Academy of PHYSICAL MEDICINE

Transcript

Spinal Case Histories and the Importance of Sleep and Exercise Ref 208

Steven Bruce
Today I am welcoming back for the I don't remember how many times consultant orthopedic surgeon Rajeev by Jayco Raji have been really popular on the show, as has his wife Nietzsche on the shows that we've done with them before, not simply for his vast knowledge as a consultant orthopedic surgeon, but also because he is a practitioner of lifestyle medicine, which is a philosophy which chimes with an awful awful lot of our audience in the osteopathic and chiropractic world, particularly, Rajiv, fantastic for you to come and join us in our virtual world. Again, I think it's entirely appropriate that as a lifestyle practitioner of medicine, you have a book on wine on the shelf behind you. So that hopefully sets the tone for today, we're going to talk a bit about osteoporosis and case studies and exercise and sleep today, I think, aren't we?

Rajiv Bajekal
Yes, that's right. Yeah. Because we'll have plenty of time for questions in between. But yes, I was going to cover that.

Steven Bruce
Good. Okay, so roughly, where should we start?

Rajiv Bajekal
Okay, I think I'll start with the case presentation first, and then we'll nicely segue into the the lifestyle aspects that that case teaches us. So let me see if I can bring this up. So I'm going to talk a little bit about the case. But so I'll present the case first. And then we'll talk about the benefits of sleep and exercise in the condition that we're going to talk about. So this was an interesting case, who presented just three COVID. She was a teacher in a school, she hadn't quite retired, she was 70. And as you can see, she presented to us with a good going for she had a fracture in her lumbar spine, it was the L one vertebra, which you can see on this particular MRI CT, which is what we call fluid shows. And everything else shows. So if you get it and it has clearly articulated, and that is put into practice on a PC. So she had an isolated fracture from what sounded like a pretty reasonably solid form. So it wasn't what we typically fragility fracture, because fragility fracture, would usually be a foreign from standing height. This was a little more than that.

Steven Bruce

But I'm sorry to interrupt you before you go on. In the intervertebral discs above or below the fracture, and to above it. There's a lot of white showing in those, which as you said, is fluid. And then there's a very odd shaped white patch in the immediate disc above the the fracture, is that just inflammation taking place.

Rajiv Bajekal
I think it's just bruising of that disc also during the fall that has occurred. But that's a good question. Because, I mean, she had a proper good going history. So we didn't really focus on that desk. But anything with hemorrhage or edema will present as a whitish toggle so that it's showing up in that way. Yep. So just to reiterate, in people who are elderly who have a fracture, it's sometimes difficult to be certain as to which is an acute fracture and which is a chronic fracture. So if you take an x ray, you will see a wedge compression fracture, but you don't know when it has occurred on an x ray. So you absolutely need an MRI, a steel sequence MRI, which is what this is. Now, when we talk to her, we found out that she'd had a DEXA scan, which was a pretty routine scan, which a GP had organised two months prior, and that showed a normal bone density. So she was well within the vein for her age, and we were quite impressed with that. So we assumed this was just an acute fracture, but she was in a huge amount of pain and wanted to get back to work as a teacher. So we take what we do commonly for this in selected patients in whom the fracture is teaming up, so we put in Canada to pocketing his procedure. We did in fact a balloon kyphoplasty fall, we restored some of the high putting the cement This is a typical intro connected picture of the case. And this is what it looked like we actually did two vertebrae because we felt that there was a likelihood, because it was at the thoracolumbar junction, we felt it was appropriate to do one vertebra Iraq also, because quite commonly, that is also bruised and can go on fractured subsequent to the first one. fracture is, so we felt it was best we dealt with it at the same time. All was well. And we thought we were on to a winning situation. Well, there was more to come. So she presented a few weeks later, by which time COVID had actually hit us. And you can see the two cemented vertebrae here. But there's another fracture one below. And it appears that she had some old fractures the little bit higher up on the sofa, check it out. So this was about six months after the first factor fractures which had been treated by balloon kyphoplasty. So just for everybody, you can see that the end plate here has edema, it is crushed. Whereas the inflates of these vertebrae, although they are crushed, you can see there's no edema on it. So these are all healed fractures. And that's where a stir sequence MRI is useful. You can also probably appreciate there's quite a lot of fluid in a soft tissue in a back under the fact you can see here. So she's obviously been spending a lot of time on her back, not getting the power because of the severity of pain.

Steven Bruce
How did you say this lady was Roger.

Rajiv Bajekal
She was 71 at this stage. So she was 70. When she first presented 71. At this stage, we did another DEXA scan, and she had become remarkably and horribly osteoporotic, by this stage. So she lost a huge amount of bone density to photos. Those of you who know about osteoporosis, menopause, women lose the maximum bone stock about two to 3% of the bone stock literally disappears at the time of menopause. This was a lady who's right postmenopausal who was pretty active, when suddenly lost a huge amount of bone stock. So we sent her, I think erroneously to the medics to investigate her, you know, seven osteoporosis. And by that time, this lady was getting quite dramatically worse. Can you see here, the shape of a spine, I mean, she's literally bent over and is, and this is one of the bigger problems in people who get osteoporosis and who are bent over a long way that the

the Center of Gravity Falls well ahead of the feet. So they tend to fall even more often than they were already falling. And they keep getting fractures. And the fractures are typically at the junctions of mobile, a mobile segment of the spine with a relatively immobile segment. So the thoracolumbar junction is one and t six vertebra, which is this one here, you can see another fresh fracture has occurred. So she was being investigated, but nothing was coming up. And one of the big things that she was telling us all about was she couldn't stand up from the sitting position. And she had a tremor. So her hand was tremoring constantly, as well as the fact that she couldn't hold her neck up. Now, really, the penny should have dropped at that point. But none of us had seen this condition before. And I just wanted to tell you a little bit about osteoporosis. And when you see osteoporosis that has dramatically progressed, you got to think of other causes. So for those, those of you who understand osteoporosis, the bone texture is just more fragile looking a lot more air pockets, and the density is less so the bone density itself goes down quite a bit. And overall the bone if you look at it under microscope, it doesn't look very different to normal bone, except you have all these big cavities like things that are there in the bowl. So it's a common degenerative bone disease and it results from bone density. So I'll just reiterate some of the risk factors that are there. We know that women are much more prone for it. But men are not immune to it. And we should realize that although we don't have a menopause or such we do probably have a menopause when we reduce the activities we do, and there are genetic factors that are responsible. So if you've got a maternal history for a fracture, fractured hip, your advanced age, if you're Caucasian or Asian, you're more prone to getting osteoporotic fractures. So all these are important factors. This is one of the few conditions where being slightly overweight is actually an advantage because as you know, born follows Wolf's laws. In other words, you stress it more by being heavier, the bone grows. But obesity, on the other hand, has a retrogressive effect on the bone density. And that's probably because vitamin D gets sequestered, in fact, and it's not exactly one of the key factors that we all tend to forget. And you I'm sure as osteopaths will look at it more holistically realize that our sedentary lifestyle is the biggest problem of in fact, osteoporosis was virtually unknown before the Industrial Revolution in the 1750s onwards. So it's after that, that people started getting osteoporosis. Like it

Steven Bruce
was just a question on statistics that osteoporosis was not known in the previous century in the industrial revolution, is that just because we hadn't identified it? Or is that because there wasn't any about?

Rajiv Bajekal
Again, because obviously, we didn't have too much in the way of X rays, still the 1800 something, but from archaeological records that I've looked at is it anthropological records, I mean, not archaeological, doesn't see, they don't seem to have been too many reports about osteoporosis, right. So you know, not too many stories about people getting bent over and having deformities. Of course, the truth is, lifespan was also much shorter. So people died a bit earlier before they got these common degenerative changes. But nonetheless, we know that a sedentary lifestyle is not helpful. And we focus a lot on dietary factors and pure poor nutrition. But this is also an important factor. What I haven't included in this is really the fact that these are the causes of primary osteoporosis, but I haven't focused on secondary osteoporosis. Secondary osteoporosis means there's usually a cause or right, in other words, a hormonal factor or something. So just going back to this lady, the reason she had proximal muscle weakness was in fact, you to her hyperthyroidism, she had Graves disease, it actually fitted in perfectly with the fact that she had a tremor or fingers, quite fine tremor, she wasn't able to hold it up by hand. And she was giving the history that she couldn't

actually stand up from a sitting position because of proximal muscle weakness, which is an unusual feature in Graves disease, or thyrotoxicosis. And that is what she had. That is why they remarkable loss in bone density. So I was going to just focus a little bit on how we can improve our health and come to the area that I have a particular interest in, which is lifestyle medicine. I think what people don't understand and you you all are really good at this because you see people much earlier and you're quite switched on to the holistic aspects of health is to really talk to people that once you get an illness and of course everybody's too busy running around or sitting around nowadays really on a laptop or a computer to actually get the relevant exercise and improve the health. So I thought it would be a good point to switch on to the factors that actually affect our well being and health. So we know about diet, we were going to learn a little more about natural movement and exercise. But other things like environment, sleep, which again, I'll talk briefly about sunlight, the lack of stress, genetics, all these factors play into our well being and health and of course, addictive substances substance misuse, such as smoking too much or consuming alcohol to an excess, especially Israel Not good for our bowl. At this point, I'll just throw in this little exercise quiz. And I appreciate it's not interactive right now. So I'll, I'll just run through it because I think it's quite interesting. Is it true or false that you can lower your risk of heart disease stroke and type two diabetes with exercise? Well, I'd say let's get this absolutely right. I'm sure. You can reduce it, of course, but you can, can you reduce your risk of dress bowel and ghoom? Cancer? By exercise?

Steven Bruce
I'm going to go with Yes, again. Yes,

Rajiv Bajekal
I would agree with you. Absolutely. You can. Can you build bone strength with swimming?

Steven Bruce
About? Well, I would be I would question because it's not only impact, there's no weight bearing involved.

Rajiv Bajekal
Even you're getting full marks so far, brilliant,

Steven Bruce
but I'm gonna give up now, while I'm ahead.

Rajiv Bajekal
High intensity interval training, is it advanced for most people? Would you say? No, no, you have to be quite fit to be doing high interval training. It's a great way of getting your exercise in a short period of time, but you have to be fairly fit to be doing it raining. Really? What about this one? Exercise is a good way to lose weight. Now. I'm glad you said no. Steven, most people would answer yes, because every patient who comes to see me who's carrying excess weight, when we launch into a discussion about it will tell you that they have been in pain with their sciatica, because obviously, that's my area of special interest. So they tell me, it's because of my sciatica, that I really haven't been able to lose weight. And you have to tell them that having four Oreo biscuits requires you to climb 71 floors of the Empire State Building to burn those four biscuits off. And that is really how much junk food really influences the amount of exercise that you have to do.

Steven Bruce
Well, I'm very glad that in our new studio, we have stairs, because just in my technical experts has been tucking into the shortbread biscuits recently. So we'll send we'll send you up and down the stairs a few times. And this is this is the point where he's gonna cut my camera feed.

Rajiv Bajekal
Go so weight training is helpful to reduce risk of osteoporosis. Absolutely. It is. Yeah. Yeah. What about this one dairy can increase mortality from osteoporosis. And so I can protect?

Steven Bruce
Based on what I've heard from Neetu. I would say that is true.

Rajiv Bajekal
I think you've learned very well just, I think daily is now strongly linked to particularly prostatic cancer. But of course, it also has a lot of saturated fat and dairy in the form of cheese, in particular has very high saturated fat. So coronary artery disease is very common in people who take consume extra dairy. But in cohort studies, we have looked at countries like the Netherlands, for instance, where there's a high daily consumption due to cheese especially, but also made up there is a higher rate of fracture, neck of femur. So even when you adjust for normal variables, all the variables that are there in the Netherlands, it appears that dairy is strongly linked to osteoporotic fractures. Exercise increases insulin activity that absolutely does. And yes, resistance training is recommended twice a week. So you hear about 150 minutes is the magic figure that is really recommended for cardiovascular exercise. But resistance training, we tend to forget, and this is where I would emphasize that at least twice a week, 30 minutes of resistance training, which means you're either lifting away to doing bodyweight exercises, or working with resistance bands is absolutely a must. So 50 minutes of intense activity per week, or 115 minutes of moderate activity, which could include walking is the amount of exercise we all should get. But even 15 minutes of activity every day has been shown to reduce mortality. So for all your clients who come to see you, in your clinics, if they say they can't get an hour to go to the gym, the simplest thing is to just tell them to do what they can so that anything is better than absolutely nothing. So for people who set the goal very high, that they need an hour to go to the gym, you just have to tell them even if they had 10 minutes 15 minutes a day, it reduces mortality hugely.

Steven Bruce
Could I ask a couple of questions before you move on the logic apps. The skeptic would say that those statistics regarding exercise and mortality and so on, are almost certainly based on observational studies where there will be Lots of confounding factors, because people who don't exercise will probably have all sorts of other unhealthy activities. Is that the case? Or can we be absolutely certain that it is the exercise which has reduced mortality? And has increased health?

Rajiv Bajekal
I think that's a very good question again, and this is where science comes, and statistics comes into place. So you do studies. And unfortunately, it's very difficult to just have a group of people who eat identically you don't smoke, don't drink, who are not couch potatoes, but just exercise and another group who are couch potatoes, but eat as well as every. So there is obviously an element of that. But that is why a lot of these cohort studies which are which are multivariate analysis, they adjust for these factors. So there are statistical things which we'll look at a group who smoke an identical amount, who drink an identical amount and

eliminate that aspect from it, let's say. So there's a correction applied, which is called an adjustment in cohort studies, which makes them a reliable method of doing it. Of course, there are other studies, which you can you can forcibly put a bunch of people but forcibly in the sense, they are volunteers, but you put them into what is called a metabolic ward. When you study, they find exactly the same way they allow exact same amounts of sleep, etc, when you study the exercise benefits. And you can see that people who exercise more in general, get the benefits incrementally according to the amount of exercise that they do. Okay, so I hope it is pretty reliable data.

Steven Bruce
All right, I have one for you on insulin as well. It says here in your slide, exercise increases insulin activity will surely we don't want to arbitrarily increase insulin activity, it needs to be there to regulate glucose levels in the blood.

Rajiv Bajekal
No, absolutely. What I meant by that is insulin is more effective in the presence of exercise. So let's say you have a type two diabetic, who's come to your clinic today, one of the best pieces of advice you can give him or her is that they should eat before the exercise because exercise literally acts as insulin. So that that is a separate thing that literally drives the insulin from the blood into the cells and utilizes it. So I mean, I don't know if you know, but I was diabetic. And I therefore have changed my habits. Because I was, I used to exercise in the mornings before having breakfast and now trying to eat breakfast and then exercise because I find that I feel much better after that. And so obviously, there's an element, that insulin works better in the presence of exercise. Okay, so the benefits of exercise went to start the earlier the better. So really, even children can exercise where they usually play. But there is absolutely no harm in subject in allowing children to experience all these forms of exercise. So cardiovascular as well as lightweight training, obviously, you don't want them to be, you know, lifting very heavy weights and things, but there's absolutely no harm. In fact, there's a lot of benefit in the earlier they start because it literally becomes a habit, then that is good for the rest of their lives. So we learned about how often they should exercise, and what are the benefits. So one of these, sorry, this is an error here, build bone strength with swimming is obviously incorrect there. But with with strength training, it's important.

Steven Bruce
So that building bone strength would come through resistance training, not through swimming,

Rajiv Bajekal
not through swimming at all, definitely. Even cycling. For instance, there was a big study, which came out in the BMJ a year or two ago about people who cycle I mean, one of the big problems in human beings is that they love one form of exercise and nothing else. So it's not uncommon for me to see runners with a lot of back problems, because that has high impact exercise, which as you know, it doesn't do the back any favors, especially when they haven't really strengthened they call. And equally I get cyclists who have osteoporosis so they could be very high level elite athletes, but they are doing only one form of exercise sometimes and that is cycling, which is a closed chain exercise and doesn't really improve your bone stock. So really, what are the exercises that help in prevention of osteoporosis now walking, we know preserves your bone stock, but does it actually increase it, you can increase it by weighing yourself down. So if you wear a weighted jacket, or you wear ankle weights or wrist weights, or you carry weight when you're walking, then that can increase your bone density. But one of the simpler methods is just to do strength training, aerobic exercise, especially

jumping things. So jumping jacks, skipping, for instance, it seems to cause micro fractures in your bone. So those micro fractures are very minor fractures that he loved. And that increases your bone density. So it's really important, especially in postmenopausal women, to do this vibration exercise, by the way, so using a power plate, for instance, which I thought was a waste of time, you know, seeing these machines vibrate in the gym. But if you do what are called stacked exercises, particularly so if you lift weights, while standing on a vibrating platform, such as a casada, power gym, or, you know, a power play, those are very good. And, but also varying your exercises. So if you combine some weight training exercises with balance, such as Tai Chi, for instance, or strengthening exercises, especially of the lower limb, your false prevention is also very good for preventing osteoporotic fractures. So, in the past, before people, you know, before the Industrial Revolution, and the fact that I'm sitting in front of a computer, and you're sitting in front of computers, no doubt, we got our exercise from natural movements, and that is the variety of types. But the huge benefits are in lifestyle related cancers, and heart disease in particular. One of the other huge benefits of exercise, incidentally, is to prevent recurrence of cancers. So if you've got somebody with the breast cancer, or a prosthetic cancer, which are definitely lifestyle related cancers, they can prevent a recurrence by becoming exercise, edit screen. And there are fascinating documentaries on this, which show that it is really true. So these are the kinds of natural movements and daily exercise that people used to get in the past, we don't get it so much anymore. So we have to do the kind of things that you will see on the right side of the slide. So building in some form of regimented, structured exercise to get past these, you know, absences of daily natural movements.

Steven Bruce
Can I stop you and ask a couple of questions? Yeah, we've had some from several members of the audience now, one of them, I think I can predict who sent this one in. You said that jumping can help him build bone density, and the person who sent that in who I suspect is called Claire says she assumes that jumping if you're on a horse doesn't count.

Rajiv Bajekal
No, I think that's also good for osteoporosis and falling off a horse may not be a good idea. But you know, the kind of movement that when you're cantering for instance, or protein, that is impact exercise, so it isn't a bad exercise at all.

Steven Bruce
Horses are justified at last. So it's not a bad thing. Yeah. Johnny was asked a question, John. Oh, good to hear from you. He just would like you to confirm that you said that milk in that Netherlands study increases osteopathic hip fractures. And I guess he's asking that because it's widely believed that the calcium in the milk will help to strengthen bone.

Rajiv Bajekal
Yeah, that's one of the favorite dairy industry things that calcium is only found in milk. In fact, cows get it from green leafy cows eat grass really. And they get it from grass. They get it Calcium is a mineral that's found in the earth. So the problem with dairy is that yes, it does give you a pretty good dose of calcium but you can get it from a variety of other sources, including green leafy vegetables. Spinach is not one of them. Spinach is low in calcium, but a whole lot of other vegetables are very rich. green leafy vegetables are very rich broccoli, Octroi kale, all these vegetables are extremely rich in calcium, as a lot of nuts, legumes soy beans, soy beans, in particular, very rich in calcium plus they have phyto estrogen so awesome. single big change, if you want to make to your patients would be to give up dairy and take to soy milk, there's plenty, plenty, plenty of good evidence for that. And my wife is a

bigger expert than I am on this. And I'm sure she can do a full lecture on soil for ages. But all you know it is fantastic for bonds. And if you really have to think of one milk to go for, I would go for the fortified soy milk. So I don't personally buy the organic soya milks, because all soya that humans consume is organic, by the way, but the organic label in Europe and I present in the UK still, even though way out of Europe, is that organic soy milk you cannot fortify with with calcium, whereas calcium set tofu for instance, or soy milk that is not labeled organic is often fortified with calcium, so you get plenty backway.

Steven Bruce
Okay, thank you. Julian has asked if you know whether power plates on their own have a beneficial effect as opposed into the stack as opposed to the stacked exercise that you described?

Rajiv Bajekal
Yes, they do. Absolutely. And it's a good thing. I mean, sometimes women just stand on it for you know, while watching television as my wife does. We've got a little power board in the TV room, and she will just stand on it. Because the vibration if you set it fairly high, it is the same impact literally as you skipping or jumping? Well, not quite the same, but pretty good, I would say.

Steven Bruce
Okay, good. And as asked a fairly specific question about whether you've had much experience of children going through puberty with demineralization. And this apparently has been found by chance on an x ray while assessing the growth plates in the wrist of her daughter.

Rajiv Bajekal
No, I haven't. And again, that is what would come into the character, you know, the category of secondary osteoporosis. So really, there are some conditions, yes, that can cause secondary osteoporosis. But really, it's a case of ruling out things like hormonal disorders or other underlying conditions. So it's worth really dotting the I's and crossing the t's to get to a diagnosis there. Because there must be a specific reason for that.

Steven Bruce
Yeah. So interestingly, if I can, just going back to the lady who described the 71 year old lady with a rather severe osteoporosis, you mentioned her Graves disease. How should a practitioner have picked up on that sooner? Do you think? Could it have been done?

Rajiv Bajekal
Yes, I believe we were just stupid on that one. She gave a lot of signs, actually. But we didn't cottoned on one thing is the proximal muscle weakness, you know, the fact that she comes, she was pretty active, she was a teacher. But she specifically said she couldn't stand up from a chair without assistance. So you kind of think proximal muscle, but really, when you don't know what the causes by a clinical diagnosis, because it wasn't apparent till much later. You really ought to just throw every single test in the book. Because you know, something has happened. It's secondary osteoporosis. And what we know is secondary osteoporosis, there are specific causes. So really, she should have a hormone have had a full hormonal profiles, screening, but COVID got in the way of everything, frankly, and people were running around washing their vegetables outside their house at that time, and nobody knew whether, you know, nobody could be thinking correctly about secondary osteoporosis, which is why we missed it.

Steven Bruce
Okay, I'm sorry, I distracted you from your presentation here.

Rajiv Bajekal
Not at all. No, I think we've covered this before. But I'm, I'm sure you're hearing more about the risk of sarcopenia. sarcopenia is not a term that is commonly used, but it is becoming increasingly more recognized, particularly in elderly patients. And sarcopenia just means muscle wasting, and it kind of runs synchronously with osteoporosis. So when people have weaker muscles, the bones are not subjected to stress and they get osteoporosis equally. When they get osteoporosis as a result of menopause with bone loss. One of the ways they automatically lose muscle mass also so the the to go hand in hand, but if you had to advise elderly patients, or people who are like me and bring the six decades of their life, what single exercise should you do? If somebody asked you that, vanities, good to get better biceps and things, and it does you well on a beach, but really, it's leg strength that is important. So if you get leg strength, and you can stand up from a sitting position without support, and then you build your quadriceps and proximal muscles of the legs, those will stand you in good stead for preventing falls. So I think that's a vital message to give most patients. So this is just some examples of resistance and weight bearing exercise. Skipping is something that I keep emphasizing, it's a good thing to do, it also helps with coordination. And finally, I just wanted to end I think I have just a few minutes is just a little bit about sleep. Now sleep has been vastly underestimated in the medical world in particular, and we were kind of looked down upon, if you slept too much, you were considered lazy and sloth, like or whatever. And it was considered quite natural to be sleeping three or four hours or not at all, when you were on call. Clearly, that has changed. But we now appreciate that, really, to recover from exercise, to build up your bones to do anything, you need seven to nine hours, ideally have good quality sleep. So usually the brain goes into the cycles of deep sleep and REM sleep alternately every 60 to 90 minutes. And really, some of the modern things that people are doing nowadays are to have blackout curtains to make sure that when you get up in the morning, you expose yourself to sunlight, if there is any, and you know, have a brisk walk, for instance, because that sets up your circadian rhythm. So that you're set to sleep at night, it's ideal to have an early supper, light supper. So there's much value in the usual term about breakfast like a king, and then like a pauper. But really some of the modern gadgets such as using blue light glasses, which kind of filter out the blue lights from your TV screens, and computers helps in people getting much better sleep. It really remember that when you sleep, there's something called the glymphatic system. So g l lymphatic system. So it's quite a newly described thing, where these so called glial cells, or g g g lil, they were thought to be useless cells in the brain, but they clean up your brain, they like janitor cells, and they help you build up for the next day. I just wanted to end with that message, you shouldn't be neurotic about how much you're sleeping, because you will sleep even less. You're worried about that. And remember that insomnia is actually an emotional reaction to the lack of sleep rather than genuine lack of sleep, which happens often in shift workers who are sleeping at all times. And that is one of the worst things that you can do. But sometimes you can't help it. And finally, I just wanted to pitch the rest of my family who are wonderful people all in the world of lifestyle medicine before I end,

Steven Bruce
where you that you don't need to pitch them at all. Rajiv, because I'm sure we would love to get meet you back on the show. We haven't had Rohini your daughter?

Rajiv Bajekal

No, she's worth it, by the way. Well worth

Steven Bruce
it. Yes. Yeah, we haven't had her and we did talk about it with Anita, do you want to stop sharing your screen? Because we'll we'll let people have copies of the slides anyway, and then we can see more of you. With a few questions that have come in. Katrina has said has asked for your thoughts on all other alternative milk products such as almond or rice.

Rajiv Bajekal
Okay, and the best plant based milk is soy milk by a longshot. But some people are either allergic to soy or don't like it or have some, you know, taste preference, then yes, but almond milk is not as good as soy milk for the planet. It's also not as good for your health, but it's perfectly acceptable. It's still better than dairy by a longshot. I don't think rice milk, for instance. So oat milk. Oatmeal is again good for the planet. And I think it's wonderful in coffee personally, but otherwise, nutritionally, soy milk is is really way ahead of the pack.

Steven Bruce
Okay, thank you. And let's come back about the the problem was discovered with her daughter, the D mineralization we talked about and thank you for your comments so far, but she says the bloods so far have been clear, but it's very recent and so they're still working through them. And her doctors are keen to do a DEXA scan? But do you think that would be a good idea?

Rajiv Bajekal
No, absolutely not, I'm afraid. Now, I have some views about DEXA scan DEXA scan is actually a real measurement. And to interpret DEXA scans requires a lot of skill. And often in the DEXA scan machines that we have in the United Kingdom, the standards are set for people above the age of 70. So the NHS will only really do a Texas scan if you have a risk factor strongly under that age. But in young and young children and young adults, the values can be horribly off and can really cause a whole lot of anxiety. And one of the big problems with causing anxiety in a patient with an erroneous text result is that it recently releases cortisol, which actually is is osteoporotic in nature. So I think DEXA scan is not a good test. But there are other tests, which can be done. Unfortunately, they involve radiation quite often. So a CT scan can show bone quality as much. So there's some more sophisticated investigations, it's very difficult to get it at GP level. And you would probably have to insist on referral to somebody who specializes in it.

Steven Bruce
Well, actually, your colleague, Nick Burch, who has been on our show, several times, was on I think his most recent presentation on the show was a completely separate system, the name of which escapes me for assessing osteoporosis, much more reliable than DEXA scan, and it was age and all sorts of other factor based as well. And we'll pop we'll put a link out to that after the show. A couple of quick questions before we wind up to people who asked about exercise one about Pilates Reformer machines and the other about yoga generally, and wondering what your thoughts are on those in terms of preventing osteoporosis.

Rajiv Bajekal
Pilates Reformer machines are fantastic for overall strength training. I mean, Pilates is much more strength training wise. So I would say that they are good, even though they're done in the supine position. They work by increasing strength in general, and therefore, the effect on

the bone is consequent to overall muscle building and strength building. The other one was yoga yoga, I think is good but isn't perhaps as as good in terms of building bone strength. It is good for flexibility. And I I generally really think that if you can tell people to get a variety of exercises in and not just focus on one area that they absolutely love. They'd be better off in terms of the general health.

Steven Bruce
Okay. We've got just two minutes left. So I've got one question I'd like to put you before we wind up, Rajeev. Somebody has cells in the center an observation saying that milk was almost singularly responsible for solving iodine deficiency in the UK, substitute milk is low in iodine is that the case?

Rajiv Bajekal
I didn't know of this. I taught ideen. The single most important factor for IR Dean was in fact, art I sold in the UK.

Steven Bruce
But I get some more details on that. And then we'll we'll look into it but right. Okay, Rajiv, we've already had a number of comments come in saying how wonderful it's been to hear from you again, and how much people have enjoyed the presentation. I'm really hoping that we'll hear from you and your wife and your daughter at some point in the future, hopefully here in the studio rather than through this virtual link. But thank you so much for taking part today. And I'm sure lots of people will have lots more questions which will put you on the next show.

Rajiv Bajekal
Wonderful. Thank you very much, Steven, thank you for giving me the chance again.