

**Cardiovascular Disorders**

DILATED CARDIOMYOPATHY (DCM) IN CATS



Although dilated cardiomyopathy (DCM) caused by taurine deficiency was once a common diagnosis for feline heart disease, most commercial cat foods now contain additional taurine to help prevent DCM. However, cats on non-commercial diets are still at risk for taurine deficiency and some cases of DCM are idiopathic—the exact causes of heart muscle weakness in cats are not known.¹ Nutrition can help support feline heart health.

Key Messages

- For cats, taurine is an essential amino acid obtained through the diet from meat, shellfish, or supplementation.²
 - Taurine plays key roles in maintaining contractility of heart muscle and stabilizing heart cells, but it also has essential roles in other organ systems.
 - Decades ago, researchers discovered that taurine deficiency was linked with the development of DCM in cats, which led to additional taurine supplementation in commercial cat foods.^{3,4}
 - DCM now accounts for about 10% of diagnosed feline cardiomyopathies.¹
- A detailed dietary history is important in cats with heart disease.
 - Home prepared diets without meat or made with meats low in taurine (such as chicken breast), may lead to taurine deficiency-related DCM in cats.¹
- Additional nutrients recognized to support heart health include:
 - Omega-3 fatty acids (e.g., DHA and EPA) may help reduce inflammatory mediators and oxidative stress, and reduce cardiac remodelling.^{5,6}
 - Antioxidants, such as vitamins C and E, can help prevent damage from reactive oxygen species.⁷
 - Magnesium serves many roles in healthy heart function, including antiarrhythmic and antioxidant actions.⁸

DID YOU KNOW?

A heart murmur is an unreliable indicator of cardiomyopathy in cats.^{9,10}

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References

1. MacDonald, K. (2016). Feline cardiomyopathy. In F. W. K. Smith, Jr., L. P. Tilley, M. A. Oyama, & M. M. Sleeper (Eds.), *Manual of canine and feline cardiology* (5th ed., pp. 153–180). Elsevier.
2. Sanderson, S. L. (2006). Taurine and carnitine in canine cardiomyopathy. *The Veterinary Clinics of North America: Small Animal Practice*, 36(6), 1325–1343. doi: 10.1016/j.cvsm.2006.08.010
3. Pion, P. D., Kittleson, M. D., Rogers, Q. R., & Morris, J. G. (1987). Myocardial failure in cats associated with low plasma taurine: A reversible cardiomyopathy. *Science*, 237(4816), 764–768. doi: 10.1126/science.3616607
4. Pion, P. D., Kittleson, M. D., Thomas, W. P., Skiles, M. L., & Rogers, Q. R. (1992). Clinical findings in cats with dilated cardiomyopathy and relationship of findings to taurine deficiency. *Journal of the American Veterinary Medical Association*, 201(2), 267–274.
5. Freeman, L. M., Rush, J. E., Kehayias, J. J., Ross, J. N., Jr., Meydani, S. N., Brown, D. J., Dolnikowski, G. G., Marmor, B. N., White, M. E., Dinarello, C. A., & Roubenoff, R. (1998). Nutritional alterations and the effect of fish oil supplementation in dogs with heart failure. *Journal of Veterinary Internal Medicine*, 12(6), 440–448. doi: 10.1111/j.1939-1676.1998.tb02148.x
6. Freeman, L. M. (2010). Beneficial effects of omega-3 fatty acids in cardiovascular disease. *Journal of Small Animal Practice*, 51(9), 462–470.
7. Pisoschi, A. M., Pop, A., Lordache, F., Stanca, L., Predoi, G., & Serban, A. I. (2021). Oxidative stress mitigation by antioxidants - An overview on their chemistry and influences on health status. *European Journal of Medicinal Chemistry*, 209, 112891. doi: 10.1016/j.ejmech.2020.112891
8. Del Gobbo, L. C., Imamura, F., Wu, J. H., de Oliveira Otto, M. C., Chiuve, S. E., & Mozaffarian, D. (2013). Circulating and dietary magnesium and risk of cardiovascular disease: A systematic review and meta-analysis of prospective studies. *The American Journal of Clinical Nutrition*, 98(1), 160–173. doi: 10.3945/ajcn.112.053132
9. Côté, E., Manning, A. M., Emerson, D., Laste, N. J., Malakoff, R. L., & Harpster, N. K. (2004). Assessment of the prevalence of heart murmurs in overtly healthy cats. *Journal of the American Veterinary Medical Association*, 225(3), 384–388. doi: 10.2460/javma.2004.225.384
10. Wagner, T., Fuentes, V. L., Payne, J. R., McDermott, N., & Brodbelt, D. (2010). Comparison of auscultatory and echocardiographic findings in healthy adult cats. *Journal of Veterinary Cardiology*, 12(3), 171–182. doi: 10.1016/j.jvc.2010.05.003

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