Academy

Transcript

Understanding Pain With Tim Beames

APM: We are in a new venue this evening. We're in London and we are in a very good studio but it does come with a certain amount of local color. That is to say we're very close to a railway line. So if you hear a gentle rumble from time to time, and right on cue, I managed to get one, that's just the nearby trains. We're hoping that that won't interfere with the delivery. If it does then maybe next time we'll pick a different venue but for this evening, we're just going to run with that. However, let's move on to the meet of the evening. We have in the studio with us today Tim Beames. Tim, welcome.

TB:

- APM: Tim is a charted physiotherapist with a long history of interest in pain itself and its management and its mechanisms. He runs his own company called Pain and Performance and he also lectures worldwide for the Neuro Orthopedic Institute or NOI as I believe he prefers to call it. Tim, do you want to tell us a bit about NOI, first of all?
- TB: Yes. So NOI is really the baby of David Butler who, from a physio point of view, we would see as, I suppose, a rock star but David's been interested in pain for a very long time.
- APM: He's a physio himself?

Hi.

TB: He's a physio himself, yeah but more so now, he's interested in education. So I suppose he'd call himself an educationalist now but was interested in, at the time, nerves and nerves and movement of the nerves and things evolved from that point to recognize that that wasn't sufficient or it wasn't enough to just be interested in one tissue and that perhaps he needed to look a little bit further. So David developed some courses. The first one was the Mobilization of the Nervous System and has run them, I believe, since the early '90s. More recently, I suppose the most famous course is Explain Pain which was named after the book and also, the Graded Motor Imagery as well which is...we can describe a little bit later but

APM:	Which is a book you co-authored with Lorimer Moseley?
TB:	That's it, yes. So the NOI isessentially, it's an educational group. Part of the money that comes from the courses gets put straight back into research as well. So there is some research ongoing on explaining pain, graded motor imagery and I believe in some educational components of pain as well.
APM:	So how does what NOI does differ from what you're doing in Pain and Performance?
TB:	NOI is much bigger. In terms of the courses, they're curriculum led. So obviously, there will be differences in terms of the instructors and the interest and the knowledge basis of each of the instructors but if someone goes to an Explain Pain course in Australia, it should be fairly similar to someone visiting in the UK.
APM:	But these are all post grad courses, are they? They're not being —
TB:	All post grad courses, yeah.
APM: TB:	Not some secrets you're keeping from us osteopaths. Not at all, no. We have a number of osteopaths coming along to our courses. I think, to be honest, without trying to get on your good side, osteopaths are very open to exploring CPD in a number of different areas. So yeah, they're a good bunch to have along on the course.
APM:	I'm glad to hear it but getting back to Pain and Performance, how is it that what you do differs?
TB:	Pain and Performance, I have, I suppose, 2 or 3 different arms within that. So one is an educational part. So I can deliver bespoke courses. The bespoke courses that

I've delivered recently have been one on complex regional pain syndrome. Another that I've called the pain picture which just is my take on pain but another view of it and just taking on board different models as well. I also see patients. So there's a clinical arm to it. Most of my patients have CRPS, complex regional pain syndrome. Not all of them, thankfully but many of them do and that may be because of the graded motor imagery handbook and then another arm of it is really involved in sports. So occasionally, I and a couple of others go into different teams, organizations. We've done some screening with various sports teams and some education with sports teams. And so that's the performance side of things, I suppose.

APM: We'll come back to that perhaps a little bit later on when we get to specifics of what you're doing for and about pain. Do you want to take us through a bit of revision and talk us through the conventional mechanisms as we understand them

of pain production?

- TB: Pain production. You're more —
- APM: Or perception, I should —
- TB: Yes, you were more careful earlier. Pain is an interesting experience, isn't it? Because everybody has experienced pain and in that sense, they're their own experts. When you start to look at pain in research then people explore it using a number of different models and depending on the model that you use, you'll refer to different elements or aspects of pain, one of them being a mechanistic model of pain. So many of the viewers I'm sure would have heard of nociception or nociceptive pain or neuropathic pain, central sensitization and these are essentially mechanistic understanding of pain partly driven by research. So the research would suggest that if we can find the biological substrate for why someone is experiencing his pain because of changes in, for instance, the nociceptive system then theoretically, we'd be able to also find a drug or some form of alternative therapy, manual therapy, for instance, to target that change in the mechanism. So broadly speaking, the model...the mechanistic model of pain would use that sort of categorization of looking at a sign and symptom that you're more likely to find within a nociceptive pain experience versus one that you suspect is more likely to be neuropathic. In other words, have a larger involvement of the nervous system. There are, obviously, a number of other ways that you could explore pain, different models that you could explore pain as well. So I suppose it's fair to say in the next 5, 10, 15 years, things are going to evolve, things are going to be different and it's about... the difficulty. I would suggest is finding how we relate the first-person experience of being in pain and understanding what's necessary or what's useful to explore from a third-person perspective. So for us, looking into that person or putting ourselves in their shoes, including some of, perhaps, the physical test that we might utilize to be able to understand that experience and to see whether by utilizing those examination techniques or by utilizing and understanding of the language that they use to explain their experience.
- APM: You're not, I presume, saying that those mechanistic models are now irrelevant. Can we still understand pain in a simplistic...large fiber, small fibers, dorsal horn, ascending pathways, descending pathways but on top of that, we have other models which will also affect pain perception and management.
- TB: Could you still use those models? Absolutely and some of the research, specifically about the biological substrates, for instance, of the nociceptive system is fantastic but it is literally about understanding the biology better. I think there will come a time, I'm not sure we're quite there yet, where it would be not irrelevant but I think we're starting to supersede the mechanistic understanding of pain. So essentially, we're seeing sufficient evidence in our patients but also in research where using that mechanistic approach is not always enough to

understand the pain experience.

- APM: So what do the...these new models are constantly evolving, I'm sure. What do they add? What have they added over the last 5 or 10 years? What is being imposed on this?
- TB: I'm not sure. Yeah, I'm not sure that it really is even the last 5 or 10 years. It's perhaps fair enough to say that it's still evolving right now. I mean it's quite an exciting time in that respect.
- APM: Sorry, I'm going to interrupt you there because I know for a lot of people that are watching this, probably most of the people who are watching this, will have graduated quite some time ago. Does that mean that their knowledge...unless they've gone on courses such as the ones that you run, does that mean their knowledge is out of date and their treatment is therefore limited?
- TB: Possibly but it totally depends on the individual, doesn't it? You know, some of their understanding of...a broader understanding of that person in pain, as well. So it's, you know...a mechanistic understanding of pain doesn't take into consideration as such, the wider impact that pain has on that person's life and well-being, the suffering that they may experience and the impact in terms of work or family but those...I should imagine most people are aware of a biopsychosocial or a holistic model of understanding someone in pain and certainly, if you utilize that well then having some understanding of the pain mechanisms will stand you in reasonable stead.
- APM: What's your perception of the implementation of the biopsychosocial process in clinic, in reality? Because I think probably, I'd like to say all practitioners, by now, should be familiar with the idea of the biopsychosocial model but it's all very well to say that you know about it. It's a completely different thing to be able to do something about it, given that many of our practitioners are operating in a single...single practitioners, single clinicians or maybe as a group of physiotherapists, osteopaths, whatever, without the array of skills needed to address that. Are people addressing —
- TB: Are people addressing it? Are people using it? Some people may do that. I suppose to truly do that, it's quite difficult, isn't it? It's quite hard, the —
- APM: Particularly in private practice where every practitioner is going to charge a fee.
- TB: Exactly and there's an expectation placed on you by the patient as well or your client of what they expect coming to you and that expectation is still driving us, I suppose, in a biomedical approach to treating people in pain. So you can understand the biopsychosocial approach but whether you always follow it is another matter. What we generally see with people coming on our courses is they do have a reasonably good understanding, a reasonable holistic understanding of

people in pain, people in general but there is still a sort of gut feeling that I use the biopsychosocial understanding when I see someone who they deem as being chronic or having persistent pain and a biomedical approach would be sufficient for any acute situations. Obviously, I don't believe that that's the case but it's much easier, I suppose, for some people to see that distinction between the two.

- APM: So how do you approach the patient in pain?
- TB: How do I approach the person in pain? I try and create an environment where they feel comfortable sharing their story to begin with. I've developed my practice to be able to...enable me to spend time with my patients. So I actually see people for two hours as an initial assessment. I know not everybody can. There are clearly implications from a financial point of view but I try and create an environment where they feel happy to share their experiences and we find a shared language. I try and be empathetic and within that, share my understanding so that they get a feel of what I can offer them as well during the appointment. So if there are areas within their life that sounds as though they may be important determinants of why they're in pain or the suffering that they've gone through then that's an area that I'll bring up in that clinical interview.



- TB: Yes, to a degree. I mean first of all, my master's was on Pain: Science and Society. Yes, so it was drilled into me by Mick Thacker. Mick Thacker's an incredibly knowledgeable physio and I'm very proud to call him a friend and colleague. Yeah, so it was always a case of needing to look at the bigger picture, not getting stuck into the minutiae, although it was always important to be able to go into the minutiae, understand the biology, essentially underpinning a pain state but have that flexibility, be able to essentially establish a continuum of flexibility in your thinking.
- APM: What depth are you going through in this interview? I mean you're taking two hours to talk to somebody to get their story. How are you directing that conversation? What is it you're looking for?
- TB: That's a very probing question. I'd like to say I could give you a definitive answer but it's a feel when you're with the patient. If I was just giving you an example, one of the things I'm interested in is a timeframe, where someone sits in time. So if someone starts their story off with a historical account of their problem then that leads me to want to understand why it is that they're giving that, relating that historical account. If someone's telling me that in the future, they can see

themselves as being disabled, impaired in a certain way then again, that's going to lead me down my path of trying to establish why that might be.

- APM: That's the conventional catastrophizing assessment, is it?
- TB: Again, I don't know whether I would call it that. I suppose I'd like to think it was a flexible model but —
- APM: Sorry, that was a question. I wasn't accusing you of doing anything —
- TB: I'm not a psychologist so I don't necessarily follow a hard, fast model that I'm going to use with each patient. My training, I suppose, has enabled me to have a number of different models that could be used flexibly with that patient. So if someone is, you know, sort of a hardened biomedical patient, if they have a real hard belief that the damage that they've experienced or the pain that they've experienced equates to the damage then that's something that I'll be happy to sit with. Not everybody is that happy to explore deeper elements of their suffering, I suppose, certainly in initial assessment, although I'm biased in the respect that most of my patients come to me from other clinicians. So they know that there's going to be a depth that we're likely to explore.
- APM: On your case history sheet, do you have a tick off list of the areas that you need to ask questions about or do you just let the conversation flow?
- TB: I let the conversation flow, yeah. You can speak too long though. Two hours is an awfully long time. I make everybody aware that that's the amount of time we may spend. Certainly, we're not going to speak for all of that time with every single person. We all go through a thorough physical examination as well but yeah, you can spend too long and in that case, you have to be flexible.
- APM: So you've got your patient in. I don't know, let's pick an example that certainly seems to appear regularly in most clinics that I'm aware of. Someone will come to you and they'll tell you that they, in their words, slipped a disc 4 or 5 years ago and they know that because A therapist of one sort or another told them so, possibly with or without the benefit of MRIs. What's your approach them to this patient?
- TB: Again, it's difficult, isn't it? Painting a picture and saying this is going to be relevant for every single person but in general, I would like to explore what it is that makes them think that having a slipped disc equates to why they're in pain. Given that...and there can be some really hard evidence, can't there?. A slip sounds awful as it is. So, you know, we've got the language side of what slip might mean and the meaning behind...or the hidden meaning behind what that may infer but we also have evidence from...for instance, if they've had a scan to...that says that is there. That is present. So we can't deny the fact that they might have a bulged disc but that, for us and our understanding of anatomy and

the mechanistic understanding of pain, isn't necessarily sufficient for a pain experience. It can certainly contribute to it, can't it? So I suppose if I was looking in an approach for someone like that, it's questioning, to a degree, their current understanding so that you've got reason for them to say, "OK, I'm happy to take onboard an alternative explanation," and if you're then giving them an alternative explanation, that you're giving it in sufficient number of different ways and that they can truly accept that and that can supersede the previous belief that they had. I would add, before we move on, to change someone's belief there and then is incredibly difficult. It's not something that happens immediately and I would love to have the magical power of being able to change that belief but it takes time and effort.

- APM: To move on, and you've talked about doing, you know, a normal physical treatment as well but how do you incorporate the psychological stuff that you have gleaned during your first two-hour interview? How does that affect your treatment subsequently?
- TB: Well, I actually take a number of different questionnaires, as well, beforehand. Well, I generally don't analyze them until I've gone through the clinical interview but I use that as a way of understanding the bigger picture of them. So their thoughts, their feelings, their current beliefs or understanding of what they're experiencing will then impact, perhaps from the physical examination, how much we're going to do or how much credence you can give to the predictability of your physical examination. So clearly, if someone is in a high state of anxiety, that's going to change the processing of their nervous system, for instance. So the neurological examination would take account of that, although certainly, your results of the neurological examination would take account of that, yeah.
- APM: But is the psychological approach to the patient part of your ongoing treatment in some?
- TB: Yeah, it is. Yes. The course Explain Pain, in some respects, is a psychological approach. Essentially, if you're...and if I was to just say, the...I would call that just appropriate education for the patient but essentially, you're aiming to give them a better understanding of them in order for them to have a foundation to then move forward with whatever the physical treatment techniques that you may want to explore or life.
- APM: So how strong is the evidence behind getting a beneficial effect from that psychological approach? How much weight do you put on that as opposed to a physical treatment?
- TB: There is reason for...I suppose, there's two questions there, aren't there? There's reasonable evidence now. I suppose explaining pain, there's lots of different ways that people have...lots of different phrases for that but education of pain biology for your patient has a moderate level of evidence. On its own, my belief is it's not

enough and then that requires an understanding of where we go with the physical treatment. Physical treatment, on the other hand, again, there isn't an awful lot of evidence. It's fairly low level evidence or mixed evidence for a number of different physical approaches.

- APM: Is that because we're bad at getting the evidence or do you think it doesn't exist?
- TB: I think that there's a few different areas where there's maybe problems in the original question even. So are we asking the right question in research? If we're asking a question, we're asking a question with a prior belief in a particular model as well and if we're saying that the potential models are needing to be updated then it's possible that the results of the previous research needs to be reevaluated as well.
- APM: In terms of gathering that information, I mean I have to confess, my own clinic falls into this trap, it's difficult to get meaningful information back from patients for a number of reasons, isn't it? First of all, you have to devise that sensible questionnaire to ask the right questions in the first place and you need preimposed outcome treatments...sorry, questionnaires. We find that a lot of our patients, that once they're fixed, they don't come back and after that, it's hard to get the information back from them because you never quite know at which point you're discharging them. So yes, you could call them up and say, "Do you mind if I take these answers down over the phone?" but that's not the same as a questionnaire which they can fill in independently and they're not biased because you're watching them or...
- TB:

Questionnaires are a difficult one, aren't they? In the research in Explain Pain, for instance, actually looking at the immediate post intervention, the results aren't that amazing. What you generally find with people is that there is improvement 6 weeks, 3 months, 6 months afterwards. So I suppose if we're collecting information data on the questionnaires, it's also important to know the timing of when you collect the information.

- APM: So that's six months after a course of treatment which might typically be how long?
- TB: Again, that varies hugely. In an Explain Pain approach, it's being anything from a one-to-one session of three hours to a group session of six weeks with two hours a week dedicated to it. Group sessions generally run over a number of weeks and are that more intensive in that respect.
- APM: Now, in Explain Pain which is the Neuro Orthopedic Institute, NOI's approach to dealing with pain, is that...I would say entirely, that's predominantly physiotherapists following that approach or...because when you talk about a group session, that makes it sound much more as though it's a counseling session than a physical therapy session.

- TB: Are predominantly physios following that approach? No.
- APM: Sorry, I mean people using that approach, are they predominantly physios, not are all physios doing it.
- TB: No, it's a mixture of professions and in the UK, for instance, and northern Europe is the area that I predominantly teach in, we have quite a mixture of manual therapists, physical therapists, so osteos, chiros, physios but we also get a number of psychologists —
- APM: Well, that's where I was going. I mean it's not limited to physical therapists.
- TB: No, not at all and what's interesting, I suppose, from Explain Pain and the resources, so the book and...there's a recent handbook which is aimed at a sort of more practical use with your patients, is a number of patients actually access these tools before they see a clinician as well. So they come to a clinician with some prior knowledge about pain but no, I personally see it as empowering a clinician to understand more but also empowering the patient to understand more.
- APM: And what would happen in one of those group sessions?
 TB: It would generally revolve around the curriculum of education. In the NHS, the programs that I m aware of also include elements of sleep education, of return to work education, of exercise as well, appropriate exercise, so perhaps going

through some graded exposure of certain activities.

- APM: So is the group important in this process or could it be one-to-one and the group is just a cost effective way of delivering the treatment?
- TB: I work in the NHS anymore but certainly, in the most cost effective approach to treating people in pain that they would see is in a group environment. The research doesn't necessarily suggest that and I think the important distinction between doing an individual treatment is that you can individualize it. You can make it very specific for that person. When you run a group session, the group sessions that I've run in the past, you need some flexibility to be able to take onboard the...different people have different pain problems, pain experiences. They're impacted differently in their lives and their wellbeing as well and you need to have enormous skills to have that ability to be flexible within a group for those different people.
- APM: You talked earlier on about questionnaires. So do you use specific pain screening questionnaires?
- TB: Yes.

- APM: Always the same ones or does it depend on the patient and the circumstance?
- TB: It depends on the patient and again, the best people to utilize these are the psychologists. So I'm really only being relatively trained in the use of a few. For my clients, they come to see me with CRPS. I would always use a CRPS validated questionnaire and then I'll choose with them when I do an initial screening...I generally do an initial screen on the phone and determine the two others that I would choose and it may be something more about their perceived disability. It may be more to do with their thinking or their emotional state and then yes, gear that towards the individual.
- APM: Which of the specific forms do you use? I mean have they been given formal names such as the Keele STarT Back —
- TB: I don't use that. For the CRPS, I use the body perception disturbance scale. I'll use the Orebro musculoskeletal questionnaire, for instance, just to...a general, very quick as well, understanding of perceived disability. Things like the pain catastrophization scale just to understand some thinking, thought processes and depending on distinction of pain, perhaps, I'm...if they come with low back pain, perhaps radiating to their legs, I might use a painDETECT. Just have some flexibility there depending on —
- APM: It sounds to me as though you've got...now, you've got so much information. It must be hard to work out which of it to use in your clinical context.

TB:

That's true, yes, which is why I probably want two hours with these people. Yeah you can gather an enormous amount of information, can't you? You can have data coming out of your ears but what do you really do with it? I think I'm not going overboard. I think I've got sufficient to be able to work with and I say that because what happens with me and why I chose to work in that way is that I always used to get to the end of 30 minutes, 45 minutes, depending on where I was working of an initial consultation and feel like I needed to go through an awful lot more and we're short changing my patients. So, you know, to have

- someone to come back...to not only need to reassess them when they came back but, "So we haven't had the chance to go through this. Can we now go through this?" It allows me to do that in the time that I have.
- APM: With the scoring sheets that you're using and presumably, you are looking for some specific outcome from them...so you talked about catastrophizing in one of...which form did you call that?
- TB: The pain catastrophization —
- APM: Pain catastrophization that's called? From that, presumably, you're looking to see what level of emotional psychological involvement there is in the pain and there is a specific use of that form because...and the reason I ask this is because we

have kind of been forced down the route of using the Keele STarT Backs for our NHS patients or other GPs have and I'm not entirely sure that everyone agrees it's the appropriate form because it's...they're using it to triage patients, really, rather than simply say, "Well, you need specific types of care." What actually do you get from the other forms? PainDETECT, for example, what does that tell you in terms of how you're going to treat the patient?

TB: PainDETECT, essentially, has a sliding scale or score that says that someone is more likely to be experiencing neuropathic pain. If that's the case, then it allows me to understand when they present with what they thought was neuropathic pain but they score very low on that and that we can say, "Well, actually, you know, this is what this suggests," and tie in with the other physical examination information that we might get back. So going back to what we were discussing before, it may be a chance to be able to sort of give them reason to question their current understanding and be able to update it. Use of the pain catastrophization scale...now, one of the changes that's been shown in the evidence with explaining pain as a treatment is that it's effective for reducing catastrophization. There are different elements of catastrophization, as well, within that but just generally, to reducing catastrophization and with the reduction of catastrophization, we also see people being able to start to reengage in physical activity. So I would see that as an awareness, for me, first of all, to say, "This is where we may need to start before moving on to maybe more challenging activities." So yeah, a little

guidance I guess for me.

APM: And in your treatment, to what extent do you feel...I mean if it's possible to say this, where lies the balance of utility? Is it greater in exercise prescription for the patient? Is it greater in manual therapy, in soft tissue technique or joint articulation? Where do you feel you get the most benefit?

- TB: I honestly don't —
- APM: And I'm guessing you're going to go somewhere else —
- TB: I honestly don't see the type of person who responds that well to manual therapy that —
- APM: Because they've been to someone else first or —
- TB: Often because they've been to someone else, often because they have very persistent pain problems. It's not that I wouldn't use certain manual therapy techniques and I would use them often as a way of exploring and understanding and perhaps even just empowering that person that, you know, they are able to move and movement can be achieved without necessarily having a prediction of it being so painful but the techniques that I generally use, along with education, would include certain desensitization techniques, simply looking at a number of different ways of being out to essentially dampen the amplified nociceptive

system.

APM: For example?

TB· For example, certain century discrimination techniques, simply maybe just locating touch on their body or what has touched them on their body in different areas. There are techniques such as TENS, for instance, as well that you can use to that gain. However, you would be careful with those techniques not to do them, for instance, directly over the extremely allodynic area. And then techniques like graded motor imagery or techniques within graded motor imagery would essentially be geared towards sort of a reengagement of that person in their life, in their body for want of a sort of simplification. One of the things in CRPS, for instance, is that people can go in two different directions. They can really get attached and almost focus in on the affected body part at the detriment of everything else or they can do the exact opposite, almost like they neglect that bodily part and then the focus of attention would be...if they're totally focused on the arm, is to say, "Can we give them some respite? Can we go somewhere else?" I mean essentially, that would fit into sort of mindfulness strategy. A neglect of that bodily part would be saying, "How can we reengage?" And there would be, again, a number of different techniques, not just graded motor imagery that you could use to be able to do that.

So you'll tell us what graded motor imagery actually is?

APM: TB:

Graded motor imagery, it's a technique or a treatment that was devised by Lorimer Moseley It includes three different components. One is called implicit motor imagery. Implicit motor imagery, essentially, is someone's ability to be able to run movement in the head without really knowing that they're-making those decisions and one of the ways that we explore that is using a program or cards to get someone to identify whether they're looking at a picture of a left or a right bodily part and then we get data on the time that it takes for them to be able to do that, the accuracy that they can do that as well and it's thought to be a part of their...accuracy of their bodily schema, how accurate they are at being able to understand their body at a pre-reflective level. So they're not aware that they're making those decisions. That would be often followed by explicit motor imagery and explicit would be that they do know the running movements. So they're imagining movements and exploring movement mentally which, obviously, is used in a number of different areas, stroke therapy, sport, for instance, as well.

- APM: So when you say this, I'm imagining myself as a patient doing specific activities prescribed by you.
- TB: Exactly, yeah, prescribed by me to a degree. What I try and do is get that patient to understand that they can explore things themselves because you can only give them so many ideas for them to go away with and they have to have that flexibility to explore a number of other areas as well.

- APM: So if I come to you with CRPS, the point...you're going to tell me to imagine that I am doing a normal...an activity that would be normal for me. If I'm a tennis player, imagine doing a tennis serve or is it less specific than that?
- TB: It entirely depends on that person. It's simply maybe that they are totally unable to imagine the affected bodily part. So I'd love to say it was as simple as saying, "Imagine yourself serving," but it may be that you have to go back a number of different steps from that and just start to say, "Can you imagine your shoulder where it is in space, what it feels like to have air blowing over it?" and then move on to more functional things at a later stage.
- APM: I see and is this...would you say this is common for most of your CRPS patients, that this approach is effective?
- TB: No. I mean no one approach is going to be effective for every single person and many people may have explored it but many people may have explored it at the wrong time for them. It may be that they lost heart as well because it can be an incredibly grueling process. It's really demanding to be able to stick with...and sort of have the conviction that you're doing the right thing over a long period of time.
- APM: I have a patient recently who's 11 years old and has been diagnosed as having CRPS and I confess that I've seen him once. I've seen his father more often and I was quite surprised. Have you seen many young people like that, with CRPS?
- TB: The youngest person I've seen is a nine-year-old girl and that's exceptional. Otherwise, yeah, 11 to 12.
- APM: Is that quite to deal with as well? Because it's much harder to get a child to accept the condition, more presumably to go through the graded motor imagery process or would you take a different approach with someone that age?
- TB: I mean there are their own...not problems. Difficulties or I suppose, in a way, interest as well. So it's about getting on the level for that child. Actually, my experience of treating children is that they're much more flexible about exploring, for instance, the explicit motor imagery. So exploring and visualizing, imagining different scenes or activities and some of my best ideas have actually been stolen unashamedly from the children that I've treated.
- APM: That's good and you've had a fairly good success rate with young patients?
- TB: I've had a success rate. Is it always successful? It depends on what success is and how long you explore it over.
- APM: What's the NHS approach?

- TB: I don't know. I should imagine an element of saying that they do graded motor imagery, desensitization, education. I should imagine that they say they follow some similar approaches.
- APM: If we go back to looking at pain generally, are there an array of factors which you could isolate and say these are things which will influence a person's perception of pain?
- TB: Are there an array? Yes, anything and everything that goes on in that person's life that's meaningful for them I think. My very simplistic way of trying to understand people is that it's anything that goes on their internal environment and external environment, you know. Everything from what's going on in the world and now, with social media and news outlets, you know, we're aware of everything straight away, aren't we? So, you know, it's everything from that all the way down to the cellular changes —
- APM: But there are factors we can control and factors we can't, aren't there? I mean gender may have an impact on people's perception of pain. We can't do much about that, in most cases. Economics, we can't do much about that. What are the factors that we can change?
- TB: Well, if I just go back, economics aren't necessarily something that we can change but identifying that that may be a component in why that person is struggling, we certainly can do. So, you know —
 APM: By altering their perception of the problem or —
- TB: Yeah. I mean it's not that we're necessarily altering the perception for them. It's that we're saying, "Do you think that that could be a part of why you're in pain?" or, "Look what that's done to you," or, "I've heard you talk about this on a number of different occasions. Do you think that this may be a part of, you know, why things have become so bad for you?" So in that respect, I do believe that we have an ability to be able to take onboard everything in someone's life.
- APM: Are there areas which you would particularly see, though, on a case history or factors that you would see?
- TB: Whatever I hear them saying repeatedly or I see has some meaning to them would generally be what I sort of leap on.
- APM: Stress is commonly held to be a significant factor, isn't it, on one's pain perception? Is that a scenario where you feel competent yourself as a physiotherapist? Admittedly with extended training, but a physiotherapist to deal with that?

- TB: Am I equipped to deal with it to a degree to identify it? Yes, certainly. Stress is a really interesting phenomenon, isn't it? Because understanding stress biology is such an important part of understanding as our patients are...our interaction with them. Stress, as a phenomenon, for our patients is seen...it's such a derogatory thing. It's seen in such negative light, isn't it? And maybe this comes down to perhaps a dualistic understanding of pain as seeing, you know, stress as something mental, psychological, in the brain, in the head. Maybe they sort of add in infinitum and going beyond that is that, "I'm making it up. I'm crazy." The impact of stressors...I'm sure you're happy with but it's that stressors happen through a number of different means. You know, exercising hard is a stressor, isn't it? Traveling on the bus up to meet you, to a degree, was a stressor for me as well and changes my biology as a result. It's just having that appreciation that that's just a normal process but can be a part of a pain experience as well.
- APM: One of our viewers pointed out that earlier on, you said there were three parts of graded motor imagery and you only covered two.
- TB: Yeah, I did hear that. So the third part of graded motor imagery is the use of mirrors, mirror therapy. So mirror therapy is...in the sense that it's being used at the moment in graded motor imagery has been giving an illusion of seeing that bodily part that may not be there. So if I can explain it, you might have the mirror in the midline. If we're looking at the hands, it would be looking at the reflection of that hand and seeing a superimposed hand in the mirror, obviously, where perhaps your hand is or if you, for instance, had an amputation, your hand no longer is but you're giving you a sense of your body again, changing that bodily perception. Maybe more now... that's absolutely fine for hands, legs, arms but when we start thinking about, for instance, our face, neck, back, it's not a technique that we can use that readily but we could use mirror therapy by just giving someone a sense and seeing themselves within, so just the reflection of themselves. For me, graded motor imagery and our understanding of it is now changing to maybe encompass more how that person sees or feels or experiences themselves. The original research was very much about brain activity and gradually increasing certain brain activity in motor areas. So I think as knowledge, interest models of pain change, it also gets us to understand that we need to be a bit more flexible with our approaches.
- APM: How do you know you're doing this? I mean you've done some research into how the brain is responding to these techniques, I'm sure. So how do you see the effect of, say, mirror therapy on the brain?
- TB: I haven't done the research, I have to say. There are groups that have done research and what's fascinating for me, looking at the research is you can explore...the one group in particular led by a lady called Herta Flor in Germany, what they've done is a number of different studies where they look at amputees using mirror therapy and what you see using mirror therapy is not only is the contralateral hemisphere activated when they're moving their arm but also the

ipsilateral hemisphere in the somatotopic distribution of, for instance, the motor contex is recruited as well. So as they're seeing the reflection of that hand moving then the motor areas that we would expect to be a part of that movement are being activated but so are the ones that would be activated if that hidden hand were moving but we know it's not because it's an amputee. So that's some of the data that's being explored in mirror therapy.

- APM: Now, so far, not surprisingly, I would find it difficult...probably, go back to my clinic and put any of this into context. So if I were come on your course, how long does the course wrestle?
- TB: Two days.
- APM: And what's the structure of that course? What will I go away knowing how to do at the end of that?
- TB: Structure of the course of graded motor imagery is essentially understanding...a model that we use is the neuromatrix model. So the neuromatrix is looking at the different...essentially is a biopsychosocial understanding, holistic understanding of someone in pain with a bias towards understanding what happens within the brain in certain pain experiences. So from that sense, we go through some understanding of brain, brain activity, patterns, etcetera, some immunology, some pain models and then go through where the different techniques fit into that understanding. So someone coming out the other side would have an introduction to be able to use graded motor imagery. I would say an introduction because my feeling is you then need to go away, explore, read around, try it with your patients, fail sometimes with your patients to be able to start realizing the potential of that treatment.
- APM: That's quite an obstacle, isn't it? Because we don't like to fail with our patients, particularly when our patients are having to pay money for our failure. Do you feel that people come on the course and then be too frightened to use the material?
- TB: I think some people do, yeah. I think some people come on the course, go away and are still hesitant to use it or don't feel that they have the patience to be able to use these techniques. The beauty, for me, of certain techniques, so the implicit motor imagery and using left-right discrimination, is that it can be used as an assessment tool. It doesn't need to be incorporated into your treatment. It can be used as a clinical decision making process of saying, "Is it appropriate for me to explore that further or not?" I would hope that people who went on the course are able to, at the very least, get those tools. What I mean by failure though is it would be lovely if we didn't ever fail. What would be I suppose the next best is that we fail less often. I think it's only natural with some of the more complex pain problems is that they're experiencing often failure a number of times daily and we will experience that with them when we're treating them and it's only through a process, to a degree, of experimentation, exploring together that you

then start to understand the merit of some of these techniques.

- APM: One of our viewers has now asked if you can be a bit more specific about dealing with a specific type of patient. Could you talk us through a potential scenario in dealing with an acute disc patient?
- TB: Can I talk it through? Not that readily because I don't see those sorts of patients anymore. I suppose the most acute problems that I would see are people who come after failed surgery sort of six months or a year after. The population I personally, generally, see are people who've had pain for 1, 2, 3, 10 years. If I was to put what we've been talking about broadly into some practice, someone who comes to me...we've talked about the educational side of things. As I said before, I'm interested in understanding how a third-person perspective fits that firstperson perspective and there are certain areas of neurosensory examination, for instance, that would give me some understanding of whether there's a wider spread sensitivity sensitization in that person. In other words, do we need to be a little bit more careful about how far we explore movement activity? So from that perspective, that would be some of the areas that I would explore in my physical examination. I'm interested —

What sort of things would give you those clues?

APM:

TB

So neurosensory, I would look at light touch, pinprick evaluation. Lperhaps, depending on the person in front of me, look at some somatic perception tests, so perception of touch, localization of touch on the body. So an awareness of their body to them at that time and what that would give to me, I feel, is, for instance, someone's ability to be able to predict movement. So essentially, if they want to move effortlessly, freely, flexibly any way that they want, they should be able to have a good understanding of their body and where their body is in space at any time. If I continue my thread with the specifics of someone with a disc problem, they'll also come...they'll come with a general dysfunction or an impairment, won't they? So, you know, what is it that they're unable to do or they want to be able to do? That's the area that I would be exploring with them. So, you know, what is stopping them being able to do or when...I'm hesitant to say, "When is it most painful?" because I like to explore something that's meaningful in their life.

- APM: You see a little chronic sciatic pain, for example?
- TB: Occasionally, yes. And one of the problems, for instance, is, you know, sitting for a period of time or being able to get undressed, dressed and they're the sort of activities that I would explore with them. I would be interested in...I call it contextualization. It sounds like a terrible phrase but do we have the ability to change the context of that activity? So if the problem is bending forward to put their socks on and it's painful, can we find other ways of being able to do that? So still the same activity, bend forward, put the socks on but can we just alter it slightly and it may be me exploring it with them by...through touch. It may be me

exploring it through them but placing them in a different position. It may be exploring it mentally. It may be getting them to question why is that they're worried about moving and the associated sort of thoughts or emotions that might attach to that. So that would be a sort of broad opening with the patient, I suppose.

- APM: So is that an attitude of less fixing the pain but finding a way around the pain then?
- TB: No, I don't think so. Again, this comes to...I suppose more of my understanding is we don't fix anything. Our patients fix themselves and —
- APM: That's a very osteopathic approach.
- TB: Thank you very much. No, I believe that we're just...essentially, we're going through the journey with them. So we're taking them in hand that we're saying, "Let's explore this together," and that's the way that I see that developing through my assessment. So yeah, I would see...I was saying about contextualization. I would see...finding the most appropriate change in context to give them success. So if bending forward, their prediction was, "Every time I bend forward, I'm going to be in pain," by changing the context, that has brought question to that prediction. "Next time I bend forward, ah! Last time, it wasn't as painful. Is it going to be that painful this time?" Then it starts a process off of being able to say, "We can move forward with this. We can change this."
- APM: This is a stupid question. Is there an explanation of why that anticipation should produce pain given that the...when we started off, we talked about this mechanistic idea that, you know, it's a nociceptive problem, you know. Poke you here and it'll hurt.
- TB: Is there an explanation? Yes. I'm not intelligent enough to be able to go through it suitably but it comes down to the models that you use, again, if we come back and a linear perspective or understanding of pain is very much input processing, output. Press here, something happens in the nervous system, ouch. I don't believe that. We always have something that comes before that and let's say what comes before that...chicken or egg, what comes before that is an expectation, is a bias. So we all —
- APM: Is that part of the central sensitization that you're anticipating that this will hurt and that's confusing your ability to moderate the pain signal?
- TB: Could it contribute to central sensitization? It could contribute to it. Is that a part? Not necessarily. As we develop, as we go through our lives, we develop an understanding of the world around us, don't we? We create an expectation and understanding so that it's easier to take on information next time. When that information doesn't meet my expectations, it grabs my attention. When it grabs my attention then I maybe need to update my understanding, expectation or

prediction of what happens next time I go through this situation. It's called embodied cognition but essentially, there are a number of neurophysiological bits of evidence that suggest that we have a predictive model where we sample our environment and the nociceptive system would be a part of the sampling system but we have a top down interaction with that sampling system that, essentially, is able to turn it up, turn it down, be more or less interested in the sampling and the information it's getting from that sampling system. If someone has back pain and they're getting information biased to their back and the sampling systems that relate to their back then what we're really interested in is can we change the prediction of the sampling of what's going to happen at the back which comes down to, again...I'm sorry if that's a bit confusing but changing the context may mean that my prediction, as I bend forward, is that there will be some pain but there will be nociception. It won't feel right. It won't move correctly. Change the context means that you start to get an error in that prediction. So my model was, "This is what's going to happen." The actual impact is that this is what happened, "Actually, the movement wasn't so bad. It wasn't as painful. I felt a little bit freer." Maybe there was a difference in the physiological underpinning. So perhaps, if we went back to the nociceptive system, the nociceptive system isn't recruited so strongly. That, theoretically, would then give us reason to question our prediction model for the next time. So I was saying with my...if we had someone with an acute slipped disc or acute back pain, that they attribute it to a slipped disc, you will be giving them some reason to question their prediction of, "When I bend forward, it will be painful."

APM:

I hope that helps. That is quite a complex path to follow there I think. It probably , well, everybody's a complex problem, isn't it? There are a number of questions which occurred to me. We've had some come from our audience. One here is could you give this particular practitioner insight into the mechanism behind phantom limb pain and what he or she can do about a patient who has lost a leg after a shooting incident and I don't know whether the incident itself is actually an important part of the treatment.

TB: It may well be. Can I give some insight? We were saying earlier about a continuum or a spectrum about attention being placed towards the painful parts. In this case, they don't have their limb but there's pain in fresh air now now. I mean that's an interesting phenomenon in itself to be able to explain how can you have pain in fresh air and one of...an explanation is that we maintain bodily awareness or a representation of what the body may be or the information from different body parts should be. GMI would essentially be giving back some of the information that you would've expected from that body part but you're not receiving and that would be a part of a general process.

APM: And this is part of the mirror therapy that you were talking about earlier on?

TB: That could be mirror therapy, yeah. It could be mirror therapy. It could be graded motor imagery in general but it wouldn't just be that phantom limb pain. People

who've had amputations often have neuroma formation on the stump, don't they? So it's not enough to just think about the sort of...I suppose the top down processes. There may be things that you need to do to desensitize a local area or turn the sampling system down a little bit locally.

- APM: I suspect this practitioner's looking for a few things that he or she could perhaps try in clinic.
- TB: Read Graded Motor Imagery and the handbook, yeah but things are changing massively and, you know, there's an element of...isn't it interesting that someone can have a traumatic amputation and doesn't necessarily have pain? So it's interesting to look at the distinction between people who do have pain and you kind of think, "Well, of course you're going to have pain after a shooting incident," versus someone who could go through that and not have pain. So what is it that creates that difference between those people?
- APM: Someone else has asked...they're very interested in all this but of course, they want...it's leading on from that same question, really. They want to know what they can do practically. Can they do something themselves on the basis of what we're discussing this evening or do they have to come on a course to learn about this? Obviously, they could buy the book "Graded Motor Imagery". Well, they could and it's a very well regarded book, isn't it? Well, you would say yes. It is a very well regarded book but my experience of books very often is that you still need to get the guidance of an expert before you can truly put it into practice effectively. What can somebody take away to use instantly from today?

TB:

- To use instantly. I suppose it's an appreciation of...I mean we've mentioned quite a lot there, haven't we? Prediction models, bodily perception. If we were looking specifically about graded motor imagery or problems that might fit in there is really geared towards an understanding of how someone's body feels to them, their experience of their body and that's not a separation between body and brain. It's, you know, how my body feels and where they lie on, grossly, "I love my body," or, "I hate my body," and can we bring that a little bit closer into a flexibility of not hating it and not always loving it and somewhere flexibly in the middle.
- APM: Is mirror therapy something which people can practically use in their own clinic? I mean I have an idea in my mind that you need some fairly sophisticated...well, not necessarily sophisticated but complex setups in order to make this work.
- TB: You don't need a complex setup. I mean the beauty of graded motor imagery is you don't need an awful lot of equipment. You can do it very cheaply with a simple...I've done it in the past on courses. We've gone to Ikea, bought a number of...you can buy little block sized...it's like a foot square block of a mirror and just mount it on some card. Yeah, it's fairly cheap to be able to do. What I would say is most people look at the mirror, look in a mirror on a daily basis but it's

interesting in pain. In relation to how someone feels about themselves, how willing they are to look at themselves as well and to look at the affected part and, you know, just that simple realization that they don't necessarily want to see themselves. They don't feel happy about seeing themselves. So if there was a usable bit of information, it's to say appreciate that it's as simple and as complex as that.

- APM: Going back just briefly, if I may, to the phantom limb pain, I think I've got a little bit of a grasp on the mirror therapy. I can wiggle this hand, look in the mirror and apparently see my other hand there. I think you did cover this a little bit earlier on but how is that impacting on my perception of pain in the fresh air over here?
- TB: I would love to tell you exactly how that is and I believe it comes down to...depending on the models we use is that prediction. So if we go back to that prediction of, "I had a hand. The information that I should be getting regularly from that hand is this. I am no longer getting it," now that creates a disconnect in itself. Not only a disconnect because you no longer have that hand and the information coming from it but it's a disconnect from the predictability of, "This is what should be happening." So perhaps graded motor imagery is simply giving back what you've now lost.
- APM: The imagery, is it as simple as moving your existing hand, looking in the mirror, imagining that it's the other hand that is moving and imagining, envisaging what that feels like on the missing side as it were? Or would you be setting an exercise to say, "This is what I want you to do here. This is what I expect you to feel on the missing side, the phantom limb"?
- TB: Yeah. If we're using mirror therapy, could you go through a visualization process and imagine movement process and can that enhance the use of mirrors? Absolutely, yes. So a sense of feeling a limb is an interesting concept, isn't it? It's a difficult one with a phantom limb because if someone no longer has a limb and you're asking them to imagine and feel a limb, they have to be happy that there isn't a limb there even though you're asking them to go through that process.
- APM: But if they have phantom limb pain then they are feeling pain in their toes or their fingers and therefore they've got sense —
- TB: It's generally easier to be able to introduce it as a concept and you may be the first person who...we're lucky now, aren't we? Because this is something that, for instance, you see on television people are talking about. So people won't think they're mad that they have a sense of a phantom limb or phantom limb pain. You mentioned before about explicit motor imagery and do you go through a number of different exercises, set them up with some exercises. I generally give people principles. So the principles are that I want you to have a freedom to be able to explore, express, feel, experience movement in a number of different ways. And the explicit motor imagery, that is running that movement in your head. Exactly

the same thing we might do with mirror therapy as well. To do the same thing each and every time will become monotonous. It will become boring and if it becomes too boring then our nervous system start to lose interest. So we're at risk of then having a loss of any of the gains that we might be expecting. So part of treatment and that freedom to express themselves in many different ways is to say, "Keep it novel. Keep it interesting." The way that we learn, generally, is through keeping things novel and interesting and different. So that's generally how I would set them up.

- APM: I hope that satisfies our viewer. We aren't pretending that we're going to solve all the problems on a 90-minute interview like this. You talked earlier on about TENS. Someone's asked if you think that acupuncture or dry needling is also an effective adjunct to your therapy.
- TB: I don't use it. No. So in that case, no. Honestly, I have mixed feelings about what acupuncture may be doing and some of the research may suggest that it's no more than a very strong placebo.
- APM: But we would never dismiss placebo if it works.
- TB: I am not dismissing it at all. If you understand that that's what you're aiming to do then absolutely fantastic. Yeah, I'm a bit unsure about the use of it, when to use it at the moment and that's probably because there's new data coming out all of the time. I mentioned Mick Thacker earlier but Mick and one of his PhD students were exploring acupuncture of the rubber hand. So what you can do is you can ask someone . you can go through what's called the rubber hand illusion, get someone to feel that the rubber hand is a part of them. So you touch the rubber hand and your real hand which is hidden away from you synchronously and they start to feel the touch near the rubber hand. You can then acupuncture the rubber hand and then you can also explore the feeling and the feeling that people get from acupuncture in the rubber hand is very similar to acupuncture in a real hand and some of the changes, also, in the physiology of your real hand as well.
- APM: I'm sure acupuncturists will be able to explain that and so, well, you know, if you can feel phantom pain then actually, if you can perceive that same sensation through not actually touching your real hand then it's achieving the same stimulation of chi as they were intending and I'm sure —
- TB: Which is fantastic, yeah.
- APM: And again, in a western model, if acupuncture and dry needling is partly pain gating then presumably, the same effect would occur, if that's what it's doing.
- TB: If that's what it's doing, yeah.

- APM: How about tennis elbow, chronic tennis elbow? Do you deal with that? Would you?
- TB: I love the way that people are giving sort of labels to problems but —
- APM: Well, it's because, of course, people have all got their own specific patients in mind, isn't it? And they want you to tell them what to do with their...not tell you what to do but what options you might add to their own current array of treatments.
- TB: I mean no different to what we were exploring beforehand, you know. You could look...did you say chronic tennis elbow, persistent tennis elbow? Why is something persistent? Why has it gone on longer than you'd expect? At a very simple level, that's what my brain would be saying, you know. OK, you may have injured it. You may have done something. There may have been some trauma there but why is it that it's still painful after this time and it would be using similar principles that we've gone through.
- APM: Is the sort of thing that you're teaching...either through the Neuro Orthopedic Institute or through your own practice, your own business, do you think this is now widely accepted across conventional medicine by which I mean GPs, orthopedic consultants and others?
- TB: Not yet but not entirely not. We, very occasionally in the UK, have doctors coming along, very, very occasionally. In Europe, more so and some of the referrals from consultants that I receive are more interested in, you know, these areas as well but clearly, it's not going to be everybody. I mean that's a...it's a biased population that I see. It's the people that I see on the courses and it's the people that I see communicating with me.
- APM: So how do you spread the word amongst the conventional fraternity?
- TB: I guess this is what you're doing, isn't it?
- APM: I hope so, yeah.
- TB: To a great degree. I mean —
- APM: Well, like I said, we're an open...I like to think we're an open-minded bunch and so people will be...not just seizing on it because it's the latest shiny object but they'll be listening to what you say and listening to what evidence you've got behind what you're saying and asking themselves whether...either they can refer to you or to somebody trained in what you do or whether they can incorporate your training into their own practice through one of the courses, through reading the book or whatever else. We had a local orthopedic consultant on one of these

programs a few months ago now and it's really refreshing how he talks about, you know, a lot of the things that you are discussing and particularly the central sensitization, the use of exercise, anything other than the scalpel to fix problems which...maybe it's not as new as I imagined but it was refreshing to hear him say it nonetheless. Now, I have to ask this question of you because you're a physiotherapist and I'm interested in the role of exercise in what we do. So what about core stability then?

- TB: It's a load of rubbish, isn't it?
- APM: It's funny. Every time I ask that that of a conventional practitioner or a physio, they say the same thing and yet physiotherapists have this...NHS physiotherapists have a reputation for prescribing core stability. Why do you say —
- TB: And what's really fascinating is how it's filtered down to the general population as well, isn't it?
- APM: It's become a business in its own right, hasn't it?
- TB: Exactly.

APM:

But why do you say it's rubbish?

- TB: Why do I say it's rubbish? We're not designed to be tred the whole time, are we? Tense the whole time. We're designed to be able to be fluid and flexible and to be able to move how we want and when you see, you know, children move, for instance, with their big bellies sometimes when they're pottering around, you know, they're not activating their transversus abdominis the whole time and there's a problem that I see or have seen in the past of people coming in and it's almost...it feeds into that part of their fear process of moving, you know. "I must keep a tense tummy. Otherwise, I may damage my back."
- APM: Is that an approach that you'd also take? I get so many patients who come into clinic and say, "Oh, I have awful posture," and you think, "Well, why do you say you've got awful posture?" Because none of us tenses our transversus abdominis all the time. None of us sits...I'm not doing it now. None of us sits up right in our seats or stands in a sort of rigid posture.
- TB: And I mean the general message of posture is...we're designed to move, aren't we? We're not designed to stay there in one position for long periods of time.
- APM: We had an ergonomist, actually, some time back. She really emphasized that. It was somebody from Herman Miller who makes some fairly expensive but ergonomic seats and of course, I went along, expecting her to say, "Well, we designed this so we can shove your lumbar spine forwards and we've got just the right..." Well, these seats are designed so that you can move around in them, you

know. You can cross your legs. You can curl up on the seat. You can put your legs over the armrest if you want to because you shouldn't be sitting still in your seat but she was pretty dismissive of the idea of sitting on a Swiss ball.

- TB: Was she?
- APM: What about you?
- TB: It's not something I necessarily advocate but if someone sits on a Swiss ball and feels comfortable then great.
- APM: I think the point she was making was that they're fine for a short time but actually, it's very tiring to stay on one of those all the time because there's no support. A little bit of...right at the beginning of our discussion, you talked about working with sports teams. So I'm not quite sure whether, when you said you're working with sports teams, you were going in to deal with specific injuries or whether this was a predictive approach. I mean how can we prevent people from getting injuries?
- TB: We went in originally...my research my master's was originally going through a screening process. We did it with England rugby team and then the Welsh rugby team and the hope was to follow them over a long period of time. The original idea was to look if there was a prediction of the certain measures. So we used six tests, some of which were dictated originally by the RFU, six tests that we would then explore and see whether that changes over a period of time. Rugby players are fascinating because they always have some injury. Always. They'll play. There is never totally injury free.
- APM: It's hard to imagine how you could avoid injury in rugby.
- TB: Exactly, yeah. So we went in there and one of the finance that we got is that we were blinded to the players and what happened in their medical history and the clinical tools that we used...we went through a neurological assessment. We used neurodynamics, two-point discrimination, nerve palpation, light touch, manual muscle test, reflex testing as well and the things that seem to...that were clinically significant was that those who'd had a nerve root lesion that was identified in surgery had significant changes in neurodynamics, two-point discrimination and nerve palpation. What we're sad is we weren't ever able to follow these people over a long period of time. Some of those who know about rugby, there was a scandal in the RFU and sadly, our research was right in the middle of the scandal. So we weren't able to follow them any further.
- APM: That's a great shame because you've correlated a finding with, you know, some imaging and surgical results but not being able to tell us what you could achieve with those —

TB: And we need to follow them over a year or two years. In the sports world, people are starting to question the use of the traditional screening tools and look to see whether there are predictive models, better predictive models because I don't think the ones at the moment are sufficient. APM: Well, just so we can spend a moment blowing smoke up your arse, as they say, I've been asked whether you're paying Lorna Dixon money because Lorna Dixon is actually — TB· Lorna Dixon. APM: She's commented, regarding acute discs, that she did your mobilization of the nervous system course and she found the technique extremely beneficial and uses them especially with acute patients — TB: Thank you, Lorna. APM: Well done, Lorna and for everybody else's benefit, she says it was money very well spent. So thank you on her behalf. How much do I owe you? TB: ÅPM: What about drugs? Steroid injections or other drugs for masking pain. I mean what's their role in your model of pain management? Well, at the moment, medicine still is an important part of pain and pain. TB: treatment, isn't it? But medicine, the right medicine at the right time...I mean steroid injection, for instance, it can be equally harmful, can't it? At the wrong time and thankfully, it's being used less and less. If I was being slightly contentious, one of the things that I've seen more recently in my clinic is patients who've had nerve denervation, radio frequency techniques on certain nerves and I know that's not medication but it's an interventionist technique and these people are not doing very well at all. So it's almost as though...OK, so medicine, traditional medication is perhaps failing or we're starting to move slightly away from it. Well, let's take these techniques in...you start using them in the treatment of pain and I think this is going to be terrible news in the longer run. I hope that it doesn't continue. APM: We've had a couple of questions about migraine, whether or not your techniques work in treating migraine and this particular question, asking if the patient has to have unremitting pain and again, can your approach help with recurrent migraine? TB: I mean theoretically...because we're being just quite holistic, aren't we? Theoretically, we should be able to identify or understand the possible contributing factors to someone's pain regardless of what it is. Migraine is an absolutely fascinating area, isn't it? It's not something that I see very much. In

fact, the first time in years I had a migraine sufferer, I think last week, and I employed the same principles that we've been talking about and perhaps I can let you know how it goes but yeah, in theory, these principles should be able to help.

- APM: And stretching, another of the questions that's coming, does that have a role in your repertoire?
- TB: No, not really. I just don't see why holding a tissue in a position for a length of time is going to be helpful, unless that person, in their job or in their sporting activity, needs to be able to sustain a position for a long period of time. Dynamic movement, yes, definitely and all of my patients will have some form of exercise.
- APM: When you say dynamic movement, do you mean ballistic stretching or do you mean movement, generally?
- TB: Movement, generally but yeah, I suppose it's...that's a bit of a rubbish term, isn't it? But if Lorna came on the mobilization of the nervous system course, we use things like sliders. Sliders are basically specific movements that are designed to gain the most movement of the nervous system relative to the tissues with the least build up of pressure within the area. So I suppose that would be more what I mean by a dynamic movement.
- APM:Slider.TB:Sliders.APM:Now that's an intriguing one. Is that something which fits into a box with flossing as well? Is that —
- TB: It's kind of flossing, yeah. I mean I wouldn't care, really, what people call them but yeah, it's basically just getting someone being able to move freely, easily without a buildup of their symptoms.
- APM: One quick demonstration then. Show us what you mean by flossing because for many of our viewers, that may be a completely new term.
- TB: If I look in this camera here, so this would be a traditional upper limb neurodynamic test that biases the median nerve and all the tissues, obviously, in the area. As I extend the elbow, I flex the wrist. Then the movement of the median nerve between the elbow and the wrist will be much greater than if I just bend and straighten the elbow or bend and straighten the wrist and significantly more so than if I do those two movements together. So this would be creating the most load, the biggest buildup of pressure through the system and there would be the least movement of the nervous system relative to the tissues and doing a slider. So a slider from here to here would create the biggest amount of movement. To my mind...and this is still something that's being explored and it's being explored in

cadaveric studies. So how all that relates to the person, we don't know 100% but it would just encourage blood flow, oxygenation to the tissues, perhaps just getting the fluid, the axoplasm moving through the nerves a little bit more freely as well.

- APM: And is there any that strengthen the idea that we're reducing tethering between tissues?
- TB: Potentially. Tethering, could it happen? It could do some scarring that adheres the connective tissues. The difficulty is if you have tethering, you may need to have a stronger technique. You may need surgery to release tethering, yeah.
- APM: We've had a number of questions. The funny thing about these discussions is that all the questions seem to come in right at the end just as we're beginning to run out of time.
- TB: Right at the end.
- APM: We've had several to ask you to amplify about the questionnaires that you use. Now, I think what I would prefer to do is that when we put the notes up on the website, and we will try to do that as quickly as we can, then we will summarize all the questionnaires that were mentioned earlier on and we will try to get Tim just to guide us on the purpose of those questionnaires and when they will be useful and appropriate but if I can finish with –
- TB: I could send some links as well.
- APM: Super. That'd be lovely, thank you and we will post those so that people can find their way to them. So one question from one of our viewers which is do you have a view on nutrition in conjunction with pain relief, pain management?
- TB: I do have a view. I know experts. I send them to someone who knows a lot more than me. I mean very simply, there are certain foods that are not going to be a good area to explore, broadly said, you know, things that are likely to create a proinflammatory response or stimulate the nervous system in a certain way. So yeah, avoiding certain foods and perhaps starting to put a little bit more of others in. Again, I'm no expert.
- APM: We had a previous speaker, a physiotherapist who mentioned that vitamin C was very good in conjunction, in treating CRPS.
- TB: CRPS, yeah, nerve injuries. It's thought to be a part of...a helpful approach.
- APM: And if I can wind up very quickly then, turning back to your own courses which hopefully...I mean if we get sufficient interest from our audience, it would be nice if we could run some of those for our members. What are the range of

courses? We've heard about mobilizing the nervous system. Are there others that you run?

- TB: Well, the NOI courses are mobilization of the nervous system, explain pain, graded motor imagery and a very rarely run course called neurodynamics and the neuromatrix. My own, the Pain and Performance side, we have one course that I have a curriculum for called the Pain Picture and that's looking at the number of models that we talked about and some predictive reasoning in activism and body cognition and an understanding of how that fit into pain and obviously, some therapeutic approaches in relation to that and then I've run bespoke courses. As I said before, the last one was CRPS. So yeah, very happy to run courses about that again.
- APM: There you have it from the horse's mouth. I mean we would love to run some of these courses but of course, we depend on the feedback from the audience. That's you guys. If there are things you'd like us to lay on for you then do show your interest, put your hand up and we will do our best to put them on in a time and a place which is convenient to you. That is all we have time for this evening. It's been actually gone much more quickly than even I expected and I've done a few of these things now. It's been fascinating stuff and I think Tim's left us tantalizingly wondering, you know, what more we could get from attending the courses but I think the bottom line is that having an awareness of the array of tools which are out there which can help in managing pain is very useful but frankly, when it comes down to doing the specifics, you do need some guidance from an expert. So let's hope that we can get enough out of this lecture to help you in clinic now but perhaps encourage a few to come on the courses. Tim, thanks for your—
- TB: Thank you.
- APM: --massive information this evening and I hope we'll see you again soon.
- TB: Thank you.