't come until a few days later, much less likely to ever need any intervention. And what's really interesting, even that acute group, only about 40% to 45% actually end up having surgery. The patients that are better candidates for surgery are younger, there's absolutely no doubt, if you're under 16, you tear your cuff, then you probably will do better with surgery, if you have that traumatic onset. Once you get over 60, certainly over 65, actually, there's very little difference in outcome. Now, of course, there's some kind of things that you have to consider in terms of the type of tear and the condition of the tissue. But that's a pretty clear division in the current literature. Now, if I'm querying a cuff tear or I'm looking at whether there's true weakness there, as I said, I could use my full cans absolutely, and full cannons is more reliable than empty cans, because it just doesn't wind up the cuff so much. But if I do resistance here, and it's painful and weak, I don't know if that's just pain inhibition or weakness. So, if I apply those same symptom modification approaches, and change the lever arm, so I'm still looking at abduction, but also support the weight of the arm and get them to make a fist, and now repeat that movement and they're a lot stronger and less painful. Of course, I can't say they haven't got a tear. But I can say that actually, that system can compensate very well, if I just make life easier for it. And to me, that's a good indication, I've got a good chance with rehab. If no matter what I do, I can't change their strength then I might have a lower threshold to investigate. And that's another important point is that if you look at the evidence, pain in cuff tears is far more highly correlated with co-morbidities, lifestyle, psychosocial factors, than any structural feature of the tear. Weakness is a far more useful parameter when you're trying to make decisions about whether to get a surgical opinion or not. Now abduction and external rotation just with that unloading and making a fist is a great way of just screening out infraspinatus and supraspinatus. The bear hug is probably one of the most popular for subscap at the moment, lift off generally is just pain inhibited, belly press and Napoleon's nobody knows what they're looking at. But the bear hug actually is a really nice test that you don't tend to get the pain inhibition and tends to be one of the most sensitive. So literally just getting the patient to put their hands on the opposite shoulder, don't let me pull you away. The only thing that seems to be important to make it reliable is to kind of make sure you can see that my arm's at this kind of 45 degree angle rather than really down at my side, that seems to be important to make the test

maximally reliable. So, in terms of looking at weakness, then in terms of special tests, I do think those things have some utility, but for the example of Will, as just a non-traumatic shoulder pain, my go to would be to look at the prone cuff that you've got some videos of.

Steven Bruce
Okay, we'll look at those in a moment perhaps. I've got a couple of questions here that I ought to ask. Pip has asked about adhesive capsulitis. Now, I can remember talking to Simeon, particularly about this, and he says that it's a it's a posh word for frozen shoulder, but there's actually no evidence that there are any adhesions. What's your view on that? It's not her question, that's my question.

Jo Gibson
No, no, I completely agree with Simeon. And the fact is, there's been a big shift away from the term adhesive capsulitis. Because like impingement, it doesn't reflect the pathology, what we now know is with frozen shoulder it's like a two-stage process and you get this contraction in the superior part of the joint, the rotator interval, coracoacromial ligament, coracohumeral ligament, and then you get this second reactive fibrosis around the rest of the joint. And that's where you get an increase in myfibroblasts and fibroblasts, so essentially contracture and then a fibrotic capsule. Now, the problem is, if you want to do any research about frozen shoulder, you kind of still have to use the term adhesive capsulitis, because there's still a lot of researchers using it. But we don't see this adhering, it's just actually a fibrotic reaction.

Steven Bruce
Pip, I'm gonna get your question in a second, so please bear with me, because I just wanted to follow this up. I suspect that, for the reasons we discussed earlier on, a lot of GPs will still use the expression adhesive capsulitis. And you said earlier on that you're not desperately interested in what it is that's causing the pain, if there is pain, you're looking for symptom relieving factors. When you communicate with GPs or with orthopedic consultants, what sort of language do you use? Do you use subacromial pain syndrome or, what do you use to describe your findings?

Jo Gibson
So, this is really interesting because one of our very young keen band sixes the other day said, Well, why are we calling it rotator cuff related shoulder pain? And I said, Look, you can call it whatever you want, as long as it has a positive association for the patient. The reason we call it that in the hospital is purely to dictate a pathway of care. So, everybody's clear with what the expectation is, but you know, my very politician's answer is the first thing I ask a patient is what they've been told about their shoulder. And then what does that mean to them? So, if they say they've been told its impingement and that means they need to get their muscles stronger, then why would I challenge that, particularly if they really like their GP and trust them. If, however, they say, well, I've been told I've got impingement and a cuff tear and I probably need surgery, then that's where my symptom modification can be a very powerful way of them challenging that belief system, because all the education with words in the world is not as effective as changing how it feels for somebody to move. But I'm very lucky, we work very closely with a specialist GPs, my surgeons all use improvement tests. So essentially, we just keep our letters really simple. Essentially, we say, look, this patient

presents with subacromial pain, which is generally pretty good for the GPs, because cuff related shoulder pain, they haven't got a clue what we're talking about. And so, we say essentially, we're able to change their pain with modification, they're a good candidate for rehab. And we don't get a lot more complicated than that. Because all they want to know is that patient's in the right place and we can help them. If we can't help them and there's something else that needs investigating, well, then we do that anyway.

Steven Bruce
Yeah, the reason I asked the question is that I think that many osteopaths, and I count myself in that category, we want to make sure that we're taken seriously when we write letters to the conventional world, the GP or the orthopods. You possibly don't have that because they will take you seriously, a) because of your reputation, but also because you're a physio, you're in the system, whereas we're not. And therefore, I wonder if we didn't specify exactly what we thought the problem was in terms that they recognize, whether they would think we were incompetent in our job, but it's an interesting point. Pip's question actually was not about that at all. Pip was asking, now we know about Parkinson's, thyroid and diabetes, are there any other conditions that should be investigated, where you have other rheumatological conditions where you've got problems associated with shoulder?

Jo Gibson
In terms of the stiff shoulder specifically?

Steven Bruce
Well, because I was trying to look at you and not her question, I misread that. Is there anything- I'm sorry, Pip, I'm doing my best here. I'm all excited because Christmas is coming. Is there anything else that we should be looking at or considering and how often do you have cases where there is an accompanying rheumatological condition?

Jo Gibson
Oh, now, that is a really good question. There's a great guy called Jack Marsh actually that talks a lot about rheumatology and stuff. To me, the most common thing I tend to see is polymyalgia rheumatica. When I see older patients that basically wake up with horrible bilateral pain, it's horribly stiff for quite a prolonged period in the morning, they often have pelvic girdle stiffness as well. If you're unlucky, they get the giant cell arteritis with it as well, where they get horrible headaches and they can get visual things as well. But they're pretty few and far between and they're generally picked up by the GP. But the absolute key thing is they present with bilateral pain. So, I think in terms of things we talked about, in terms of malignancy, in terms of visceral referral, anything rheumatological is just that very typical pattern in terms of morning stiffness, that it's bilateral, that it's, you know, depending on which joints and whether there's any associated skin features as well. But if I'm really honest, despite the fact I work in an orthopedic shoulder clinic, but I'm also the lead for the primary care clinic, whether our GPs, I think our GPs are very good at screening it out if I'm honest, but the thing we see most tends to be things like fibromyalgia, rather than some of our very systemic rheumatological conditions. So, but polymyalgia is probably the other one that I would definitely be kind of vigilant for.

Steven Bruce
I suspect we're now going to get questions about what you do about fibromyalgia because it's one of those conditions that many people dread in their patients, but let's stick to the shoulder while we can. Jess has asked if you can enlighten us more about links with the menopause and frozen shoulder.

Jo Gibson
Oh, again, you guys are really on it. So, menopause is definitely a bit of an issue, but more perimenopausal. So essentially, when you're going through that horrible period where hormones go up and down, not well controlled, debating whether to have HRT or not,1) your risk of developing a frozen shoulder is much higher, if you have shoulder pain and particularly have neck driven shoulder pain, your risk of developing a frozen shoulder is really high. And if you're perimenopausal and you're going to have surgery or you fall over and hurt your shoulder you're going to get post op or post traumatic stiffness. So yeah, hormones are a little bit of a stepper I'm afraid.

Steven Bruce
Yeah, as they so often seem to be. Women do suffer in that regard, don't they? Not least because of the conditions but also because a lot of it goes undiagnosed by people because they just assume it's a female thing

Jo Gibson
Sorry to pick that up, but that you're so right. And I think actually, when you look at the evidence, it's not just that cellular level hormonal influence, it's also all the psychosocial factors which go with feeling like you're going slightly mad, that your cognitive function's off, all these things are happening to you and nobody's giving you an explanation, those are as relevant in terms of those consequences as the kind of level of biology. So no, it's a really good point.

Steven Bruce
Let's go back to the video you mentioned earlier on, what is it going to see in this?

Jo Gibson
It's a test, I'd have a look at his cervical spine and see if I thought that was relevant. Interfering with cervical spine range of movement clearly isn't enough, I'd palpate it just gently just to see, if I do all those things and nothing, then I'm happy to clear it sitting but then I lie them in prone because remember, we talked about the posterior cuff should be working more to elevation and that's one part of my improvement test. But the other thing we know about the rotator cuff is it has this initial get ready for action, then we have this through range direction specific recruitment, but the other role is this rotational torque. Now guys, don't worry about it, just basically get it doing its job and make sure it can support the weight of the limb. So, this next test that you're going to see in the video is just so useful, because 1) it's a great way of validating the patient's pain because they feel a side-to-side difference, but it's also a great objective test. So, you can

actually measure the, if you like, how effective your exercise prescription has been, but also see whether it is truly a strength deficit or that system just needs waking up a bit.

Steven Bruce
Just remind me what this video is called. So that poor old Justin in the production booth can find it.

Jo Gibson
Video with the isolated, prone posterior cuff. I think that's what I called it.

Steven Bruce
Let's see, if he's managed to pick that one up.

Jo Gibson (in video)
So, let's have a look at this isolated rotator cuff testing. You'll remember in the lecture, we talked about looking at the patient's passive rotation range and then comparing that to their ability to do the movement actively. Now there's a couple of key things with this, 1) I want to have the elbow in line with the shoulder, 2) when I look at the rotational range, I want to be just clear of the plinth and then when I do my rotation passively, I only want to look at pure glenohumeral rotation. Okay, you can see that if I keep pushing and go too far, I start to lift the scapular backwards. So, I just want that nice, pure passive glenohumeral rotation. Now you can see in this instance, if I passively rotate, I can get his wrist level with the plinth. So that's a really nice eyeball for me to use as a marker. So, then I'm going to ask Jack to take the weight of his arm in that same position, maintain his elbow level with his shoulder and now lift his hand up through range. Okay, now, you can see Jack's doing a couple of things to cheat. When he started to rotate, his elbow dropped towards me, but then he was also extending and ulnar deviating his wrist. So I'll give him an opportunity to try and do that without the cheat. So, I want to keep your elbow level and lift up to that same position, off we go. And again, you can see that he can't do that. Now, I would test this on his unaffected side first, and then compare it to his affected side. That is a very common cheat and tends to reflect that latissimus dorsi is overworking. Now, lots of people have looked at how to make inter tester reliability as good as possible with this particular test and the reality is the things that are useful for you to look at is whether the elbow stays level, yes, no. If it pulls down or it pulls up or the patient extends their wrist, that's a fail. So that's they can't do it. You can give them one opportunity to repeat it without doing that compensatory strategy but then essentially, if they can't then do it again, that's a fail, so don't keep testing it. What this reflects generally is, if they pull down, their lat dorsi is overworking, if they pull into extension, it's their posterior deltoid, and when you see this wrist extension/ulnar deviation pattern, combined with the elbow dropping, then often it's an indication that pecs and lats are overworking. But don't overanalyze it. The bottom line is, can they do it? Yes, no. Now Jack clearly can't do it without cheating, despite the fact that I've corrected him. So, what I'm going to do is support the weight of the arm and I'm going to ask him to repeat that again. So now I've taken away the load of the upper limb, made it much easier for the rotator cuff to do its job and so now it becomes much more about the rotator cuff and the scapular muscles doing their stability role. So, let's have a look and see how Jack copes with this now. So again, I want to look at his active movement. Now you can see that he gets to the same level much more easily. Come back down. So, what does that tell me?

Well, it tells me the cuff can't cope with the weight of the arm. It doesn't tell me whether it's inhibited or weak, but it does tell me it can't cope. Now you'll remember I said that this assessment comes from Karen Ginn's lovely research. Now she would actually look at how many of these the patient can do to fatigue. And that's a very nice, objective marker. So again, I found where he can cope but how many can he do? She would suggest that we need to be able to do 20 of these with the arm unsupported for normal shoulder function. But you can see that it's very easy to make this into an exercise for our patients. We're going to look later in the course actually how easy it is to change this using the principles of our improvement tests. But I want you to have a practice of doing this with your patients. Can they do it? Yes, no.

Steven Bruce
Jo, one of the miracles of zoom is the fact that, although I watched that video, I have absolutely no recollection of what you're doing there. Questions will probably come in, is anything you'd like to say?

Jo Gibson
Yeah, well, I think I'm going to film that again, because again, I said at the outset of this, the shoulder's really simple. You know, for me, all I'm looking at is the passive rotation range and can they support the weight of the arm whilst they actively rotate through the same range. Now, bottom line is anybody who comes to you with a shoulder problem, there will be a side-to-side difference and generally, they won't be able to do it with the arm and support it. The only exceptions to that are perhaps your elite athletes, people who are paid to exercise or somebody where the shoulder isn't the primary problem. So, I mentioned about Karen Ginn talks about doing repetitions to fatigue, to be honest, for me, I just want them on their unaffected side to have joint active equals joint passive and if they can I'll just do a little bit of resistance, I might use a handheld dynamometer to get numbers if I think they're somebody who kind of needs that target. But fundamentally, the patient feels the difference. Now, again, it's just a nice objective test. But what I said in this video as well, it doesn't tell me it's truly weak or it just needs a bit of a wake up. So, if you think of the exercise I did with Will before, if I had time in a session, I'd just get him to do a couple of sets of that exercise and then I'd line down and retest it. If it's dramatically better, straight away, brilliant, he doesn't need to do supported cuff work, he can go straight into unsupported. If it's no better, then I'll send him away. Now I would never do the exercise in prone, because it's the least proprioceptive position, the hardest place to get it doing its job. So, I just get him as near abduction as he can do pain wise because I want it to be pain free, supported on a ball or kneeling next to a table, and then literally just doing supported cuff. Now for me, what I want to do is progress that up to 5% of body weight, because that's generally around the weight of the arm. And some patients will do it really quickly because it is just a recruitment issue, some patients need to truly strengthen. But if they can do that with 5% of their body weight, you're confident that they can do whatever else you then want to progress on to.

Steven Bruce
When you say with 5% of your body weight, how are you judging that?

Jo Gibson
Well, they tell me how much they weigh.

Steven Bruce
But in terms of the force going through the joint.

Jo Gibson
So, they start when they can do either three sets of eight or 20 to 25. And what I say to them is, look when you can do that and it feels easy and you're not fatiguing, you can add in half a kilo or a half full bottle of water and then I want you to progress half a kilos increments up to. Now Karen's research, she just did it up to two kilos but you know, I treat quite a lot of front row props in rugby and guys who are you know, getting paid to exercise. So, I want to be absolutely confident the cuff is doing its job with the weight of their arm because I think for some of them two kilograms isn't enough.

Steven Bruce
Yeah. Can I turn to some of the questions that have come in?

Jo Gibson
I'm going to get a sip of water. Sorry.

Steven Bruce
This might have been covered earlier on but Paul's asked at what stage of a frozen shoulder you should consider injections. Is it the first moment you think there might be a frozen shoulder?

Jo Gibson
If you have somebody that you're suspecting a frozen shoulder, I think we have to be honest, if you meet somebody really early in that process, we have to be honest, if they haven't got that full external rotation loss, then you can just absolutely try and treat them a couple of times and obviously, we can talk about the things that are likely to give you best value. But to be honest, I have a very low threshold, if somebody's got that progressive loss of external rotation and the night disturbance and all the features are fitting, to get an injection, because increasingly, what we're seeing is an injection shortens the painful phase and has the potential to shorten the overall recovery if it's done early enough.

Steven Bruce
Okay. Interestingly, Jan, quite a long time ago actually, Jan sent in an observation saying that, she's often found that people have problems with abduction, AB duction and internal rather than external rotation, which emphasizes not my experience, but your own.

Jo Gibson
So, in terms of, a lot of patients will have problems in abduction in certain painful arcs and stuff. But again, you can just apply those exact same improvements tests in that position. But in terms of internal rotation, hand behind back is it functional movement, anybody who's got cuff or long head of biceps won't like, but generally, that's another movement that's easier to change. In terms of subscap, so if we're talking about

internal rotation weakness, the only group that's well supported in the literature are patients with anterior instability and some endurance swimmers. Everybody else the posterior cuff has been the very consistent theme,

Steven Bruce
We've actually got a case here for you to solve for Phil. He has a 67-year-old patient who has no pain with the arm in neutral or on putting his arm behind his back with no elbow flexion. But pain immediately on flexing the elbow, with no additional load on the arm or the hand. Weight bearing on a flexed elbow gives pain. Any thoughts on that?

Jo Gibson
I'm trying to work out what it is that he's saying. So essentially saying, if he does this he's fine, but he does this he's not fine. So that's just gonna be winding up the underside of the cuff, I suspect. If it's very movement related and very mechanical and loading, he's probably got a degenerative cuff that's just not very happy.

Steven Bruce
How well is that going to respond to rehabilitation?

Jo Gibson
So, people with degenerative cuff pathology do really well, they just take longer, so they take six months rather than three months. And you sometimes just have to be a little bit more specific in terms of the tendon, I'll make sure when I send you the links, there's a great eccentric posterior cuff exercise that can be really useful in people that are slow to recover. But then the other thing with somebody like this is just he's somebody that it's definitely worth looking at those strength tests that we talked about, because people with degenerative cuff pathology, if you target the healthy bits of the cuff then it makes life easier for the bit that's suffering if you like. So, it's one group where sometimes do more specific strength work can be very, very useful.

Steven Bruce
Ian has said, do you have a video demonstrating the rehab exercises? Can we come on site in a second?

Jo Gibson
I don't think we've got it here tonight in terms of I mean, the exercise I showed you with Will doing the three range with the Theraband is a version of a foundation exercise. But I mean, I've got lots of different ones, depending on what the patient's problem is, and that supported one. So in terms of the basic exercises, then yes, I absolutely have videos, and I'm very happy to share those with Steven to share with you. That's not a problem at all.

Steven Bruce

That's kind, thank you. Well, I was gonna I was gonna say, Jo, there's absolutely no way you will have shared your expert knowledge of the shoulder in a mere 90-minute show like this. So, do you do, are you running online courses for people as well or any other form of courses?

Jo Gibson
Yeah, so I have this, kind of two things really, certainly my face-to-face courses have gone live online recently, I do those with a few companies. But I actually have an online course with Clinical Edge, which is an Australian based company. And essentially that's basically so you can work through it. I know what I like I come away from a two-day course feeling all enthused and then I go through my notes and go holy moly, all these bits that I can't remember or I missed. So, when I was asked to do it, it was just a really nice way of making it, you basically can have the content, I think for the minimum of a year or you can sign up and have it for life, and then every time I update it, you get the updates. So that's my kind of proper online cours.,

Steven Bruce
Which is with Clinical Edge and I found it just by searching for you earlier on.

Jo Gibson
Yeah, if you just put Jo Gibson in Clinical Edge. But the other thing I would say is, you know that I've done so much free content. So essentially, if you go to Clinical Edge with Joe Gibson, there's loads of free podcasts on there that talk through all the things, I've done lots of free webinars, so you can access a load of free content without signing up.

Steven Bruce
Mike has asked going back to specifics, we'll remind people about that at the end of the show, but Mike has asked whether you consider pain on resisted abduction in the nought to five-degree range, whether that's a good indicator of supraspinatus tears? He says he's found that useful.

Jo Gibson
So again, I think it's, again, we all have those kinds of little features that when that's the game changer and that proves our hypothesis, but what I would say to you is in isolation as a test, that only has any relevance once I've got a subjective history. I'm sorry, I kind of feel like I'm being a bit of a record but honestly, the subjective history is 80% of the story. So, if I have somebody that I'm suspecting some supraspinatus tear, and I am able to reproduce pain and weakness, and not change it with those things I talked about, then I'm going to be much more confident. So, what I would say to you is, if that test is positive, with a relevant history, then fantastic, but it's not something that's described in the literature or got any kind of research to back it up. But I will have played with it this week. Thanks very much. And let you know next time,

Steven Bruce
Everybody we speak to about shoulders, and this will come as no surprise to anybody, says, if you look at people above the age of 50, a huge proportion are going to have tears, many of them full thickness tears with no symptoms whatsoever. So, based on what you've been telling us here, actually, it's far more

worthwhile to try and find a rehab route, even if there is a diagnosed tear, rather than send them off for some sort of surgery, isn't it?

Jo Gibson
So absolutely. And again, I want to say we should feel really empowered, if you've got somebody with no history of trauma, who's got a tear, the evidence is really clear: we're still successful in up to 80% of partial thickness tears and 75% of people with full thickness tears, the common issue is we just don't treat them for long enough. Because again, as I say, they tend to take up to six months to get their optimal outcome, not the three months first time shoulder pain without a tear. So, it's about educating the patient is going to take time, I always say, under promise and over deliver, if they're better quickly, they're going to be really happy. And they'll see improvements. But just in terms of affecting the local system, as well as educating the patient, the evidence is clear, it takes that long. But the other thing I would say to you is if you have a patient who's been told they have a tear and they've not got that history of trauma or they're just that older age group. The evidence is also clear, if they do end up having surgery, if they've had six months of rehab first, they actually do better with surgery. So, we're in the driving seat, whichever way we look at it.

Steven Bruce
Ian has asked about, he says a number of personal trainers, or so many personal trainers, he says, train the lower traps to resolve shoulder problems. Is that effective?

Jo Gibson
No.

Steven Bruce
Have you come across that?

Jo Gibson
Yeah, absolutely. He's absolutely spot on. One of the biggest problems I have with guys who do big weights at the gym is this kind of obsession with fixing the scapular down and holding them there when we do anything. And often they overcorrect, particularly on a background of shoulder pain. So, they think they're working their lower traps, it's not the most effective place to do it but it also kind of locks down the shoulder. So, if you like, you're almost putting more eccentric load through it when you try and load it up. So, no. But generally, again, I find with those sorts of people, it's much more powerful to educate them by them feeling the difference. And I just usually do an *audio problems* lift up through their chest a bit more. So, the shoulders actually in a much better position. And then they see how much stronger they are. They always kind of look at me as if what have you done there? But then that's a great way to then have the conversation that actually there's a better way to set yourself up for what you're doing. You're absolutely right. They do do it and they have a massive belief in it, but it's not affecting what they think.

Steven Bruce
Jamie has asked whether surfers and swimmers would be more likely to have dominant lats and pecs activation, and how would you rehab the cuff without the lats or the pecs firing?

Jo Gibson
So, if you look at everybody with shoulder pain, and certainly patients who had symptoms a long time or really horrible, painful shoulders, lats and pets work harder in all those different populations, because it's a compensation strategy when the cuff and the scapular muscles aren't doing their job quite so well. But you're absolutely right. Anybody who does anything resisted or loading repeatedly, that imbalance can get greater, I use exactly the same principle. So, the great thing is with that through range stuff because particularly when you use the kinetic chain, so if you like if you did a step up like that, or even if you didn't push away from the wall, if you really exaggerate the glutes, what we know from EMG research is that down regulates lats. So, it's a really nice way overriding that compensation and reducing lats and pecs whilst you get that foundation. But you can see that's why doing the supported cuff also has great value. Unsupported, you've got lats and deltoid stabilizing. As soon as you support the arm, it's all about the cuff and the scapula. So, then you can progressively load up so that basically, once you're confident the cuff can do the job with 5% of body weight, then they'll be able to do those things without that dominance because you've kind of filled in the gaps in terms of the ingredients.

Steven Bruce
Do you modify any of this in any way for the geriatric population? Or do you look for different things?

Jo Gibson
Well, if you like my kind of clinical reasoning framework, once I've heard their story, is firstly, is it a shoulder? So, if there's things that suggest it's the neck then that might make me look into that in a bit more detail. But it's not, if I'm confident it's a shoulder, the thought process I go through is, is it torn? I.e. have they had a history of trauma that is significant enough, I might think about a surgical opinion. If it's not torn, is it stiff? Obviously, in somebody who's older, I want to be sure haven't got an underlying arthritic issue or is it frozen shoulder? If it's not torn, it's not stiff, is it irritable? And that's really our acute shoulder pains, our reactive tendons, our calcific tendinitis, our developing frozen shoulder. But even if it's irritable, well, my next thing is, can I change it? So, does my symptom modification have a role? And having done that, is it strong enough to do what the patient needs to do? So, five really simple questions. I think what's important about our older population, and I think probably certainly I was guilty of years ago, is actually I probably didn't challenge them enough. And I probably didn't see what an opportunity I had for improving, really, their quality of life. Because if you look at lower quadrant strength and handgrip, they have a massive correlation with all cause mortality and utilization of health care in later life. So, I actually am even more dogged about strengthening the lower quadrant in terms of sit to stand and building that in with my shoulder exercises. So, I use exactly the same principles, it's just a question of adapting it to whatever their functional level is, and then getting them stronger. But somebody who's come to me after a fall, who's got a fracture or cuff tear, who's in their 70s, part of their rehab is going to be getting on and off the floor, and making sure that they can be independent and their leg strength is sufficient enough to get in and out of a

chair without putting more load on their shoulder. Because 1) that's how I keep their shoulder healthier in the long term, but 2) it has all those knock-on benefits as well.

Steven Bruce
Jason's asked whether most of the problems you see a rotator cuff or do you see a lot of labral tears?

Jo Gibson
So no, absolutely. So, we're especially a center for instability so we see a lot of atraumatic instability as well as labral tear. And what I would say about instability, you can use exactly the same principles in terms of the foundation and making sure the cuff's doing its job. The biggest difference with your patients with instability, remember anterior instability, you might want to target subscap more, but also, we have much greater evidence in terms of proprioceptive deficit. So, both that preparatory activation which does brilliantly with any sort of closed chain exercise, but also that reactive stabilization, so your plyometrics, your drop and catch. So, there's two elements of it, proprioception is a bit over generalized term, but if you look at neuromuscular control, and that sensory motor system, as I say, that kind of closed chain and reactive work can be very, very useful. There's a great program called the Derby instability program, that you can find on YouTube. Very simple program, two different sets of exercises that patients work through. And I use a lot of those different exercises in conjunction with what I've shared with you already.

Steven Bruce
Jo, you've got two other videos, would you like to show those? I'm conscious that we're running out of time.

Jo Gibson
No, I don't think they're going toad, because really all they do, the second one just shows you exactly the same test with subscap, looking at internal rotation, and the last one was the exercise, but I'll send those. They're literally just somebody next to a ball, next to a table.

Steven Bruce
If you're happy, we'll post them with the recording of this so that people can just look at them. I had this message ages ago from one of my team, they're saying that lots of people are really loving this session. So, they're getting a hell of a lot out of it. And so, thank you very much for that. Jess has asked what your thoughts are on platelet rich plasma injections, PRP?

Jo Gibson
Oh, I had a lovely conversation with one of my consultants the other day about this, he's got shares in a company that's doing it. If we're really honest, there is very little evidence whatsoever for PRP in the shoulder. They've done all sorts of different things trying to show its use in rotator cuff tears, particularly. I think in young patients with partial thickness tears it kind of 50% of the time it may have some additional benefit in promoting healing. Orthopedic surgeons would argue it massively depends how you prepare the PRP. I think you can't mess, we haven't found a way of messing with biology yet. There's all sorts of very clever scientists looking at different meshes and biological patches that you can put in when you do surgery

to see if it will heal. But what I would say is, again, we have to just consider those contextual effects. So, you know, again, I remember having two goalkeepers, exactly the same problem. One was a little bit older, worried about this youngster taking his team place, had PRP, and it was the miracle cure. The other guy didn't have it, got better in exactly the same period of time. And I think, I just don't think we have a sound evidence base that it makes a true difference at a cellular level, if I'm honest. But in sport, everybody's doing it. So, hey.

Steven Bruce
Yeah, and what you hear about, of course, are the miracle cures, so everybody thinks that they work, I suppose. Sylvia's asked if you could repeat the name of that YouTube program that you mentioned? Bear in mind, Sylvia, that this is recorded and it will go up on the website. So, anything you do miss, you can come back to. But Jo?

Jo Gibson
It's just the Derby instability program, literally if you go to YouTube and type that in. It has all the videos of all the exercises. And when I send the papers to Steven, I'll send you the summary document that just has it in a nice table as well. So, it's a nice reference to have with the videos.

Steven Bruce
Super, thank you. This is a bit embarrassing for me as an osteopath, but it's very, very true. Tisha says, this is an incredibly informative presentation, but it highlights, for her certainly, and for me, the lack of education about rehab training for osteopaths in our basic courses. And it makes so much sense, we're empowering the patients who come to us for help. And I think that you've talked about such a lot of things that, you know, it's not just about exercise for the shoulder. And of course, when I went through training, we were all schooled to think that all physios do is get a little sheet of exercises out of the box and give it to their patients. But what you're doing is so functional, and so related to exactly what the patient needs to achieve. Phil McDowell says the arm remains vertical. Phil's going back to that patient that we talked about earlier on, the 67-year-old.

Jo Gibson
Oh, yeah, yeah.

Steven Bruce
He says the arm remains vertical on flexing the elbow, i.e. like the motion of tucking the shirt into the back of the pants. But that does involve quite a lot of internal rotation to do that, doesn't it?

Jo Gibson
Yeah. So, what I would say to you is, obviously, it's a bit artificial, because I don't know the whole story, I don't know where his pain is, I don't know, you know, I'm getting one movement. And so, I would want to know about the rest of the story, I'd want to know where his pain is, I'd want to know about night, I'd want to know about his lifestyle, all those other things because those all inform my decision. But the other thing

is, I would again, look at that isolated cuff because clearly, he's moving into extension. So, his subscap could be a little bit weak and not doing its job properly. That could be contributpry, it could just be mechanically the position and the stress. Again, somebody with an older shoulder, particularly if he's got a degenerative tear, often long head of biceps can get a little bit unhappy. But again, I don't know if his pains anterior, anterior lateral, whatever. So, all those things are really pivotal in me being able to answer the question, I'm very happy to kind of have a look at it in more detail and, and help more, but I kind of need that detail to be able to make a reasoned decision. But that's where the objective can be so useful in just, if you like, searching out where the key deficit is and giving you somewhere to start. But with a guy like that, what you can do is you can just do that exercise I did with Will, we did that based on his improvement test but we have some really lovely EMG research that says that is good value in anybody with shoulder pain, it doesn't hurt, just to get the cuff and scapular doing their job. So, in somebody who's got a difficult movement to reproduce, just do a couple of sets of that, and then go back and reassess the movement and see if it's better. And you'll be amazed how many times it actually makes a difference. Won't necessarily cure it the first time, you need to repeat it a bit, but it will improve it. But I would definitely just search out his cuff with that prone assessment as well, that may well help just target what's going to give you best value.

Steven Bruce
Yeah, we've had some criticism.

Jo Gibson
Uh-oh!

Steven Bruce
Jason says there's a waiting list for your online course. Have you got any idea how long the waiting list is?

Jo Gibson
Oh, well, this is the advantage of being on here. Because if you are interested, I can actually, I will sort out with David that you can actually sneak onto it outside the enrollment times if you have the way in. And I remember Steven asking me, could there be any benefits for the members of the Academy? I can certainly sort that out. It's really because the launch dates represent when we've done a load of new content. And that's why we tend to relaunch it every six to 12 months. But if you don't have to, what they'll do is they'll send you all the information if you decide it's not for you, it won't be a problem. You won't get harangued with emails, but they will send you all the information that you need. So, I'll make sure Steven has that to include in the resources he sends to you afterwards.

Steven Bruce
Oh, that's brilliant. Thank you. Victoria says how can she book in with you to fix her shoulder?

Jo Gibson
You can't until the middle of January because I'm having some holiday.

Steven Bruce
Which is actually probably sort of a reasonable place to stop this evening's discussion. We're almost right up against the clock. Jo, you're incredibly generous with your time and your information. And I remember how much fun it was talking to you in the studio last time and it's been almost as much fun doing this online, never quite the same through Zoom, and I hope it's been alright for you.

Jo Gibson
Oh, it's been great. Obviously, I was sad not to come back and see you again, and not stay in that lovely B&B that you put me up in last time, which was rather lovely, and the meal in the pub afterwards. So clearly, I'm missing out.

Steven Bruce
Don't tell them we go to the pub afterwards!

Jo Gibson
But I think for me, just any opportunity to just, I know when I started my career, I hated treating the shoulder. So, it's slightly ironic that I've ended up specializing in it. But honestly, the reason I teach is to just make people feel confident. We've massively over complicated it over the years. Some very simple things give you really good value but you just need to know what you're dealing with and what matters to the patient.

Steven Bruce
It's exactly like that psychological thing you talked about with patients, isn't it? We're all told at college, this is a difficult joint to treat. So, we all come out thinking I don't want to treat those things. Jo, it's been brilliant. Thank you so much. And I hope you have a lovely break over Christmas. And I seriously hope we get to see you again at some point as well.

Jo Gibson
Thank you. So just thanks so much for the invite and to everybody who's watched and given up their time to listen to me geeking about the shoulder and but just have a fantastic Christmas and it's been a real pleasure to be here.

Steven Bruce
Brilliant. Thank you.