

## ***DUPLEX ULTRASOUND IMAGING***

In addition to a careful medical history and physical examination, it is likely that you will be advised to have a duplex venous ultrasound imaging evaluation done from an insufficiency standpoint with you in a standing position to examine your superficial and deep vein systems (reference “*vein anatomy and physiology*” section). Duplex ultrasound, as it is usually referred, is a painless diagnostic procedure where an ultrasound probe is passed over your legs from top to bottom looking for and evaluating the location, nature and function of veins, both under your skin outside of the muscle compartment, which composes the superficial vein system as well as the deep veins that run deep within the muscle compartments of your leg. We specifically look at the areas where these vein systems join. In other words, near the groin where the great saphenous vein joins the deep vein, or common femoral vein as well as in the lower leg where the small saphenous vein joins the popliteal vein, which is a part of the deep vein system. All along the veins, there are one-way check valves (reference “*vein anatomy and physiology*” section) which control the direction of blood flow. Using breath holding Valsalva maneuvers and compression of your calf or thigh, the examiner is able to identify abnormal flow of blood, obstruction of the veins and other abnormalities. Equally important is identifying any aberrant veins or evidence of neovascularization, which is new vein growth in individuals who have had prior vein strippings and have had recurrent problems.

The ultrasound actually sends ultrasonic waves through the leg and these waves reflect back into the probe giving us a contour and flow pattern of these veins on the ultrasound screen. During the evaluation you will be able to watch and learn more about the anatomy and function of the veins and valves. However, it is important for you to try to learn as much as you can about the anatomy and valvular function before your examination so that it has much more meaning to you and you can participate in appropriate decision making for ultimate treatment. The particular ultrasound device that we use has both grey scale function, which images the location, size and direction of the vein pattern and also a color flow Doppler mode, which you will see us switching back and forth to during your evaluation. The Color flow duplex actually demonstrates the direction of flow of blood. This will be visible by both blue and red colors. This will be explained in more detail to you during your evaluation.

Duplex ultrasound imaging, such as that discussed above, has been fairly revolutionary for us in identifying the exact vein pattern and exact areas where reflux begins thus providing us with a very precise pattern to allow precise treatment of your specific disorder.

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