

Prime Healthcare Providers, PLLC

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Ultrasound Information

What is General Ultrasound Imaging?

Ultrasound (US) imaging, also called ultrasound scanning or sonography, is a method of "seeing" inside the human body through the use of high-frequency sound waves. The sound waves are recorded and displayed as a real-time visual image. No radiation is involved in ultrasound imaging.

US is a useful way of examining many of the body's internal organs, including the heart, liver, gallbladder, spleen, pancreas, kidneys, veins, arteries and bladder. Because US images are captured in real-time, they can show movement of internal tissues and organs, and enable physicians to see blood flow and heart valve functions. This can help to diagnose a variety of heart conditions and to assess damage after a heart attack or other illness.

What are some common uses of ultrasound imaging?

Millions of expectant parents have seen the first "picture" of their unborn child with pelvic ultrasound examinations of the uterus and fetus. Ultrasound imaging is used extensively for evaluating the eyes, pelvic and abdominal organs, heart, and blood vessels, and can help a physician determine the source of pain, swelling, or infection in many parts of the body. Because US provides real time images, it can also be used to guide procedures such as needle biopsies, in which a needle is used to sample cells from an organ for laboratory testing. Ultrasound is now being used to image the breasts and thyroid and to guide biopsy of breast and thyroid tumors.

Doppler ultrasound is a special technique used to examine blood flow. Doppler images can help the physician to see and evaluate:

1. Blockages to blood flow, such as clots
2. Build-up of plaque inside the vessel
3. Congenital malformations

How should I prepare for the procedure?

You should wear comfortable, loose-fitting clothing for your US exam. Other preparation depends on the type of examination you will have. For an abdominal ultrasound you should eat a fat-free meal the evening before the test and not eat or drink for at least 8 hours before your appointment time.

What does the equipment look like?

Ultrasound scanners consist of a console containing a computer and electronics, a video display screen and a transducer that is used to scan the body. The transducer is a small hand device about the size of a bar of soap, attached to the scanner by a cord. The technologist spreads a lubricating gel on your abdomen in the area being examined, and then presses the transducer firmly against the skin to obtain images.

The US image is immediately visible on a nearby screen that looks much like a computer or television monitor. The technologist watches this screen during an examination; often, you will be able to see it as well.

How does US imaging work?

Ultrasound imaging is based on the same principles involved in the sonar used by bats, ships at sea, and anglers with fish detectors. As the sound passes through the body, echoes are produced that can be used to identify how far away an object is, how large it is, and how uniform it is.

The ultrasound transducer functions as both a generator of sound (like a speaker) and a detector (like a microphone). When the transducer is pressed against the skin, it directs inaudible, high-frequency sound waves into the body. As the sound echoes from the body's fluids and tissues, the transducer records tiny changes in the pitch and direction of the sound. These echoes are instantly measured and displayed by a computer, which in turn creates a real-time picture on the monitor. The live images of the examination are usually recorded on videotape, but one or more frames of the moving picture may be "frozen" to capture a still image.

How is the procedure performed?

You will be positioned on an examination table. A clear gel is applied to the patient's body in the area to be examined, to help the transducer make secure contact with the skin. The sound waves produced by the transducer cannot penetrate air, so the gel helps eliminate air pockets between the transducer and the skin. The technologist presses the transducer firmly against the skin and sweeps it back and forth to image the area of interest.

Although the technologist is able to review the ultrasound images in real time as they are acquired, they will be reviewed by me in greater detail at some later time. When the examination is complete, you may redress and be released immediately. Before you leave the office, please schedule a follow up appointment to discuss the results of your test.

What will I experience during the procedure?

Ultrasound imaging of the abdomen is painless, fast, and easy. You will lie on your back on an examining table. The technologist will spread some warm gel on your skin and then press the transducer firmly against your body, moving it until the desired images are captured. There may be varying degrees of discomfort from pressure as the technologist guides the transducer over your abdomen, especially if you are required to have a full bladder. The examination usually takes less than 30 minutes.

What are the benefits vs. risks?

1. Ultrasound imaging is a painless, low cost examination.
2. Ultrasound is widely available and easy to use.
3. US imaging uses no radiation, and is the preferred image modality for diagnosis and monitoring of pregnant women the fetus.
4. Ultrasound provides real-time imaging, making it a good tool for guiding minimally invasive procedures such as needle biopsies.
5. US images can visualize movement and live function in the body's organs and blood vessels.
6. Ultrasound scanning is painless and noninvasive.
7. For standard diagnostic ultrasound there are no known harmful effects to humans.

What are the limitations of General Ultrasound Imaging?

Ultrasound waves do not reflect clearly from bone or air. For visualization of bone, other imaging modalities should be selected.

Appointment Cancellations:

This time has been especially set aside for your test so please give us at least **24 hour notice** if you are unable to keep your appointment, as a \$25 cancellation penalty will be charged for any missed appointments cancelled the same day of the test.