What is an Echocardiogram?

An echocardiogram, also known as a cardiac ultrasound, is a sonogram of the heart. This advanced type of diagnostic imaging is beneficial for many reasons:

- The procedure is non-invasive and painless
- Sedatives are not required for most patients
- No radiation is involved
- There are no confirmed adverse biological effects on the patients
- Most cardiac diseases can be diagnosed with echocardiography and an appropriate treatment plan can be determined.

What can an echocardiogram tell us?

Doppler Echocardiography is a great diagnostic tool that allows the ultrasonographer to visualize the heart and its structure. It can determine:

- The size of the heart
- The thickness of the heart walls
- The shape of the heart
- The pumping capacity of the heart
- The location of possible damage to the heart tissue and/or tumors
- Any abnormalities in the pattern of blood flow or any possible blood clots
- Any possible abnormalities in the heart valves
- Any possible abnormalities of the pericardium (sac surrounding the heart)

How Does it work?

Ultrasound technology uses sound waves (acoustic energy) that are above the range of human hearing. The sound waves are produced by a transducer (located inside a probe that is pressed gently against the skin of the patient). These focused waves travel through the body and are reflected/partially reflected off different layers of tissue in the body, which produces an image for the ultrasonographer to see. This is the same technology that is used for sonography of pregnancies in humans.

Why does my pet need an echocardiogram if we've already done other tests?

Many diagnostic tools to evaluate your pet's heart health are available; each type of diagnostic can tell different things about the heart.

Your pet may have had an **electrocardiogram** (also known as an ECG or an EKG). An ECG shows the electrical currents running through the heart, and may show any aberrations in the rate or rhythm of the heart. However, the echocardiogram will show the actual physical condition and structure of the heart, as well as blood flow throughout the heart.

Your pet may have also had **thoracic radiographs** (chest x-rays) done. While this type of imaging diagnostic is also helpful in distinguishing the cardiac silhouette, the echocardiogram is capable of discriminating between the blood-filled cardiac chambers and soft tissue structures of the heart, while radiographs cannot. Also, echocardiography has the benefit of allowing our cardiologist to evaluate the heart in action, in real time (unlike in radiographs, which only allows for a still image to be taken).

Echocardiography, electrocardiography and radiology are all important diagnostic tools in evaluating your pet's heart health. Your veterinarian will be able to help decide which tests are right for your pet.

What do I need to do to prepare for my appointment?

Your veterinarian will be able to set up an appointment for your pet. Instructions will be given to you for your appointment (such as when to arrive, what to bring (if necessary), etc.).

Do I need to withhold food, water or medications overnight?

Normally, you would not need to withhold food or water from your pet before the appointment for an echocardiogram. Medications should also generally be given to your pet as normal. However, your veterinarian may ask that you withhold food, water or medications for your appointment under special circumstances. Please ask your veterinarian for specific recommendations for your pet.

What happens when my pet has an echocardiogram?

Prior to the echocardiogram, the cardiologist will evaluate your pet, your pet's medical history and labwork, and any radiographs that were done (if applicable). Your pet will be brought to a dimly-lit room. The room is dim not only to give the cardiologist a better view of the ultrasound screen, but it also helps in providing a calm environment for your pet.

Your pet will be laid on his/her side. A technician will gently hold your pet for the echocardiogram. If your pet has long fur, the technician may need to shave the chest area. It is important that the probe has good contact with the skin of the pet in order to get a diagnostic view of the heart.

The cardiologist will apply gel and/or alcohol to the pet's chest and on the probe. The gel and alcohol are non-toxic and water soluble. They are used to allow the sound waves to better penetrate the chest wall. The probe is then gently applied to the pet's chest, and the ultrasound image is then viewed on the screen by our cardiologist, who will thoroughly evaluate the patient's heart. The procedure takes approximately 20-30 minutes in most cases.

After evaluating all of the information, the cardiologist will then be able to make any recommendations on treatment, medication, and/or further diagnostics.

Who will be performing the echocardiogram?

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What is a board-certified Veterinary Specialist (Diplomate)?

According to the American College of Veterinary Internal Medicine (ACVIM):

> In addition to completing undergraduate training and four years of veterinary school, Board-certified Veterinary Specialists are similar to their human medical counterparts in that they have completed an internship and residency in their specialized field (an additional 3-5 years training). In addition to this extensive training, a Board-certified Veterinary Specialist must pass rigorous examinations to achieve Board certification from the ACVIM.

[Board-certified Veterinary Cardiologists] focus on diagnosing and treating disease of the heart and lungs, which include:

- Congestive heart failure
- Damage to the heart muscle or valves
- Coughing and other breathing problems
- Congenital (present at birth) defects
- Cardiac arrhythmias (problems with the rate and/or rhythm of your animal's heart)

Resources

Cardiology". 2005. American College of Veterinary Internal Medicine. 8 July 2008. <http://www.acvim.org/index.aspx?id=1775>

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"Frequently Asked Questions About the ACVIM and Specialty Veterinary Care" 2005. American College of Veterinary Internal Medicine. 8 July 2008. <http://www.acvim.org/index.aspx?id=244>

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