

# **About your bone density scan appointment: FAQ**

## **How long does an appointment take?**

A minimum of 15 minutes; however, we suggest that you allow half an hour – most people find having the scan generates as many questions as it answers! We are happy to spend the extra time with you answering them. On the other hand, if we are very busy, 20 minutes may be the maximum amount of time we have with you, so if you've got a lot of burning questions it may be best to prioritise them a bit. You can always give us a ring or send us an email if you think of anything after you've left.

## **Do I have to do anything before my scan?**

You will need to have read, be happy with, and signed, our disclaimer (available to read on this site). We'll bring copies with us on the day. You'll also need bare feet, so it is best not to wear tights and trousers together. It's a bit of a palaver trying to take off tights when you're wearing trousers!

## **Do I need to remember to bring anything?**

We don't yet have a card machine – currently we can only accept cheques with a valid banker's card, or cash, of course! Also, bring your reading glasses if you have them, as some people find they need them to see the results of their scan clearly.

## **What machine do you use to test bone density?**

We test bone density using a portable Cuba McCue heel quantitative ultrasound scanner (known as QUS), which has been shown to be a reliable indicator of bone density and fracture risk. QUS is comparatively reasonably priced and free from radiation, as it uses sound waves rather than X rays to measure bone density. This type of test has been recommended as a 'first step' to educate people about their bone health and safeguard themselves against osteoporosis. Have a look at our disclaimer and 'what is osteoporosis' article for more information and references for our machine.

## **Does it hurt?**

Not at all! The machine does grip your heel quite tightly, but not so tightly that it causes pain (it's certainly nothing like having your blood pressure taken!). Most people find it quite a pleasant experience.

## **The machine measures my heel – do the sound waves travel through my whole body?**

No – the machine is ONLY measuring your heel.

## **Why the heel then?**

A number of reasons, but here are the main ones:

1. The heel is an easily accessible site (thought we'd start with an easy one!)
2. The calcaneus (heel bone) is what is known as a 'load bearing bone.' You have probably heard that 'load bearing', or 'weight bearing' exercise is good for

bone strength and density (If you haven't heard this, you DEFINITELY need to come and see us!). This is very true, and, if you think about it, the vast majority of load bearing exercise – be it walking, jogging, tennis, aerobics, morris dancing, etc, etc – tends to involve impact travelling through your heel. This impact does not only affect your heel though – to a greater or lesser extent the impact, or 'shock waves' generated by the activity travel up through the bones in your leg. It may be that these 'shock waves' have an effect upon the bone density of your hip, as the heel ultrasound test appears to be a particularly good predictor of hip fracture. (See our references in 'what is osteoporosis')

3. Heel Ultrasound is also a good predictor of wrist, or colles fracture, (again, see references) which is perhaps, intuitively speaking, more surprising; but less so when you consider a couple of things. First of all, wrist fractures often happen because people put their arm out to break a fall. If you're a fit healthy person, who participates in 'heel stimulating' exercise(!) you are less likely to fall for a number of reasons. Your balance is likely to be better; your legs are likely to be stronger therefore less likely to 'give way' or wobble as you walk; you are more likely to have a healthy 'gait'; i.e. pick your feet up rather than shuffle along as you walk. Furthermore, it is important to consider the 'type' of person you are. Most active people don't restrict their activities to their legs only, so the chances are that their arms are also benefiting from bone stimulating impact. There are exceptions though: for example, tennis players that do no other sort of exercise have been shown in the past to have much stronger bones in the arm that holds the racquet, compared to the other arm. If you regularly perform an exercise that is 'one sided' in any way, make sure that you do another type of activity that will work the 'neglected' side. (Playing 'wrong handed' tennis is fun for five minutes or so!)

4. The calcaneus is mainly composed of **trabecular** bone – also known as **cancellous** bone. In fact, it is 95% trabecular bone.

### **What on earth is trabecular bone?!**

We have a really good analogy for this! Imagine the inside of a Crunchie bar? The honeycomb that you see is a little like trabecular bone. Non osteoporotic bone is thick and dense, with much smaller holes and thicker struts (like the light yellow edges of the Crunchie); osteoporotic bone has bigger holes and weaker struts (like the darker central vertical stripe in the middle of the bar!). We can extend this analogy - The chocolate around the edge of the Crunchie is a bit like another type of bone – 'cortical' bone. The 'long bones' in your body like your femur, or thigh bone, are predominantly cortical bone.

The most important sites in the body to be affected by osteoporosis – the neck of the femur at the hip, and the spinal vertebrae – have a high proportion of trabecular bone. Trabecular bone is especially vulnerable to osteoporosis; one of the reasons why the calcaneus may give a good 'early warning.'

### **How well does heel ultrasound correlate with spinal bone density?**

Modestly well – but **not** as well as it does for the hip and wrist. If you don't want (or can't afford) to pay for a scan that measures the spine directly (a different machine to ours – more about this further down), we suggest you keep a close

eye on your posture and height – measure yourself at least once a year, if not more regularly – and ensure that you regularly incorporate abdominal and back strengthening exercises in to your weekly routine. We can help you with suggestions for this during your appointment.

### **Why do you test both heels? Surely they are both the same?**

Actually – they usually aren't the same! Most likely, your dominant side will be a bit stronger than the non-dominant (because if you favour one side, that side will get a bit more load bearing activity); therefore, if you are right handed, you will usually see a higher score on the right side. What is important is that this is **not** always the case. Isobel is a good example – she's right handed but her left heel always has a much higher score (We call it her 'bionic' left heel!) Differences between legs can be the result of what is sometimes quite a complicated picture – genetics (Isobel's mum also has the same seemingly random 'bionic' left leg!); and injury, particularly if it resulted in less weight bearing on one side than the other over a long period of time. There are other factors too.

Sometimes, if you have a 'borderline' score, testing the other leg will help us to decide whether to refer you to your GP or not. Even if you have a very high (or very low) score on one leg, testing the second leg helps us to confirm that the overall reading is reliable.

### **If I have a low score, does that mean that I have osteoporosis?**

**This is important** – Not necessarily. It means that osteoporosis is more likely, but it does NOT mean you have osteoporosis. There is a difference. If your score falls below a certain level, we will refer you to your GP. Our scan will help him or her to decide whether to refer you for a 'full body' or diagnostic scan. It is a useful 'filter' for to help him or her decide.

The younger you are, the more likely that a low score is a 'false scare.' In other words, the bone density in the most important areas (the hip and spine) is likely to be better than the bone density in the heel. That said, we find that young individuals with low scores are often (not always!) following a lifestyle that would eventually lead to osteoporosis if they didn't change it. In particular, young individuals with low scores are often sedentary. It is certainly not unreasonable to suggest that low heel scores in young women may be predicting a problem in other body areas in later life, if they were to maintain their current sedentary lifestyle.

### **If I have a good score, does that guarantee that I don't have osteoporosis?**

Unfortunately, we cannot guarantee this. It does, however, mean that you are very unlikely to have osteoporosis. In other words, the better the score, the less likely you are to have osteoporosis. The machine gives a good general idea, but not a guarantee.

Our machine is more likely to give you a false scare; false reassurance is unlikely, and we are quick to refer people if we are worried. That said, there is always a risk, as with any test, that this will miss something – it is important for you to weigh up whether the advantages of having the test will outweigh the risk of false reassurance in the unlikely event that you would get a deceptively good score.

We think though, that the easiest way to be falsely reassured is not to have the test! Further, **the CUBA Clinical is as good a predictor of hip fracture as any existing machine**; and hip fracture is the most dangerous and disabling osteoporotic fracture – the one that you really want to avoid.

### Sum it up then - why should I have a bone density test?

- If you don't have a scan there is a guarantee: You won't find out about osteoporosis until you lose a significant amount of height, or fracture a bone (You can't regain height loss due to osteoporosis once you've lost it, and who wants to wait until they fracture!). On the other hand, we WILL catch the majority of women who have osteoporosis.
- It really is an interesting test, and the result does correlate well with your risk of having a fracture, particularly of the hip (the most dangerous fracture) and wrist.
- A number of studies have shown that mass screening of bone density reduces risk of osteoporosis and fracture in older age (emphasis on reduces risk – see 'what is osteoporosis' for references). This may be due less to the test itself, and more to do with the fact that screening offers a 'window of opportunity' to educate the individual about how best to prevent the disease. People tend to be more receptive to advice about something when it applies directly to them, and having the results of a test in front of you increases that feeling.
- From our experience, with one or two exceptions it is very rare that a young, active, healthy, strong boned woman, that is doing 'everything right', will have a 'false scare'. In fact, individuals that get the false scares tend to be those that need a gentle kick up the bum (sorry!!): sedentary – or sporadic exercisers; smokers; yo yo dieters... etc.
- Occasionally we do get a surprise low reading, but even then, there is usually an underlying cause. A classic example of this is a sufferer of persistent upset stomach and diahorrea, who is too embarrassed to go to the GP, telling themselves that it is 'probably IBS' (irritable bowel). It is astonishing how quickly a low bone density score serves to motivate the individual to sort out the problem. How much better to sort it out earlier, rather than later!
- Risk of osteoporotic hip fracture is greatest in individuals over the age of 65, and this is where our machine performs most strongly. In fact, scores in older people taken with our machine correlate nearly as well with hip fracture risk (in some studies, better) as the 'gold standard' test – a direct measurement of the hip with Dual X-Ray Absorptiometry (Also known as a DXA or DEXA scan) – and

our test costs a fraction of a DEXA scan (it varies, but about 1/3<sup>rd</sup> to 1/5<sup>th</sup>). A hip fracture is undoubtedly the biggest risk for a sufferer of osteoporosis; one in 4-5 women will die as a result of this type of fracture.

### **Are you medically trained?**

No.

### **What?!**

No – instead, we are scientists – Exercise and Nutrition Scientists. Have a look at the section about us to find out more about our qualifications. We're also specialists – in other words, we work full time, and 75% of the time (roughly!) we're dealing with exercise, nutrition, and lifestyle advice relating to osteoporosis and fracture prevention. We can also help with advice for falls prevention. In fact, we think we are **better** equipped than many medical professionals to help with osteoporosis **prevention**. Granted, we can't give advice on medication, and we are very wary about giving people information on supplements; but aside from those, we probably know a lot more about the latest exercise and nutritional research than your GP. And the right exercise and correct nutrition is of paramount importance in helping to prevent osteoporosis and reduce fracture risk.

Two of our good friends are doctors (in the medical sense), and they've both said that, medication aside, we know a lot more about the subject than they do. The point is most people don't NEED medication! They need to be pointed in the right direction as regards their lifestyle. And we have yet to meet a single individual who would prefer to wait until their bones became weak and then start taking medication, than to do something earlier to prevent its onset!

That said, in certain individuals medication is advisable, and nowadays can effectively increase bone density and decrease fracture risk. As this test is a useful 'filter' to help a GP decide whether or not to refer an individual for further scanning, it increases the chances of people getting medication that need it. Often it means that people will receive appropriate medication sooner than they would have done otherwise.

### **Is there anything else I can do to monitor my bone density?**

It is always worth asking your GP for a central DEXA scan first, particularly if you are at or after the menopause. If he/she says you are not eligible on the NHS, you could consider paying to go privately (Costs vary, but generally anywhere between £95 - £200 for central DEXA, the 'diagnostic' scan in this country); if you can't afford or don't want to pay that amount; or, would rather get a 'good general idea' – particularly of your risk of hip and wrist fracture – that is where we come in. We think that for a fraction of the cost of DEXA, the QUS heel scan is a very, very good compromise!

### **I have decided that I don't want a bone density scan. Is there anything else I can do?**

Yes, and we urge you to. Most of them won't cost you anything:

- If you ever need a dental X ray, ask your dentist what the scan has revealed about the bone density in your jaw. This has been shown to be quite an effective 'early warning' indicator for low bone density. In fact, simply counting your teeth has been shown to be another indicator – if you have less than 20 teeth, your risk of osteoporosis is increased.
- Keep a close eye on your posture, and your height. Measure height once a year. Do it first thing in the morning, as you can lose a little height throughout the day. You can lose 1 – 1 ½ inches simply as the cartilage between your spinal vertebrae shrinks as you get older; but more than that, or any increased spinal curvature that remains no matter how much you try to straighten up... go and visit your GP. Height loss **does not** reflect bone density changes or fracture risk in the hip, or wrist, as early, or as well, our machine does, but it *does* give some idea of the likelihood of a compression fracture due to low bone density in the spine. Don't panic if you've lost a centimetre, or half an inch, or so – but four centimetres or 1 ½ inches, or more – let your GP know.
- Measure your grip strength at a gym or health club. It is by no means a perfect test, but people with good grip strength are at lower risk of going on to have a fragility fracture. For evidence, try a Google search (or any of the main search engines), using keywords: grip strength fracture risk. If you have poor grip strength, act! Ask a qualified fitness instructor to show you exercises to improve your overall body strength.