

Dilated Cardiomyopathy in Cats

What is dilated cardiomyopathy?

Dilated cardiomyopathy (DCM) is a disease of the heart that has two main components. The word “dilated” indicates that the main pumping chambers of the heart (the ventricles) are enlarged compared to their normal size. “Cardiomyopathy” refers generically to an abnormality of the heart muscle. In the case of DCM, the problem is that the muscle becomes weak and incapable of pumping blood forward as strongly as it should.

DCM is an *acquired* type of heart disease and typically begins well into adulthood, as opposed to congenital heart disease which is present at birth. In a small percentage of cats, it is caused by a dietary deficiency in an amino acid called taurine. Prior to the discovery of this problem in 1987, this was the most common cause of DCM in cats. Since then, however, feline diets have been formulated to contain adequate quantities of taurine, so that DCM caused by taurine deficiency is now rare. At least one study suggests a possible hereditary basis for DCM in some cats. Nonetheless, the majority of cases of DCM in cats are considered to be *idiopathic*, which means that no specific cause can be identified.

Diagnostic Testing

Heart disease may first be suspected during routine **physical examination**. Abnormalities that may be noted include the presence of a heart *murmur* (an abnormal “whooshing” sound associated with the normally crisp heart sounds) and weak arterial pulse strength. An arrhythmia (irregular heart rhythm) may also be detected. If congestive heart failure is present at the time of diagnosis, other physical exam findings may be present, such as rapid and labored breathing. Breath sounds heard with a stethoscope may be either extremely quiet or unusually loud, depending on where fluid has accumulated.

Diagnosis of DCM requires an **echocardiogram** (ultrasound examination of the heart). During this test, the size of the heart’s chambers and the strength of its contraction are measured. Cats with DCM have enlarged heart chambers and decreased contractile function. The degree to which the pumping ability of the heart is decreased is variable at the time of initial diagnosis. Both of these abnormalities tend to progress over time.

Chest x-rays provide a “big picture” view of the heart and lungs within the chest cavity. Prior to the onset of congestive heart failure, chest x-rays yield a baseline for future comparison. Once congestive heart failure develops, they comprise the most important imaging test by which the response to medical therapy is assessed. An **electrocardiogram** (often called an EKG or ECG) is used to identify and characterize arrhythmias, or abnormalities in cardiac rhythm. Treatment of an arrhythmia may be necessary if it occurs frequently, if it is associated with symptoms such as weakness or fainting episodes, or if it is deemed to present a risk for sudden death.

Although taurine deficiency has become rare, measurement of **blood taurine levels** in at the time of initial diagnosis remains important due to the implications regarding long-term prognosis (see below). In addition, screening blood work and urine analysis are important in the assessment of other organ function, particularly that of the kidneys. Kidney values and electrolytes can be affected by many of the commonly used medications in the treatment of heart disease and heart failure. Therefore, it is important to monitor these values periodically so that side effects can be avoided or minimized.

How is DCM treated?

Therapy for DCM includes an “**ACE inhibitor**” such as the drug **enalapril**. By causing blood vessels to relax and combating some of the counterproductive hormonal processes that result from poor cardiac function, ACE inhibitors reduce the workload placed on the heart. If congestive heart failure is present or develops after initial diagnosis, **furosemide** (often referred to by one of its brand names, **Lasix**) is also begun. Lasix increases urine production, decreasing the amount of fluid retained in the body. Similarly to ACE inhibitors, Lasix reduces the amount of work required by the failing heart.

Digoxin is another medication that is sometimes used. It is particularly useful to treat certain arrhythmias, in which it helps to keep the heart rate somewhat slower. It also causes the heart to contract a bit more strongly. Due to the potential benefit of taurine, initial supplementation is often recommended in cats diagnosed with DCM. If the measured blood taurine level is normal, then supplementation is discontinued. Other medications may be used as well, depending on the initial response to therapy, the presence of arrhythmias, and the nature of the symptoms exhibited.

What is the prognosis? What should I watch for?

Prognosis is variable between cats. Rare cases of taurine deficiency carry an excellent prognosis provided that heart failure, if present, is successfully resolved. For the majority of cats, prognosis depends upon whether or not congestive heart failure is already present at the time of initial diagnosis. If there is no evidence of heart failure, the time until it develops is difficult to predict but may be several months or more. Unfortunately, once heart failure occurs, long-term prognosis is poor. However, medical therapy is useful to relieve symptoms of heart failure, and can greatly improve quality of life during this time.

Once the diagnosis of DCM has been made, it is important to watch for signs of heart failure (the buildup of excessive fluid in the body due to heart disease). Symptoms of heart failure include **lethargy**, **weakness**, **intolerance to activity or exercise**, and **rapid or labored breathing**. Some cats may only show mild behavioral changes such as hiding or **loss of appetite**. Finally, a small subset of cats with heart disease form blood clots inside their heart, which can then be released and become lodged in an artery downstream. This can result in a sudden onset of **difficulty walking**, atypical **vocalization**, and even **sudden death**. Observation of even the milder of these symptoms warrants a phone call to either your regular veterinarian or the Cardiology Service at Veterinary Specialty Services. More severe symptoms, such as difficulty breathing or walking, require immediate attention on an emergency basis.