

PATIENT INFORMATION

Duplex Ultrasound for Venous Insufficiency

Your doctor has recommended a duplex ultrasound scan of the veins in your legs to assess for venous insufficiency. The information in this pamphlet provides you with important information about the ultrasound scan, including why it is necessary and what is involved.

What is venous insufficiency?

Venous insufficiency occurs with a condition known as chronic venous disease (CVD). CVD occurs when blood has difficulties returning to the heart from the legs, often due to malfunctioning (incompetent) valves that fail to prevent backflow, resulting in pressure buildup in the legs. Common clinical features include spider veins, varicose veins, and leg swelling. This condition can also produce skin changes, discoloration, pigmentation, eczema, ulcers, fatigue, tingling, itching, aching, burning, pain, throbbing, heaviness, muscle cramps, and restless legs. The severity and type of symptoms can vary among individuals and may also be influenced by factors such as daily activities, temperature, and hormonal changes over time.

Why is a duplex ultrasound examination required?

Your vascular specialist (e.g., vascular surgeon, interventional radiologist, or vein doctor) may have ordered this ultrasound scan if they suspect you have vein problems. Ultrasound is a safe, non-invasive, and reliable imaging test that is often the first choice for checking veins in the leg. During the test, conventional ultrasound (black-and-white mode) is used to examine the structure (anatomy) of your veins, while duplex ultrasound, which includes Doppler imaging, evaluates the blood flow in veins and checks if the valves are working properly. The results will help your doctor identify the issue and determine the best way to correct it.

Who will perform the scan?

The specialist or doctor may occasionally perform the scan themselves. However, most scans are performed by medical sonographers, who are experts in diagnosing medical conditions using ultrasound technology. In Australia and New Zealand, sonographers complete 2-4 years of university education, along with extensive clinical training, to qualify for performing these examinations.

What preparation is required?

No special preparation is required for this type of ultrasound examination. However, it is recommended to have the scan performed in the afternoon for the most accurate results. You may also want to bring loose-fitting shorts to wear during the examination for your privacy and comfort.

Consent

Supplementary file to 'Duplex ultrasound examination of the lower limb for chronic venous disease: evidence based

guideline for sonographers
The sonographer will ask for your consent before the scan. He/she will explain the procedure to you and if you have any questions, it is important that you ask those questions before providing consent. You have the right to decline, and to withdraw your consent during the examination. If you decline or withdraw consent, you should discuss the implications of this firstly with the sonographer, and secondly with the doctor who referred you to the ultrasound scan.

The scan may be performed by a sonographer of any gender. If you have a strong preference for a female sonographer due to cultural or religious reasons, please contact the practice prior to your appointment so that arrangements can be made.

What will happen during the examination?

Each leg takes about 30-45 minutes to scan. The sonographer performs the scan from your groin to your ankle. Sometimes, it may be necessary for them to also scan your lower abdomen or pelvis.

You will be asked to remove your shoes, socks, pants or skirts, but can keep your underwear on during the scan. If you have leg ulcers, your wound dressings may either stay on or be removed, depending on the sonographer's judgment and the practice's protocol.

For best results, your legs need to be in a dependent position while the scan is undertaken. This means that you will be required to stand for most of the scan. The scan is usually performed while you are standing and facing the sonographer, with the leg being examined rotated outward, and your weight placed on the non-scanned leg. For veins located on the back or outer side of the leg, you may be asked to turn, allowing the sonographer better access for the assessment. In some cases, the scan may be performed while you lie on a bed that tilts upward and can be moved up and down. If you have problems standing for any period of time, it is important to let your sonographer know, and they will adapt the way they perform the scan for your comfort and safety.

To test blood flow, the sonographer may gently squeeze your leg or ask you to tip your toes. You may also be asked to hold your breath and bear down to help assess the function of the valves.

Are there any risks?

Unlike other imaging methods, ultrasound does not use radiation. Ultrasound scans are generally considered very safe, with no known risks from the procedure itself.

Some mild discomfort may occur if the leg is sensitive to pressure during the scan. Since the scan can take time, you may become tired or need to adjust your balance, and a short break can be taken if necessary. It is not uncommon for patients, especially younger ones, to feel lightheaded, dizzy, or faint during the scan due to the standing position. If you start to feel faint, inform the sonographer right away, and they can adjust the procedure to ensure your comfort and safety. If you have concerns about infection due to an open wound, a sterile probe cover and gel can be used to protect the area during the scan.

What happens after the scan?

A detailed ultrasound report will be sent to the doctor who arranged the scan. You may need to return to them to discuss the results and explore treatment options if clinically indicated.