

Abnormal Heart Sounds

Your cat was diagnosed with abnormal heart sounds today. What does that mean for your cat?

When we listen to your cat's heart, we are listening for the rate, rhythm, and sounds. A normal cat heart rate is about 120-150 at home, and about 150-220 at the vet clinic due to stress. The sound should be crisp and clear and have a regular pattern to it. The heart has four chambers, two ventricles and two atria. The "lub dub" sound that we hear when we listen to your cat's heart is the closing of the valves as the blood is being moved through your cat's heart. Anything that changes how the heart pumps or that affects the valves closing can cause abnormal heart sounds.

Today, when we listened to your cat's heart, we heard:

Heart murmur / Heart arrhythmia / Tachycardia / Muffled heart sounds / Pounding heart sounds

Heart murmur:

- A heart murmur means that either the valves in the chambers of your cat's heart are not closing properly, and that blood is sliding past these valves when it should not be, or in rare cases in young cats, that there is a hole in your cat's heart that blood is going through where it should not be.
 - This can vary in sound intensity depending on how much blood is going through and at what rate.
 - We rate the intensity of murmurs on a 1 thru 6 scale. A grade 1 heart murmur is so quiet that we can barely hear it. A grade 6 murmur is so loud that you can just about feel it on the chest. Most cat heart murmurs are somewhere in between.
- 30% of cats can have lower grade heart murmurs and NOT have any clinical signs of heart disease. These can be what is known as dynamic murmurs, and are usually only found at higher heart rates, and disappear at lower heart rates, as a result of your cat's heart operating at a faster rate than normal, and the heart muscles and valves not being able to keep up with each other.
 - High blood pressure can also cause heart murmurs due to the increased pressure pushing the blood through the heart chambers, and being at a vet clinic can definitely increase your cat's blood pressure.
- 70% of cats that have heart murmurs do have heart disease. Now, this could be very mild heart disease, but to determine this we need to do additional tests such as a blood pressure, chest x-ray and/or echocardiogram.

Heart arrhythmia:

- A heart arrhythmia means that the heart is not keeping a nice normal rhythm, either because of heart disease, or because of electrical abnormalities in the heart's pacemaker system.
- It is possible to have mild heart arrhythmias that do not indicate a problem, but these are rare in cats. For most cats, if we hear an arrhythmia, there is some type of abnormality in the heart.
- We grade heart arrhythmias as well, but on a slightly more complex scale. Heart arrhythmias are graded as:
 - **Regularly regular.** This means that your cat's heart rate seems to be consistent, but it doesn't sound quite right, and will look abnormal on an ECG. The most common cause of this arrhythmia is a 3rd degree AV node block which is an electrical abnormality, but which can also be caused by heart disease.

- **Regularly irregular.** This means that your cat's heart rate is abnormal, but consistently so in a pattern. A common cause of this arrhythmia would be 2nd degree AV node block which is an electrical abnormality, but in some cases can also be caused by heart disease.
- **Irregularly regular.** This means that your cat's heart rate is jumping between different types of beats – it may run consistently at 250 for 20 seconds, then drop down to run consistently at 150 for 20 seconds. This is usually caused by significant heart disease, but can also be caused by electrical abnormalities.
- **Irregularly irregular.** This is the most common type of heart arrhythmia that we will hear in cats. This means that your cat's heart rate is not consistent at rate or rhythm. In mild cases this may be normal, but it can also indicate significant heart disease.
- If we hear an arrhythmia in your cat's heart rate, then there are tests we can do to determine the cause. An ECG is the first step, but it may need to be followed with a chest x-ray or echocardiogram.

Tachycardia:

- Tachycardia is the medical term for a faster than normal heart rate. Stress can certainly cause a faster than normal heart rate, but we take that into account when we listen to your cat's heart. If your cat's heart rate exceeds 220 beats per minute consistently, and does not slow down as your cat relaxes, then that can potentially indicate heart disease.
- The most common type of heart disease in cats, hypertrophic cardiomyopathy (HCM) results in thickening of the heart ventricle walls. Over time, the chamber sizes in the ventricles become smaller and smaller due to the thickening of the walls. The heart is still trying to pump the same amount of blood through, but now the blood has a smaller area to go through with each pump, so it will increase in speed to compensate.
- To determine if HCM or any other type of heart disease is present, we would need to do a chest x-ray and/or an echocardiogram.

Muffled heart sounds:

- Muffled heart sounds mean that there is something coming in between your cat's heart and the wall of their chest. Some of the reasons that can cause this are:
 - **Obesity.** A large amount of fat in the chest cavity can muffle heart sounds.
 - **Lung disease.** Asthma, pneumonia, and cancer can also cause muffled heart sounds, but we will usually see other signs of these as well. These can be easily ruled out by a chest x-ray.
 - **Pleural effusion.** This is when fluid builds up in your cat's chest cavity outside of the lungs. There can be several causes for this, and this can be seen on a chest x-ray or ultrasound.

Pounding heart sounds:

- If we listen to your cat's chest, and it sound like the heart is pounding, there can be several normal causes for this, but this can also indicate a disease process.
 - The most common reasons for this are stress and overexertion. Have you ever felt your heart pounding in your ears when you are stressed or after strenuous exercise? Same concept.
 - Disease processes that can commonly cause this are hypertension and emphysema, both of which can be ruled in or out with a blood pressure and chest x-ray.

If we heard abnormal heart sounds on your cat today, then we may want to do some tests to determine the cause. If the tests are normal, then heart disease is very unlikely. If the tests show a disease process, we may be able to treat with medication and diet to prolong your cat's quality and length of life, before they start showing signs of illness.

Tests:

- **Blood pressure.** This measures your cat's blood pressure in a manner very similar to how your own is measured. However, since cats are significantly more stressed than you are at your doctor's, we may take multiple readings until we are confident that your cat is as relaxed as possible, and we will take into account your cat's stress level when we interpret the results.
 - A normal blood pressure reading for a cat at home at rest is the same as yours – 120/70.
 - At the clinic, we will routinely add 50 points to the systolic to account for stress, so if your cat's systolic is 170 or less, we consider that normal.
 - If your cat's systolic is between 170-190, we consider that the grey range, and will factor your cat's behavior and stress level during the blood pressure readings to determine whether to start medication.
 - If your cat's systolic is greater than 190, unless your cat was fighting, growling, and striking out during the entire process, we will consider that to be high blood pressure, and may want to start your cat on medications.
- **Chest x-ray.** This looks at the overall silhouette of your cat's heart, and it also looks at the lungs, blood vessels in the chest cavity, and anything else in the chest.
 - If your cat's heart silhouette is enlarged or if we see increased definition to the silhouette, or if we see anything else abnormal in the chest cavity, that may be enough for us to make a diagnosis. If everything looks normal, or if we want additional information about an abnormality, then we may also recommend an echocardiogram or chest ultrasound.
- **Echocardiogram.** This consists of using an ultrasound to look inside your cat's heart to look at the heart walls, valves, blood motion, and overall contractility. This is best done by an experienced ultrasonographer, or even better, by a veterinary cardiologist or radiologist as this can be more difficult to adequately read and interpret.
- **Chest ultrasound.** This is similar to an echocardiogram, but rather than looking for more detailed information about the heart, we are looking for information about the lungs or any abnormalities in the chest cavity. We may also look at the heart, but will not recover as much detail as with an echocardiogram.
- **ECG.** This stands for electrocardiogram, also known as an EKG. This measures the electrical activity of your cat's heart, and can help determine what type of arrhythmia we are hearing, as well as contribute to the diagnosis of heart disease.

If you have any questions regarding any of the information presented here, or what we heard when we listened to your cat, please feel free to contact us at All Feline Hospital at 402-467-2711 or info@allfelinehospital.com.