



# Real Time Ultrasound

## What is Real Time Ultrasound?

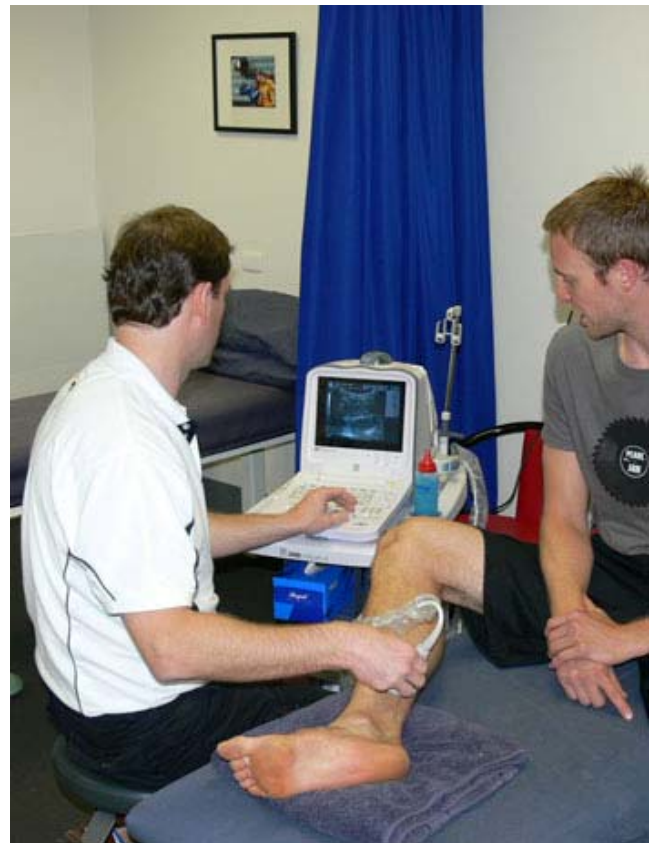
Real time ultrasound (RTUS) is a non-invasive imaging tool that enables the physiotherapist to view tissues (muscles/tendons) of the body in “real time” on a moving picture. This is the same technology used by other medical specialists for applications such as diagnosing soft tissue injuries ( e.g bursitis, tendinopathies) and viewing the foetus during pregnancy. In physiotherapy, RTUS is predominantly used as a muscle retraining/ biofeedback device. This is particularly useful in retraining stabilizing muscles of the lumbar spine, pelvic floor, knee and hip. RTUS allows both the physiotherapist and patient to see how the muscles are working as it happens, providing direct visual feedback. The visual feedback enhances the retraining process and ensures that the correct muscle group is working effectively. This is useful for patients with acute or chronic low back pain, sacroiliac problems, pelvic instability, chronic groin pain and gluteal tendinopathies.

## How does RTUS work?

Ultrasound refers to mechanical vibrations producing sound waves. Audible sound waves range between 20-20000Hz, whereas Ultrasound waves are greater than 20000Hz. The Ultrasound probe used transmits a high frequency sound wave which travels into your body until a boundary between tissues is reached (eg: between soft tissue and bone, soft tissue and fluid). Whilst some sound waves are reflected back to the probe, some penetrate further and then get reflected back. The machine calculates the distance between the probe and the reflecting tissue boundaries creating a two dimensional image that is viewed on screen. This is similar technology used in the SONAR on submarines

## Difference between Real Time Ultrasound and Therapeutic Ultrasound

You may have had ultrasound as physiotherapy treatment in the past. This type of Ultrasound is different and provides a therapeutic benefit. The major difference between therapeutic and real time ultrasound is the frequencies of the sound waves applied. The upper limit of human hearing frequencies (wavelengths) range between 16-10 kHz, therapeutic ultrasound is much higher ranging between 0.75-3 MHz and real time ultrasound ranges between 2-10 MHz. These different wavelengths give therapeutic ultrasound the effects of heating and stimulating tissues. In contrast, the Real Time Ultrasound wavelengths are designed to measure reflected ultrasound waves creating an image, not producing heat.



For an appointment with a Wakefield Sports Clinic Physiotherapist using RTUS, please call 8232 5566.

Information compiled by WSC Physiotherapist Leisa Stringer