

What is Ultrasound?

“Ultrasound” is the term used for high frequency soundwaves. An ultrasound examination uses these sound waves to produce an image onto a screen that shows the inside of your body.

An ultrasound examination is performed using a smooth, hand held device called a transducer that they move across the body with a sliding and rotating action. The transducer transmits the high-frequency sound waves into your body. The sound waves are then reflected from the different tissues of your anatomy in different ways. The sound waves are converted to electrical impulses, which are used to produce a moving image onto the screen.



Figure 1:
Ultrasound of a baby

Why am I having an Ultrasound?

An ultrasound examination is often used in medical care during pregnancy and childbirth. It is an ideal examination to look at the baby as it grows throughout the various stages of pregnancy and it is a wonderful opportunity to meet your forming baby.

Ultrasound can take high quality pictures or images of most parts of your body, which makes it an excellent diagnostic test. For example, it is used to examine abdominal and other organs, to watch blood flow in any of the arteries or veins throughout the various parts of your body, and to evaluate the musculoskeletal system (muscles, bones and joints related).

How do I prepare for an Ultrasound?

- Read any instructions given to you by your doctor, or by us.
- Wear clothing that will provide easy access to the area that is being imaged.
- Bring any previous ultrasound examination films you have had with you, so that they can be used for comparison.

IMPORTANT: If you have diabetes, or you are on any medications prescribed by your doctor, or any other medication including any over the counter medicines or complementary therapies such as vitamins, etc., contact us to check for any special preparation instructions.

If a baby, infant or child (up to 18 years) is having an ultrasound, special instructions apply. Again, contact the imaging practice or hospital to ensure you get the instructions required that are appropriate to your child's age. This will ensure the best test is performed at minimum discomfort to your child.

Abdomen ultrasound

You will need to fast (have nothing to eat or drink) for 4-8 hours prior to the examination. This ensures there is no food or fluid covering the area that is to be examined. It also ensures the gallbladder is not enlarged so it can be imaged appropriately.

Female pelvis ultrasound

This examination may be performed internally, externally or both.

- **Internal** The best way to examine the pelvic organs in detail is to performing a transvaginal (endovaginal) ultrasound, in which the ultrasound transducer is on the end of a thin probe which is inserted into the vagina.

Transvaginal ultrasound is usually recommended for internal pelvic ultrasound examinations on patients who are 18 years and above. If the examination is not urgent, it is best performed between days 5 to 12 of your menstrual cycle. The Sonographer will explain the process in detail and ensure that you are happy to have the exam this way. It will not be performed without your signed consent.

- **External**– In situations where an internal pelvic ultrasound is not appropriate, the examination will be performed by placing the ultrasound transducer on top of the lower abdomen. To ensure that the inside of the pelvis area is seen clearly on the screen, a **full bladder** is required and you will need to drink 750 mL of water, one hour prior to the procedure. Do not go to the toilet after drinking the fluid.

Renal (kidney related)/Male pelvic/Prostate ultrasound

You will need to **drink 750 mL of water**, one hour prior to the procedure. Do not go to the toilet after drinking the fluid. Drinking the water prior to the examination will enlarge the bladder, enabling it and the surrounding internal areas to be examined.

Vascular (blood vessel related) ultrasound

- **Renal (kidney) arteries** – You will need to fast (have nothing to eat or drink) for 8 hours prior to the examination to ensure that the renal arteries are not covered by food or fluid.
- **Aorta or Leg arteries** – You will need to fast (have nothing to eat or drink) for eight hours prior to the examination to minimise bowel gas that may obscure the large arteries in your lower abdomen, which are examined as part of this test.

Interventional ultrasound

Used to guide injections, biopsies (where sample tissue is removed for testing) and drainage tubes, to clear away fluid from a wound. Instructions will be given about what you need to do before and after the examination.

No preparation is required for the following ultrasound examinations;

- **Breasts**
- **Thyroids**
- **Neck** (Lymph Nodes/ Salivary Glands)
- **Testes**
- **Obstetric** (pregnancy, 18 weeks after)
- **Musculoskeletal** (Skin lesions, Muscles, Bones and Joints)
- **Most Vascular studies** (Carotid Arteries and Deep Vein Thrombosis)

What happens during an Ultrasound?

Before you have the examination, the sonographer will ask you questions about why you have come for the ultrasound scan. They will then explain the procedure you are having in detail and answer any questions you have.

You are normally asked to lie down on a bed and the area to be examined is exposed while the rest of the body is covered. Clear gel is applied to the area of your body which is being imaged. The sonographer will then place the "transducer" (a smooth hand held device) onto this area using gentle pressure. The transducer is moved across the area with a sliding and rotating action to allow the image to project onto the screen.

The sonographer takes still photographs from the moving images on the screen.

During the examination you may be asked to perform some simple movements to improve the quality of the imaging. These movements you will be asked to perform will be simple, for example:

- "Taking a bigger breath" to assist during an abdominal ultrasound and allow the areas underneath the rib cage to be clearly viewed
- During an obstetric examination you may be asked to roll around to encourage the foetus or unborn baby to roll into a position appropriate for imaging
- In musculoskeletal ultrasound, the transducer moving over any painful areas often provides valuable insights into the true source of the pain

However, if any of these movements cause you concern or discomfort, you should let the sonographer know immediately.

Are there any after effects of an Ultrasound?

In most situations, there should not be any after effects from an ultrasound examination. Occasionally, patients report a little tenderness in the area that has been examined, but this is uncommon and rarely persists.

How long does an Ultrasound take?

Typically, an ultrasound examination will take about 30 minutes. However, some examinations, may take longer than this because of the detailed imaging that is required and the number and size of the organ or organs being examined.

Ask us when you make your ultrasound appointment how long the type of ultrasound you are having normally takes.

What are the risks of an Ultrasound?

There is no radiation involved and so Ultrasound is considered as a safe examination which provides excellent imaging without any significant risk to the patient.

What are the benefits of an Ultrasound?

Ultrasound provides excellent imaging of the soft tissues of the human body and is often the best and most appropriate

diagnostic test. There are no proven harmful effects of sound waves at the levels used in ultrasound performed in a proper clinical setting.

Ultrasound can be performed with patient movement so is ideal for imaging babies and children. Imaging movement is also very valuable in musculoskeletal (muscles, bones and joints related), gynaecological (women's health, especially of the reproductive organs) and vascular (blood vessel related) ultrasound. Dynamic imaging (moving pictures) provided by images using ultrasound sound waves gives the opportunity for looking at the inside of the body in positions or with movements where there is pain or movement restriction.

Ultrasound does not require an injection of contrast medium (a small amount of material used with some X-ray scanning to detect certain types of diseases or problems in the body).

Ultrasound is mostly non-invasive, provides accurate imaging tests of the human body, and is readily available and relatively inexpensive.

Who does the Ultrasound?

The ultrasound examination may be performed by a sonographer, a health professional specialised in performing ultrasound examination. They have a graduate qualification and are fully qualified to perform the examination. The sonographer will perform the examination and provide an interpretation of the images on the screen to a radiologist who will review the sonographer's interpretation and discuss the images with them, before providing a report on the findings to your referring doctor.

Sometimes, it will be necessary for the radiologist to attend the examination because it may be important to see the images on the screen rather than just the still photographs and to chat to you about your symptoms.

Restricted Ultrasound exams with the presence of Radiologist on site

- Skin Mass Lesions
- Musculoskeletal
- Mid and Late Pregnancy (after 18 weeks)
- Renal Arteries
- Vascular competency studies
- Biopsy

We can arrange the appointments if the services that cannot be done at our centre on your preferred date and time.

How do I get my results?

The written report and images will be electronically or physically delivered to your referring doctor as soon as is practicable.

Alternatively you can pick it up or take films only and arrange to fax the report when it is available. Please let us know of your or your doctor's preference.

It is very important that you discuss the results with your referring doctor so that they can explain what the results mean for you.