

## Testing for Dilated Cardiomyopathy (DCM) in EMDs

### **What is DCM?**

In normal heart tissue, the cells are long, straight and lie close together. In DCM the normal cells are gradually replaced by crinkly and wavy cells and / or replaced by fat intrusions. This means that the heart cannot contract as efficiently. Eventually the heart becomes so weak it begins to stretch and lose its proper shape, further reducing its ability to function.

### **Who gets DCM?**

Both humans and dogs can suffer from DCM. Large breeds, including the Estrela Mountain Dog, seem to be particularly affected. DCM is a genetic, inherited condition and is not caused by the dog's upbringing. Because the genetics of the heart formation are not as simple as the blue eye / brown eye, green pea / yellow pea, dominant /recessive, model of genetics we are taught in school, the way DCM is passed down is not yet clearly defined but it certainly runs in families so to speak.

### **What are the symptoms of DCM?**

The first signs can be 'huffing and puffing', not wanting to exercise and not coping with heat. Eventually, without treatment, the dog will collapse, pass away or be put to sleep. Each breed has a slightly different pattern in the way the symptoms appear. Estrela Mountain Dogs have a high incidence of sudden death meaning that they do not show any signs such as laboured breathing first, they simply collapse and die. Estrelas are often affected around age five but can be older than this and even as young as three.

### **Can DCM be treated?**

There is no cure for DCM. There are medications which can prolong the dog's life expectancy in some cases. The timing for these medications is very important; if given too early they can make matters worse, if given too late the dog doesn't get the full benefit and the effect is limited.

### **How is DCM tested for?**

DCM is tested for using stethoscope, echocardiograph (ECG), ultrasound and Doppler echocardiograph and should be done by a recognised, cardiology specialist vet.

First the vet will listen to the dog's heart with the stethoscope for any signs of murmurs or other abnormalities.

Next the ECG is used to look at the rhythm of the heart and usually takes about five minutes. To do this the dog has to lie on its side.

The vet will then use ultrasound in the same way as looking at an unborn baby in the womb. There is some gunk involved but usually experienced vets will not need to shave the dog. The examination takes place with the dog standing and the sensor is held against the side of the dog's rib cage. You may be asked to hold the dogs mouth closed briefly if the dog is panting a lot. This is so the vet can take snap shots of the heart. The vet will look at the shape of the heart and also compare the heart when it is relaxed compared to when it is pumping to see how well the heart is contracting.

The vet will then also use the ultra sound machine to look at the flow of the blood. This is the Doppler echocardiograph. It will seem like the vet is still doing the normal ultrasound but the images are now showing how fast the blood is being pumped from the heart.

The vet will then compare all these results and advise you as to whether your dog's heart appears to be working properly or not.

The vet may also ultrasound the aorta and mitral valve. This is not looking for DCM but for other heart abnormalities which usually affect other breeds such as Cavalier King Charles Spaniels and is required to be tested, for the vet to be able to issue the heart testing certificate. The vet will simply move the ultrasound sensor around to the stomach area of the dog to get an image forward through the chest, to the top of the heart.

The whole thing takes about half an hour, cost may vary according to the vet you use. You are given a copy of the certificate for yourself, one for your vet and the cardiologist keeps one for their records. Your results are confidential as they are not currently part of a BVA scheme and so not published, unlike hip scores which are.

### **Is there a DNA test?**

It is not currently possible to test an Estrela to see if it will develop DCM or not, only to see if there are signs that the dog may have developed or be developing DCM. Some breeds have genetic tests for DCM but because the Estrela suffers from both wavy fibres and fatty intrusions, these tests could give false negative results. More breed specific research would be required.

### **When should Estrelas be tested?**

Although born with DCM in the genetic sense, it is not a congenital condition so it develops over time. Dogs are not usually tested before the age of two and re-testing of breeding dogs and those with family history of DCM is recommended on a yearly or bi-annual basis because the dog may appear to be fine when tested age two, but could develop the disease later on.

### **Why test?**

Testing can mean affected dogs get treatment at the right time and so prolong and improve their quality of life.

Testing is helpful in choosing healthy breeding stock, especially if information about the health and causes of death of relatives is limited.

There is currently some debate over how much of a 'problem' DCM is. Those who have had dogs die from the disease are understandably keen for those who haven't to take the issue seriously. The only way for us to truly and definitively know the scale of the 'problem' is for dogs to be tested and for cases of sudden death or heart problems to be reported by owners to breeders and breed club health co-ordinators. The high rate of sudden death in Estrela DCM means that cases of DCM may go undiagnosed by vets or attributed to something else altogether, due to the lack of earlier symptoms.

Researchers are also using information from canine populations with and without DCM to find and treat DCM in people and dogs.

### **I'm NOT interested in testing, what should I do now?**

Even if you do not feel that DCM is a 'problem' for Estrela Mountain Dogs, please report any incidences of heart problems or sudden death (even if you believe the cause may be something other than DCM, unless cause of death was certified by autopsy) to your dog's breeder and breed club health co-ordinator.

Let's keep this breed healthy.

You can also contribute to an unaffiliated breed health data base here:

<http://www.facebook.com/groups/149520918506493/?fref=ts>

### **I AM interested in testing my dog(s) for DCM, what should I do now?**

You can find a list of specialist vets here:

<http://www.bsavaportal.com/vcs/Information/HeartTesting/Dopplerechocardiographyexamination.aspx>

You may wish to supply them with the reference list below if they are not familiar with the breed.

Also Dr J Dukes McEwan BVMS MVM PhD DVC DECVIM-CA(Cardiology) MRCVS Small Animal Teaching Hospital, University of Liverpool, Leahurst, Chester High Road, Neston Wirral CH64 7TE 0151 795 6100 fax 0151 795 6101 may be interested in the results for research purposes.

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### **References**

Lobo et al Dilated Cardiomyopathy and Sinoatrial Dysfunction in an Estrela Mountain Dog *J Am Anim Hosp Assoc*: **48**, 2012

Lobo et al Histologic Characterization of Dilated Cardiomyopathy in Estrela Mountain Dogs *Veterinary Pathology*; **47**(4) p637-642, 2010

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