

Ultrasound

Consumer Information

Contributors:

Mr Peter Coombs

DipAppSc (Med Radiations), Bachelor of Arts, Grad Diploma in Medical Ultrasound, Masters in Medical Ultrasound

A/Prof Stacy Goergen, Ms Ann Revell, Dr Christine Walker

What is an 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 by a trained health professional ([sonographer](#), [radiologist](#) or [sonologist](#)) 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.

An ultrasound examination has many advantages. There is no radiation, which means that it is very safe, there are no injections and there is no pain. The high-frequency sound waves ensure the information is of very high detail, capable of looking at the very tiniest parts of your body. Imaging can be performed while there is movement so it is excellent for the imaging of babies and children.

The health professional will be there with you and you have the opportunity to communicate any concerns that you have.

Why am I having an Ultrasound?

An ultrasound examination could be requested for many reasons. You will be most familiar with its use in obstetrics (medical care during pregnancy and childbirth). Ultrasound is an ideal examination to look at the baby as it grows throughout the various stages of pregnancy. In the first part of pregnancy, it can be used for confirming the age of the baby and therefore the most likely date of the birth, and for Down syndrome screening. Later in pregnancy, it is used to carefully examine how the foetus (baby) is developing and to ensure the foetus is growing in a healthy manner. Irrespective of the timing of the ultrasound, an obstetric scan is a wonderful opportunity to meet your forming baby.

There are also many other reasons that an ultrasound examination may be requested. For example, it is used to examine abdominal and other organs. Colour Doppler ultrasound can be used to watch blood flow in any of the arteries or veins throughout the various parts of your body. High-

resolution ultrasound can be used to evaluate the musculoskeletal system (muscles, bones and joints related). Breast ultrasound is an important part of the assessment of any breast lump. Ultrasound can take high quality pictures or images of most parts of your body, which makes it an excellent diagnostic test.

How do I prepare for an Ultrasound?

This will depend on the type of ultrasound examination that is requested. Listed below are some of the common examinations, with the preparation generally required. This may vary slightly between providers, so it is recommended that you contact the practice where you will be having the ultrasound to confirm preparation details.

All ultrasound examinations:

- Read any instructions given to you by your doctor, imaging practice or hospital where you will be having the examination.
- 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 you think may affect the examination (including any over the counter medicines or complementary therapies such as vitamins, etc.), contact the imaging practice or hospital 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.

Here are some common ultrasound examinations, and the preparation that may be required.

Abdomen ultrasound: You will need to fast (have nothing to eat or drink) for eight 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.

Breast ultrasound: No preparation is required.

Female pelvis ultrasound: There are two ways to perform this examination and the preparation will depend on which way the examination is performed.

- **Internal pelvic ultrasound** – The best way to examine the pelvic organs in detail is to have a “closer” look by 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 health professional performing the examination will explain the process in detail and ensure that you are happy to have it performed this way. The transvaginal ultrasound is only performed if you consent to the examination.

It is not always appropriate to have an transvaginal ultrasound, e.g. for children, anyone who has not had an internal examination by their doctor, or there may be other reasons that an transvaginal ultrasound is not considered appropriate.

- **External pelvic ultrasound** – 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 (stomach area). To ensure that the inside of the pelvis area is seen clearly on the screen, a full bladder is required. If an external pelvic ultrasound examination is to be performed 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.

Obstetric (pregnancy and childbirth related) ultrasound: No preparation is required.

Thyroid ultrasound: No preparation is required.

Testes ultrasound: No preparation is required.

Musculoskeletal (muscles, bones and joints related) ultrasound: No preparation is required.

Renal (kidney related) 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 eight 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.

NOTE: Most other vascular ultrasound examinations do not require any preparation.

Interventional ultrasound: Ultrasound can also be used to guide injections, biopsies (where sample tissue is removed for testing) and drainage tubes to clear away fluid from a wound. If you are attending for one of these examinations, it is important that you contact the imaging practice or hospital to ensure you are provided with information and instructions on what you need to do before and after the examination.

What happens during an Ultrasound?

Before you have the examination, the health professional performing the examination (usually a **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 before they start the examination.

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 beyond the first hours after the examination.

How long does an Ultrasound take?

Typically, an ultrasound examination will take about 30 minutes. However, some examinations, especially vascular imaging (blood vessel related), 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.

It is best to ask the hospital or radiology practice when you make your ultrasound appointment how long the type of ultrasound you are having normally takes.

What are the risks of an Ultrasound?

Ultrasound is 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.

Ultrasound is a safe procedure which does not have the risks associated with imaging that uses radiation. There are no proven harmful effects of sound waves at the levels used in ultrasound performed in a proper clinical setting such as a private radiology practice or hospital.

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, is readily available and relatively inexpensive.

Who does the Ultrasound?

The ultrasound examination may be performed by various health professionals. In most situations, however, the person performing the examination is a **sonographer**. A sonographer is a health professional who is specialised in performing ultrasound examinations. 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 provide a report on the findings to your 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.

Having discussed the images with a sonographer, the consultant radiologist will provide a report on the result of the ultrasound to your doctor.

Where is an Ultrasound done?

Generally an ultrasound examination is performed in a hospital (in a diagnostic imaging, radiology or ultrasound department) or in a private radiology practice. Trained sonographers and specialist radiologists work in these facilities.

However, because ultrasound equipment is portable and inexpensive to operate it can be performed in a variety of places and by a range of health professionals. For example, your obstetrician (a doctor specialising in delivering babies and the care of women after childbirth) may have a small ultrasound system to examine you in your first part of pregnancy or your rheumatologist (a doctor specialising in conditions of the joints or muscles) may have a small ultrasound system to perform ultrasound guided injections. Doctors in hospital accident and emergency departments also sometimes use ultrasound.

When ultrasound examinations are performed outside imaging practices or hospitals, patients or their carers should ensure they are being examined and the results interpreted correctly by asking if the examiner is specialised in performing ultrasound examinations.

When can I expect the results of my Ultrasound?

The time that it takes your doctor to receive a written report on the test or procedure you have had will vary, depending on:

- the urgency with which the result is needed
- the complexity of the examination
- whether more information is needed from your doctor before the examination can be interpreted by the radiologist
- whether you have had previous X-rays or other medical imaging that needs to be compared with this new test or procedure (this is commonly the case if you have a disease or condition that is being followed to assess your progress)
- how the report is conveyed from the practice or hospital to your doctor (in other words, email, fax or mail)

Please feel free to ask the private practice, clinic, or hospital where you are having your test or procedure when your doctor is likely to have the written report.

It is important that you discuss the results with the doctor who referred you, either in person or on the telephone, so that they can explain what the results mean for you.

Useful Links:

- Obstetric ultrasound:
 - Nuchal Translucency information: www.babycenter.com.au/pregnancy/antenatalhealth/scans/nuchalscan/
 - How a 2nd trimester pregnancy ultrasound is performed(movie) <http://video.about.com/pregnancy/Ultrasound.htm>
 - Ultrasound after 20 weeks <http://www.babycenter.com.au/pregnancy/antenatalhealth/scans/thirdtrimesterscans/>

- Musculoskeletal ultrasound:
 - Detailed explanation
<http://www.med.umich.edu/rad/muscskel/mskus/>

Please note:

This information is of a general nature only and is not intended as a substitute for medical advice. It is designed to support, not replace, the relationship that exists between a patient and his/her doctor. It is recommended that any specific questions regarding your procedure be discussed with your family doctor or medical specialist

The QUDI Program is managed by the Royal Australian and New Zealand College of Radiologists and funded by the Australian Commonwealth Department of Health and Ageing.

Publication Date: May 1st 2009

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