

## What to expect during your visit?

Kyle, owner of Inner-Vision and highly qualified MSK Sonographer will run through your referral. It's imperative that we can correlate any clinical findings, past medical/surgical history, previous imaging and any new signs/symptoms.

- As long as we can get to the area that needs to be scanned, you should not need to get changed for the examination.

However, its advisable to arrive in/with shorts for lower limb examinations and short sleeve t-shirts for upper limb. Shoulder examinations require us to expose the whole rotator cuff of the shoulder but dignity will be preserved at all times.

-A small amount of gel will be applied to the area being scanned. The ultrasound probe will be moved over the area and occasionally the joint will need to be moved to assess the joint in motion. The examination should not be painful however some discomfort should be expected if the area being scanned is already tender.



Kyle scanning a knee

## What is musculoskeletal ultrasound?

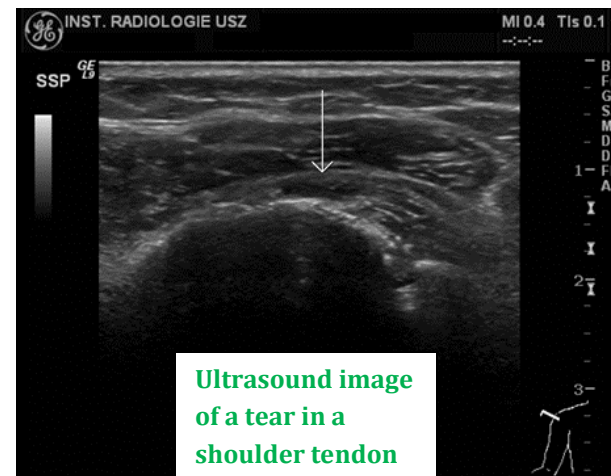
Ultrasound has been a big part of diagnostic medicine for the last 60 years.

It is particularly useful at examining soft tissue and therefore lends itself well to musculoskeletal structures including fat, muscle, tendons, ligaments, cartilage, nerves, synovium, bursae and fluid.

Ultrasound excels at demonstrating the fine fibrillar/fibre strands of a tendon/ligament and thus effectively identifies wear or tears.

The dynamic nature of ultrasound scanning provides a unique advantage in providing functional information regarding the movement and course of a structure such as a tendon, providing the practitioner with information such as areas of impingement (Pinching or trapping of structure), compression or scarring.

In some circumstances it is also particularly useful at assessing bone such as looking for occult/hidden fractures (Fractures not well visualised on plain X-rays) and monitoring fracture healing.



Ultrasound image of a tear in a shoulder tendon

## How does ultrasound work?

- 1) The ultrasound probe/camera sends out high frequency ultrasound waves (higher frequency than is audible to the human ear) into the body
- 2) The sound waves propagate through different human tissues, some waves are reflected back towards the ultrasound probe/camera.
- 3) The reflected waves/echoes are received by the ultrasound probe/camera, converted into an electrical signal for the processor to interpret
- 4) The machine makes an assumption of the speed of ultrasound waves through tissue, 1540m/s (Although this is not constant so artefacts are commonplace, hence the clinician has to be highly qualified to establish what's real and what isn't)
- 5) So basically, the machine 'knows' how fast the wave is travelling and therefore depending on how long it took for the echo to return, the machine can calculate how deep the structure is which the reflected wave bounced off
- 6) The machine also detects how much energy/power is in the returning echo and can therefore decide how reflective/dense the structure was.
- 7) So the machine places a dot on the screen at the depth where the echo returned from and a shade of grey is assigned to that dot depending on how reflective that structure is (i.e. bone is more reflective than fat)

## Advantages of Ultrasound

The advantages of ultrasound in medical imaging are well documented:

- **Considered a 'safe' imaging technique:** Ultrasound does not have the associated risks of ionising radiation as seen in CT and plain X-rays. Nor does it use strong magnetic fields associated with MRI scanning, which is risky for those with types of implanted cardiac devices and other types of metallic prosthesis.
- **Lower cost imaging:** Compared to the alternate musculoskeletal imaging modality MRI, the cost of an ultrasound scan is typically much cheaper.
- **Much more tolerable:** It is no secret that patients often struggle with the claustrophobic, noisy confines of the typical MRI scanner for extended periods of time. In contrast, if you can tolerate a lick of cold ultrasound gel, you can tolerate an ultrasound scan.



## Contact us

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# What to expect from your ultrasound scan?

## A guide for patients



## How will I receive my results?

Throughout the examination, Kyle will explain the anatomical features and findings

You will receive a copy of the full written report as a PDF which will be sent to you via password protected email within approximately 48 hours of the scan.

A copy of the report will also be provided to your referring clinician.

A digital copy of your images can happily be made available on request.

