

# Effect of Feline Diabetes on Cardiac Function

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## In the Literature

Pereira NJ, Novo Matos J, Baron Toaldo M, et al. Cats with diabetes mellitus have diastolic dysfunction in the absence of structural heart disease. *Vet J.* 2017;225:50-55.

## FROM THE PAGE ...

In human medicine, diabetes mellitus (DM) is a well-documented cause of cardiac dysfunction, specifically diastolic dysfunction. Unlike patients with systolic dysfunction, patients with diastolic dysfunction have preserved pumping abilities.<sup>1</sup> Although previous studies have identified high incidences of congestive heart failure in diabetic cats, this study was the first to prospectively evaluate the incidence of diastolic dysfunction in cats with DM.<sup>2</sup> The purpose was to determine if cats with newly diagnosed DM acquired diastolic dysfunction similarly to humans and, secondarily, to determine if diastolic dysfunction progresses over time.

Thirty-two diabetic cats and 10 healthy age- and weight-matched controls were included in the study. All 32 cats with DM and 10 controls underwent baseline echocardiograms and Doppler blood pressure measurements. No evidence of systolic dysfunction was noted in any study cats. On initial evaluation, diastolic studies were completed in 21 of the 32 cats with DM and 5 of the 10 controls. Of the 21 cats with DM, 33% were normal and 67% had evidence of diastolic dysfunction. Of the 5 control cats, 80% were normal and 20% had evidence of diastolic dysfunction.

On 6-month follow-up examination, 17 of the 32 cats with DM had either died or were lost to follow-up or the owners declined follow-up. The remaining 15 cats with DM underwent recheck echocardiograms 6 months after initial assessment. Of these, 5 were in DM remission, whereas the remaining 10 required continued treatment with

glargine +/- exenatide (a glucagon-like peptide-1-receptor agonist) therapy. Twelve of the cats with DM underwent diastolic studies at 6-month follow-up; 17% had normal diastolic studies, whereas 83% demonstrated diastolic dysfunction. Fewer cats in diabetic remission still had evidence of diastolic dysfunction (60%) as compared with cats not in remission (100%). None of the cats developed congestive heart failure secondary to diastolic dysfunction.

## ... TO YOUR PATIENTS

Key pearls to put into practice:

- 1 Diastolic dysfunction is diagnosed by employing specific echocardiographic techniques.
- 2 Cats with DM demonstrate diastolic dysfunction, which appears to worsen over time in cats that require continued antidiabetic therapy. It is possible that diastolic dysfunction may progress to congestive heart failure in some cats with DM.
- 3 Cats in diabetic remission continue to show evidence of diastolic dysfunction, but dysfunction appears improved as compared with cats not in remission.
- 4 Cats with DM may experience cardiac complications over time and may benefit from routine echocardiography, even in the absence of cardiac murmurs.

## References

1. Satpathy C, Mishra TK, Satpathy R, Satpathy HK, Barone E. Diagnosis and management of diastolic dysfunction and heart failure. *Am Fam Physician.* 2006;73(5):841-846.
2. Little CJ, Gettinby G. Heart failure is common in diabetic cats: findings from a retrospective case-controlled study in first-opinion practice. *J Small Anim Pract.* 2008;49(1):17-25.