

Ultrasound scan

Ultrasound is a scan that uses high frequency sound waves to demonstrate internal body structures. It is commonly used to study the developing fetus, abdominal and pelvic organs, muscles and joints, the heart and blood vessels. Other names for an ultrasound scan include sonogram and ultrasonography.

The ultrasound scan sends out high frequency sound waves, directed at the internal body part being examined. The reflected sounds, or 'echoes', are recorded to create an image that can be viewed on a monitor. The sound waves are emitted and received from a small, hand-held probe. The high frequency of the sound means the human ear can't hear it – hence, it is called ultrasound.

An ultrasound scan is usually non-invasive. However, some scans are done with a special probe that is inserted into the vagina (for special obstetric or pelvic examinations), the rectum (for special prostate examinations) or the oesophagus (for special heart examinations). In addition, ultrasound scanning may be used to monitor and guide invasive procedures like a breast or thyroid biopsy.

Different uses of the ultrasound scan

An ultrasound scan is commonly used in the following instances:

- **Abdominal scan** – may be used to investigate abdominal pain, nausea, vomiting, abnormal sounds and lumps. Structures that may be examined include the gallbladder, bile ducts, liver, pancreas, spleen, kidneys and large blood vessels. Structures that contain air (such as the stomach and bowels) can't be examined easily by ultrasound because air prevents the transfer of sound waves emitted by the scanner.
- **Pelvic scan** – may be performed if a woman is suffering pelvic pain or has abnormal periods, fibroids, cysts or other conditions associated with the female reproductive system.
- **Pregnancy scan** – used to check for fetal abnormalities (such as spina bifida), check the age and position of the fetus, and monitor fetal growth and development. An ultrasound scan during pregnancy is now considered routine in Australia.
- **Other uses of ultrasound scan** – musculoskeletal scans (to check regions like shoulder, hip and elbow), breast scans (for example, to further investigate an abnormality picked up by physical examination or mammogram) and a scan of the eye (to check its internal structures). A special type of ultrasound scan, called a 'Doppler ultrasound', is sometimes used to detect the speed and direction of blood flow in certain regions of the body, for example, neck arteries and leg veins.

Medical issues to consider

Some ultrasound examinations require special preparation beforehand. For example:

- You may be asked not to eat for a few hours before an upper abdominal scan.
- Some pelvic examinations require you to have a full bladder before the scan.

You will need to ask your doctor or the ultrasound department if special preparation is required for your scan.

Ultrasound procedure

If you are having an upper abdomen ultrasound, you will be asked to lie down on an examination table or bed. A gel is placed onto your skin to provide better contact between your body and the ultrasound probe. The ultrasound technologist, known as a sonographer, then places the hand-held probe on the skin above the area of the body, organ or tissue to be studied.

The two-dimensional (or sometimes three-dimensional) pictures are shown instantly on a monitor.

A slightly different procedure may be needed for other types of ultrasound. For example, a female patient undergoing an investigation of her pelvis may have a transvaginal scan, which involves inserting a special ultrasound probe into her vagina rather than (or as well as) scanning through the front of the pelvis.

Immediately after the ultrasound

An ultrasound scan usually takes around 20 to 40 minutes, depending on the type of examination. After the procedure, you will be given paper towels (or something similar) to wipe off the gel. You can then get dressed. The results of the ultrasound scan are usually sent to your doctor, so you will have to make a follow-up appointment with them to get the results.

Possible complications

Most ultrasound scans are non-invasive and the procedure does not involve the use of ionising radiation such as 'x-rays'. Ultrasound scans during pregnancy are now considered routine in Australia.

Taking care of yourself at home

The scan itself should not cause much, if any, pain, and is generally non-invasive, so there is no 'recovery time' required. Most patients can go about their normal business once they have finished the scan.

Long-term outlook

Treatment – if any – depends on the reason for your scan. For example, fibroids detected during the scan may be surgically removed (myomectomy), shrunk with drugs or simply monitored. Other conditions detected by ultrasound scan, such as abdominal masses, may need further tests or exploratory surgery.

Other types of scans

Other types of diagnostic scanning devices include:

- **Magnetic resonance imaging (MRI)** – an advanced diagnostic imaging process that produces three-dimensional pictures of the body, by combining a strong magnetic field and radio waves.
- **Computed tomography scan (CT scan)** – uses x-rays and digital computer technology to create an image of internal structures of the body.

Where to get help

- Your doctor
- Ultrasound departments

Things to remember

- Ultrasound is a scan used to demonstrate internal body structures.
- It works by sending out (emitting) high frequency sound waves, directed at the tissue being examined, and recording the reflected sound or 'echoes' to create an image.
- The ultrasound scan is generally non-invasive.
- Common reasons for ultrasound scanning include investigations of the abdominal and pelvic organs, musculoskeletal and vascular systems and to check fetal development during pregnancy.

This page has been produced in consultation with, and approved by:

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