



## ULTRASOUND

Vascular Ultrasound is a non-invasive, painless, safe and open method of imaging that assesses the circulatory system.

Ultrasound utilizes high-frequency sound waves to image blood vessels. This allows the technologist to visualize the blood flow to vital organs and tissues and to evaluate the post surgical effectiveness of vascular interventions. Vascular Ultrasound is also used to identify deep vein thrombosis (DVT) and evaluate the competency of vein valves.

The Tri-Cities Vein & Vascular Institute uses Vascular Ultrasound to evaluate the status of arteries and veins throughout the body. The Tri-Cities Vein & Vascular Institute monitors vascular interventions, such as grafts and stents, as well as patients with a history of disease processes based on Medicare guidelines.

Vascular Ultrasound examinations vary from 30 to 90 minutes. Ultrasound coupling gel is used to transmit the sound waves through the skin. There are no known bioeffects of Ultrasound.

- **Renal**
  - This study tells us how the blood flow is getting to your kidneys. We look at the renal arteries, the flow within the kidney and the abdominal aorta.
  - **Reasons to have this test:** If you have uncontrollable high blood pressure, stents in your renal arteries, or a family history of abdominal aortic aneurysm.
  
- **AAA (abdominal aortic aneurysm)**
  - This study tells us if your aorta is becoming enlarged by measuring the abdominal aorta and the iliac arteries. An abdominal aorta over 3cm in diameter is considered aneurysmal. AAAs often have no symptoms; mortality rate is high if they rupture.
  - **Reasons to have this test:** If you have a family history of AAAs or are a male who is between 65-75 years old and has smoked at least 100 cigarettes in his lifetime.
  
- **Mesenteric**
  - This study tells us how the blood flow is getting to your intestines. We look at the celiac trunk, superior mesenteric, inferior mesenteric arteries and abdominal aorta.
  - **Reasons to have this test:** If you have increasing abdominal pain after eating, develop the fear of eating due to stomach pain, or experience extreme weight loss.
  
- **Portal Vein**
  - This study looks at the liver and its associated veins and arteries to assess for blood clots, atherosclerotic processes, or abnormalities.
  - **Reasons to have this test:** If you have decreased liver function, enlarged spleen, ascites, and esophageal varices.
  
- **Carotid**

- This study tells us how the blood flow is getting to your brain. We look at the common carotid, external carotid, internal carotid, vertebral and subclavian arteries to see if there is any plaque that would be obstructing blood flow.
- **Reasons to have this test:** If you are experiencing any dizziness, sudden vision changes or weakness on one side or the other; if you have a history of peripheral arterial disease (PAD), stroke or heart attack.
- **Transcranial Imaging (TCI)**
  - This study looks at the intracranial arterial flow that feeds the brain. We make sure that all the vessels are flowing the appropriate direction and that there are no narrowing in the vessels.
  - **Reasons to have this test:** If you have had a stroke, have high grade or occlusive carotid artery disease, experiencing any dizziness, sudden vision changes or weakness on one side or the other.
- **Peripheral Venous**
  - This study helps us to rule out a deep vein thrombosis or incompetent veins. The veins in your legs have valves that help to push the blood back up to your heart; when these valves stop working blood can pool causing swelling and pain.
  - **Reasons to have this test:** If you are experiencing any pain or swelling in your legs, visible varicose veins or ulcers.
- **Peripheral Arterial**
  - This study tells us how the blood is flowing down into your legs. Atherosclerotic plaque can build up in your arteries restricting blood flow down to your feet causing pain after walking short distances.
  - **Reasons to have the test:** If after walking a short distance you start feeling pain or cramping in your buttocks, thighs or calves; if you have a history of diabetes, hypertension, high cholesterol, smoking, ulcers, and/or non-healing wounds in your feet, ankles or toes.
- **Dialysis Access Evaluations**
  - This study tells us how the blood is flowing through your fistula. Dialysis fistulas are a connection between an artery and a vein using either native vessels or a synthetic graft, typically in the arm. This helps to have better access and blood flow during dialysis.
  - **Reasons to have this test:** If you are having any complications during dialysis.
- **Pre-Dialysis Mapping**
  - This study looks at your veins and arteries in the arm to see if and where you could have a permanent fistula placement. We make sure all your veins are fully compressible and free from obstruction, and are large enough to use as an arteriovenous fistula. We also look at the arteries to make sure they have normal blood flow and there are no obstructions. If there are no adequate veins, a synthetic graft can be used to connect an artery and a vein to make a fistula.
  - **Reasons to have this test:** If you are in need of dialysis through a permanent fistula placement due to chronic kidney failure.
- **Vein Mapping**
  - This study looks at the superficial veins in your legs and possibly your arms to see if they can be used as an arterial bypass graft. We make sure all of the veins are fully compressible and free from obstruction, and are large enough to use as an arterial bypass graft. If the vein is large enough then we use a permanent marker to map where the vein and its branches lay. This makes it easier for the doctor when it comes time for surgery.
  - **Reasons to have this test:** If you are in need of an arterial bypass graft due to PAD.

- **Graft/Stent Evaluation**
  - This study looks at the flow in a graft/stent that has bypassed or stented an occluded or highly obstructed artery. Bypass grafts can be either a vein or a synthetic graft.
  - **Reason to have this test:** If you have a bypass graft that might be showing signs of becoming occluded. Routine ultrasounds can identify these signs and hopefully prevent a problem
  
- **Ankle Brachial Index (ABI)**
  - This study looks at the blood pressures in your legs and compares it to the blood pressure in your arms. A person with no peripheral arterial disease will have the same pressure or slightly higher in their legs as compared to their arm pressure. A person who has PAD will have a significantly lower blood pressure in their legs as compared to their arms.
  - **Reasons to have this test:** If you have pain and cramping in your legs while walking short distances.