



What is Ultrasound?

Ultrasound examinations use high frequency sound waves to look inside the body. The sound waves are so high the human ear cannot hear them. The sound waves are directed at the internal body part from a small, vibrating crystal in a hand-held scanner (called a transducer). The scanner reflects the sound or 'echoes' to create an image. An ultrasound scan doesn't produce high quality images, but it is non-invasive and doesn't involve radiation. It is commonly used to study the abdominal organs, pelvic organs and breast tissue.

Ultrasound is particularly useful for finding abnormalities in pregnancy and in the female pelvic organs.

How is it performed?

Before the scan, a gel is spread onto the skin to allow the ultrasound waves to pass from the transducer into the body. The transducer is moved across the skin until a good image can be found. Finally, it is held in place while the images are recorded.

Is a full bladder needed?

When women are not pregnant, or in the early weeks of pregnancy, the uterus (womb) and the ovaries lie deep in the pelvis and are often covered by the bowel. The bowel contains gas, which the ultrasound cannot pass through. So it may not be possible to see into the pelvis and the uterus. With some urine in the bladder the bowel is pushed away.

Later in the pregnancy, when the uterus is already up out of the pelvis, a partly filled bladder makes it easier to see the lower part of the uterus. This helps to make sure that the placenta (afterbirth) is not low and is not lying in front of the baby. With modern equipment a very full bladder is not required.

Does ultrasound cause damage?

Ultrasound has been used on pregnant women for nearly 30 years. Despite intensive investigations by many research groups no evidence has been found to suggest that it causes any harm to the developing baby or to the mother. In some countries it is routine to carry out a least one ultrasound examination in every pregnancy, and it is widely used in all developed countries.

Are there and limitations to ultrasound?

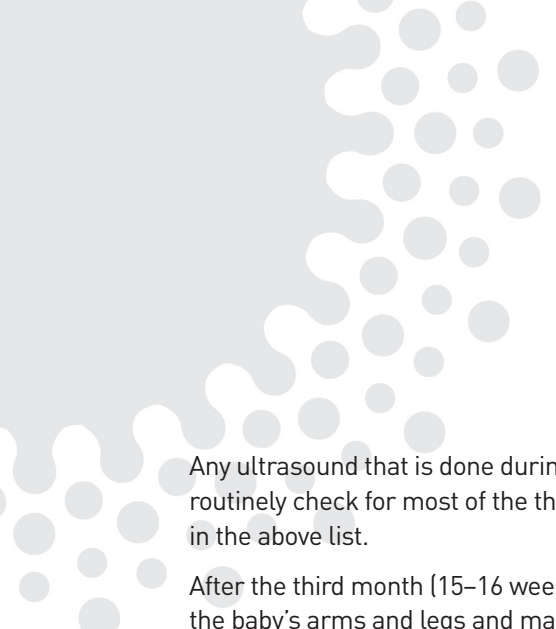
While ultrasound can provide very valuable information about pregnancies and can detect many abnormalities in the fetus, it cannot give a definite answer to every problem on every occasion. Ultrasound cannot guarantee that a baby will be normal in every detail.

In other situations, like assessing women with pain or lumps, the ultrasound images always have to be looked at together with results from other kinds of tests.

Why is ultrasound used in pregnancy?

The most common reasons for an ultrasound examination during pregnancy are:

- to work out when a baby is due
- to see if there had been bleeding in the early part of pregnancy and if the pregnancy is continuing normally
- to see if there is more than one fetus (baby)
- to see if there has been bleeding in later pregnancy the examination will show the position of the placenta
- to check the physical development of the baby and as far as possible, make sure there are no abnormalities
- in later pregnancy, to see if the baby has grown to the size we would expect for the stage of pregnancy.



Any ultrasound that is done during pregnancy will routinely check for most of the things mentioned in the above list.

After the third month (15–16 weeks and onwards) the baby's arms and legs and many of its organs can be seen in detail, including the spine, stomach, bladder and heart.

Unfortunately it is not possible to diagnose Down's Syndrome (mongolism) during the examination. However, many other abnormalities can be ruled out.

How else may ultrasound help?

Because ultrasound gives a continuous picture it is very helpful for guiding a needle to an area deep within the body. A procedure like amniocentesis (withdrawing some of the water from around the baby) is performed while watching the needle with ultrasound.

In patients who are not pregnant, fluid may be removed from cysts on the ovary and in In Vitro Fertilization treatment (IVF) eggs can be collected from the ovaries in a similar way.

What do the pictures look like?

Ultrasound provides a picture of only one slice or section at a time. It is like looking at a slice out of a loaf of bread. The pictures, which are seen on the screen, do not show the whole of the baby at the one time, but only one slice. A picture, which shows the head and the body of the baby, is unlikely to include the baby's arms and legs as well. During the examination every attempt will be made to show you the relevant features on the screen.

What about vaginal scanning?

It is possible to scan patients through the vagina using a specially designed probe. The patient has an empty bladder and a small scanner is placed into the vagina.

There is mild discomfort but there is no way that the procedure will harm the fetus. In patients who are not pregnant or in the early stages of pregnancy this method often provides better images and therefore more information.