



# My dog has Mitral Valve Disease

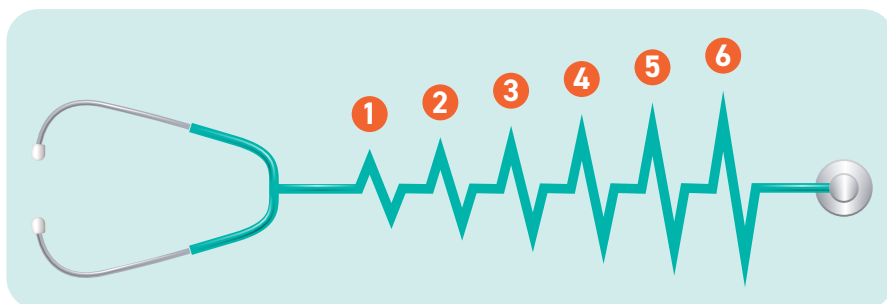
What do  
I need to  
know?





## What is a murmur?

Whilst there are a number of different causes of heart murmurs, in Mitral Valve Disease it is due to a squirt of blood being squeezed backward through the mitral valve when it should be a closed, non-return valve. The murmur can be heard by your vet when listening to your dog's heart with a stethoscope.



## Did you know?

Murmurs are scored by how loud they are (otherwise known as their grade), 1 is the mildest and can barely be heard even with a stethoscope, up to 6 which is the loudest and can be easily heard or felt on the dogs chest.

Although the grade of the murmur can help the vet decide how serious it is, extra tests are needed to understand whether treatment is needed. The most common test recommended is an ultrasound scan. This is a pain free procedure where a scanner is used to see the heart and all it's structures to check for abnormalities.



## Why does my dog have a heart murmur?

Murmurs can have lots of different causes. This booklet focuses on murmurs caused by a common heart disease called Mitral Valve Disease (MVD).

Your vet can't know exactly what is causing your dog's murmur just from listening to it. However, there are helpful clues that will help your vet decide which cause is most likely:

- Some dog breeds get MVD more commonly than others.
- Dilated Cardiomyopathy (DCM) is more common in large and giant breed dogs.
- MVD usually develops in older dogs.



- MVD = 75%
- DCM = 15%
- Everything else = 10%

## Breeds commonly affected by Mitral Valve Disease (MVD)

- Cavalier King Charles Spaniel
- Small cross breeds e.g. Cavapoo, Cavachon, Whippet
- Poodle
- Yorkshire Terrier
- Shih Tzu
- Chihuahua
- Miniature Schnauzer
- Border Collie



## What is Mitral Valve Disease?

Your vet has shared this leaflet with you as they suspect your dog may have the most common cause of heart murmurs, a heart disease called Mitral Valve Disease or MVD. The advice in this leaflet is specific to MVD, it does not apply to other causes of heart disease.

### What happens in Mitral Valve Disease?

The exact reason why changes develop is not fully understood but the changes that occur are well known.

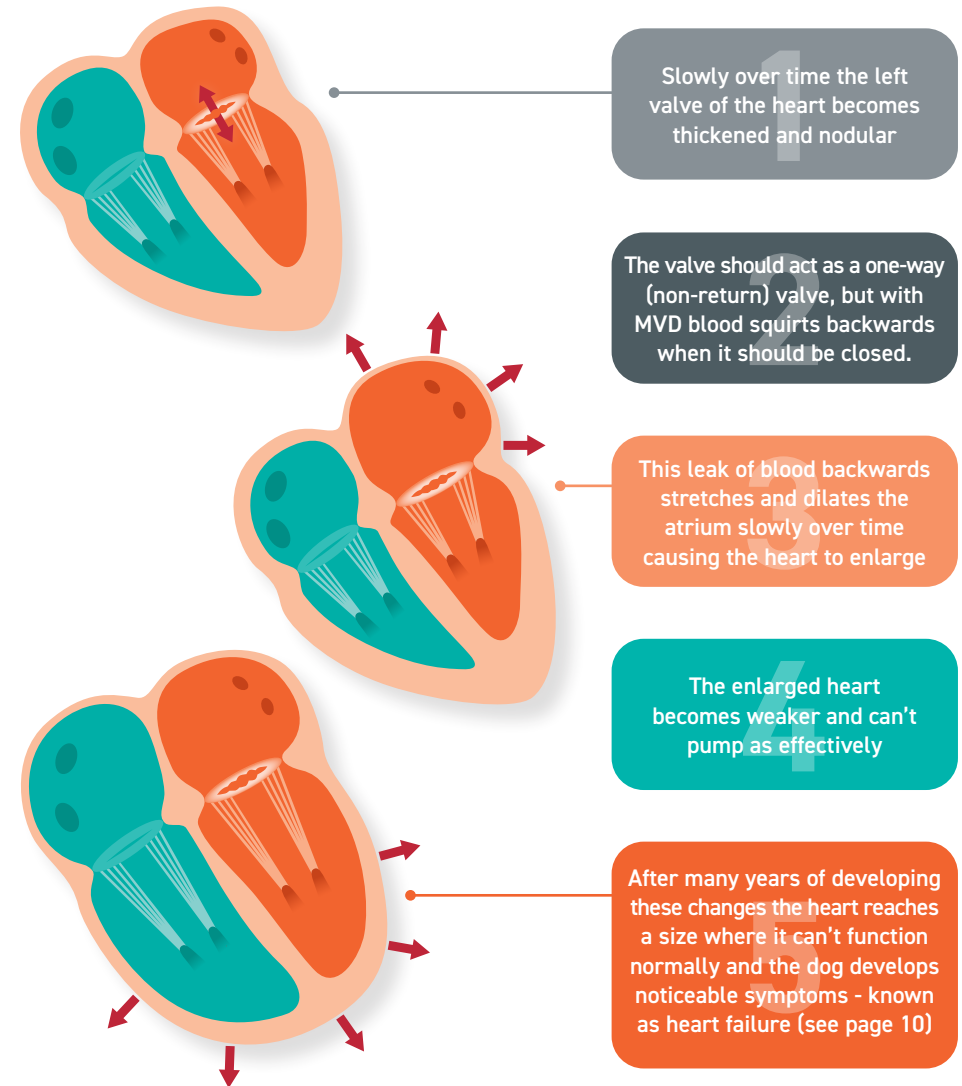
This process is very slow and gradual and some of the changes take place before there are any signs or symptoms to spot in the dog. Often the first clue there's a problem is the heart murmur.

### Important points about Mitral Valve Disease

- A common clue things might be progressing is if the murmur gets louder, therefore your vet will listen to the murmur with a stethoscope each time they see your dog.
- There are well defined stages in the disease that your vet will look for – this is very important as different stages need different actions and/or treatments to slow the progression of the disease.
- Pages 6 and 7 show you what to expect at each stage of the disease.



## How is the heart affected?



Not all dogs with MVD murmurs progress and worsen. 60% of dogs with murmurs don't progress to become poorly or develop any symptoms of heart disease.

# The stages of MVD

## STAGE A

No murmur or heart enlargement.



## STAGE B1

Murmur present - often mild. No significant heart enlargement.



## STAGE B2

Murmur present - moderate to loud. Significant heart enlargement.



## Significant heart enlargement

As the murmur becomes louder your vet may recommend an ultrasound scan and/or x-ray of their heart.

If significant changes have developed and the heart is enlarged your dog will be classified as Stage B2.

Your dog is likely to seem healthy with no obvious signs of disease. However, treatment at this stage can help support your dog's heart function. Your vet will discuss what treatment your dog needs at this stage.

Monitor the SRR weekly to help identify the onset of Stage C - heart failure. (see pages 8 and 9).

## No significant heart enlargement

If the murmur is quiet most dogs don't need any treatment or investigation.

The murmur will be listened to and recorded in your dog's vet records so it's easy to compare it each time your dog is checked.

Most dogs will have an annual or 6 monthly check up at this time.

No treatment is required at this stage and your dog doesn't need any special care.

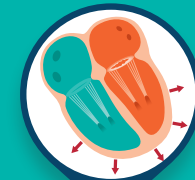
As your dog has a murmur and a risk of future heart failure it's a good idea to make sure they have a healthy diet and are a healthy weight.

Start measuring the Sleeping Respiratory Rate (SRR) monthly to establish a normal baseline for your dog (see pages 8 and 9).



## STAGE C

Murmur present - moderate to loud. Significant heart enlargement. Signs and symptoms of heart failure.



## STAGE D



## Why are there two Stage Bs - B1 and B2?

It sounds complicated but there's an important difference between these two sub-stages - B1 is when the heart has not yet enlarged significantly. Whereas B2 is when it has.

Practically speaking this means that as heart disease progresses it's likely that your vet will recommend either an ultrasound scan and/or an x-ray of your dog's chest to check the size of their heart.

If the heart is found to be enlarged, treatment is recommended even though your dog appears healthy. This can delay the progression of heart disease. Your vet will discuss this treatment with you.

## Significant heart enlargement and heart failure symptoms

You may notice signs of heart failure in your dog (see pages 10 and 11).

The now very enlarged heart starts to fail and rather than pumping blood forward around the body it can start to build up in your dog's blood vessels squeezing out fluid that usually then accumulates in the lungs and/or tummy.

The fluid build-up is diagnosed using an x-ray of the chest or an ultrasound scan and other tests your vet feels are necessary.

The best combination of drugs to slow the progression of heart failure and help your dog feel as well as possible consists of a group of four drugs (see page 12).

Measure the SRR to assess your dog's response to treatment (see pages 8 and 9).


## What is the SRR and why is it important?

One thing that you can do at home that can really help you and your vet to assess how your dog is doing on their heart disease journey is to measure the *Sleeping Respiratory Rate* (SRR). This page tells you a little more about how to do it - for more information including a video demonstration also visit: [www.dogheartdisease.com](http://www.dogheartdisease.com)


### What is the Sleeping Respiratory Rate (SRR)?

The Sleeping Respiratory Rate is the number of breaths your dog takes in a minute whilst they are asleep. We recommend measuring it when asleep as they are nice and relaxed (unless they are in the middle of a dream). This gives a reliable indication if there is any fluid accumulating in their lungs due to their heart disease.


Wait until your dog is asleep (but not twitching/dreaming)



Count a breath - each rise and fall of the chest is a single breath



Count the number of breaths in 30 seconds



Multiply by 2 to get your dog's breaths per minute

**THIS IS THEIR SLEEPING RESPIRATORY RATE**


### Why should I measure the SRR?

Measuring the Sleeping Respiratory Rate of dogs with heart disease is a useful way to determine the onset of Stage C - heart failure. As fluid begins to build up in a dog's lungs due to progression of their heart condition their SRR increases. Also measuring the SRR of dogs throughout Stage C allows us to identify when they need a check up as a rising SRR means they may need a change in their treatment.



### When to take action:

A SRR that is increasing over time and/or a SRR that is greater than 30 breaths per minute. Both of these can indicate that their heart disease may be progressing and is affecting your dog's ability to breathe. If these are noted it's best to contact your vet for advice.

You can count the SRR of your dog at home. You can write the recordings in the table supplied and keep it with this pet owner leaflet...



...or download the **CARDALIS® App** to take the reading and save it for you. Each reading will be stored in the app in a handy graph that can be emailed or shown to the vet. It's easy!

## My dog's SRR



Sleeping Respiratory Rate (SRR) Record

Number of breaths per minute											NORMAL RANGE	
55+												
50												
45												
40												
35												
30												
25												
20												
15												
10												
5												
0												
SCORE: 1 none or very poor 2 poor 3 okay 4 good 5 very good												
Appetite												
Exercise												
Happiness												
DATE												

An increase in the Sleeping Respiratory Rate can suggest your dog needs a recheck. Contact your vet if the respiratory rate is: **greater than 30 breaths per minute -OR- increasing from your dog's normal level.**

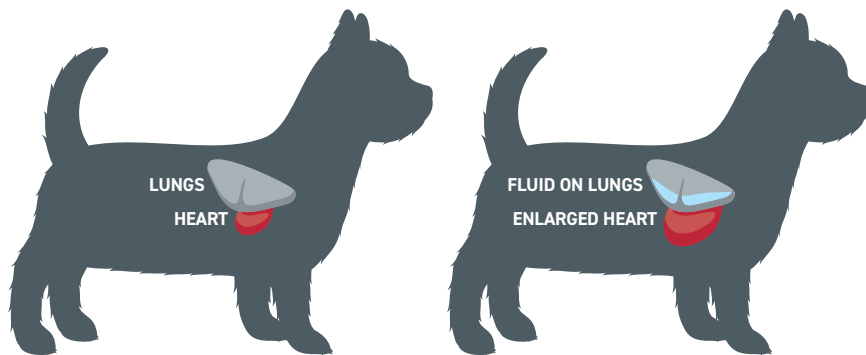
# Managing heart failure Stage C

Stage C means your dog is showing clinical signs (or symptoms) associated with their MVD. Common signs include breathing faster or with difficulty, exercise intolerance, reduced appetite, restlessness at night, weight loss, and sometimes fainting or a cough.

## What causes Heart Failure?

There are three main issues that develop in MVD that cause the symptoms we see associated with heart failure:

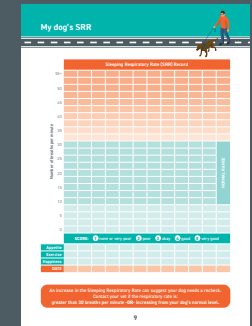
- 1 **The enlarged heart starts to fail as a pump** - leading to reduced ability to exercise, lethargy and weakness.
- 2 **The enlarged heart takes up space in the chest** - leading to more laboured/rapid breathing, restlessness when laying down and sometimes a cough.
- 3 **The damaged valve and enlarged heart fail to pump blood round the body so fluid builds up in the lungs** - leading to more laboured/rapid breathing and weakness/lethargy. Additionally the body reacts to the reduced blood flow from the heart and attempts to correct it by retaining more fluid in the kidneys - this attempt to support the heart is misplaced and worsens the build-up of fluid in the lungs. With a failing heart, holding on to extra fluid just gives the heart even more work to do.



Treating the condition helps to slow its progression, reducing the workload on your dog's heart so they feel better for longer.

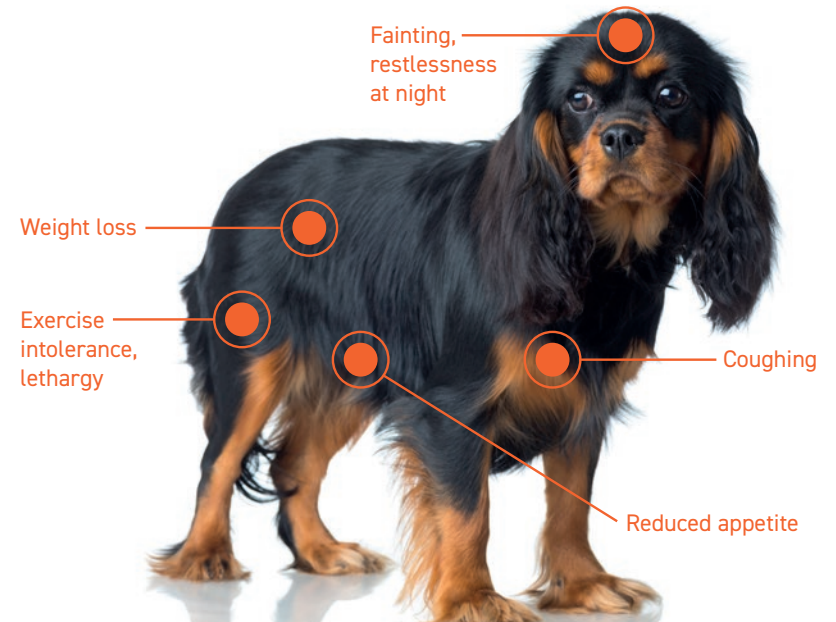
# Symptoms

Some early signs can be subtle and tricky to spot as most Stage C dogs are older dogs that may rest more anyway. One of the helpful things you can do is to measure your dog's Sleeping Respiratory Rate regularly. This will help you to pick up when Stage C is beginning for your dog. If your dog's SRR is above 30 breaths per minute it can indicate that it's becoming more difficult for them to breathe and that Stage C (heart failure) has arrived. If your dog is in Stage B2 it's a good idea to take a SRR reading every week.



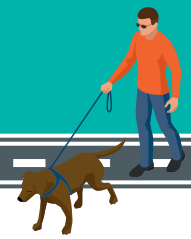
## Call your vet if your dog's SRR is:

- Over 30 breaths per minute -OR- • Readings are increasing each week



**GOOD NEWS** - with the right care dogs can live a long and happy life once in Stage C. The average dog lives for 19 months once they reach Stage C and some live much longer than this.

# How does treatment help heart failure?



The recommended treatment in Stage C is to use a combination of four drugs to give the best relief from the effects of heart failure and treatment is lifelong.

Heart failure has three main issues that develop leading to the symptoms we see develop in the dog:

- The heart failing as a pump.
- The enlarged heart taking up space in the chest.
- Fluid build-up in the lungs due to the failing heart and leaky valve plus an inappropriate retention of extra fluid in the body to try and support the blood pressure and circulation.

These drugs together:

- improve the heart's ability to pump and reduce further damage to the heart.
- limit the accumulation of water in the body by encouraging fluid excretion as urine and relax blood vessels to reduce the accumulation of water in the lungs.



These drugs are generally well tolerated when given together and their effects complement each other to give complete support of the issues described above. Here's a little bit more information on which drug does what:

## Pimobendan

- Pimobendan improves the heart's ability to pump, relaxes blood vessels and improves circulation.
- Helps to reduce the workload on your dog's heart so they feel better for longer and slows the progression of their disease.

## ACE inhibitors & Spironolactone

- Although these are available as two separate drugs, they are also available as a single combination tablet, meaning fewer tablets for your dog but with all the benefits of both active ingredients.
- ACE inhibitors, such as benazepril, relax blood vessels reducing the blood pressure so the heart can pump blood more easily around the body.
- Spironolactone delays progression in heart muscle damage and reduces fluid retention. It also helps prevent the kidneys from reabsorbing fluid the body does not need.









## Diuretics - Torasemide or Furosemide

- Diuretics remove the fluid that has built up in the lungs by increasing fluid excretion from the kidneys. This will cause your dog to urinate more than normal initially until they are stabilised and they may also seem thirstier than usual.
- Help by removing the excess fluid build-up allowing your dog to breathe more easily and making them more comfortable.

# How does treatment help heart failure?

Ceva's cardiology treatment range for Mitral Valve Disease is designed with your pet in mind. All our tablets are flavoured and easy to divide so your dog will think it is receiving a treat each time it has a tablet! This can be helpful as not all the medications can be given with your dogs meal (see table below).

## Example medications your dog could receive for management of their heart failure

Drug	Dosing
Pimobendan 	 Twice daily
Benazepril and Spironolactone 	 Once daily
Diuretic – Furosemide 	 Twice daily
<b>OR</b>	<b>OR</b>
Diuretic – Torasemide 	 Once daily
Additional medications	Ask your vet

### Top Tips on how each tablet should be given:



These drugs can be given with food



These drugs should be given an hour before food

There are two commonly used diuretic drugs available for your pet – one is given twice daily the other only once daily. Ask your vet which is the best choice for your dog.

## Top Tip

The doses of each drug are not fixed. Sometimes they need to be increased or decreased depending on how your pet is coping. That's why regular check ups with your vet are important.

Ask your vet how regularly they would like to see your pet now that heart failure has developed.

## Top Tip for diuretics

Diuretics are very effective at relieving the signs of heart failure especially improving your dogs breathing by removing the fluid build-up in their lungs. However, there are some top tips to help you and your dog cope with the extra drinking and urination:



Always allow free access to water as without this dogs on diuretics can become dehydrated.



Give your dog access to urinate often – diuretics make your dog produce more urine than normal and it can be harder for them to hold on.



Once your dog is well controlled ask your vet to see if you can reduce the diuretic dose. This must be done gradually so only do this under the guidance of your vet, otherwise heart failure can recur.



Your dog may need to urinate 2-6 hours after each diuretic tablet, so try and ensure they have access to outdoors at this time. Don't give diuretics too late at night, give early morning and early evening instead.



# Stage D



## What happens when the medication becomes ineffective?

Heart failure is a progressive condition and although drug therapy can give your dog relief from the symptoms of heart failure and slow progression it can't stop the disease. Eventually your dogs symptoms will reoccur despite treatment – this stage of their disease is called Stage D.

There's no single solution for all dogs here – there are next steps and extra drugs that can be added or altered doses of your pet's current medication may also be recommended. These drugs are less commonly used and your vet may recommend that you see a specialist heart vet – called a veterinary cardiologist, to advise you on extra treatment options at this stage.

It's also very helpful to continue measuring the SRR for your dog and just like in Stage C to seek veterinary advice if their SRR is increasing at each check and/or if their SRR goes over 30 breaths per minute.

An additional step to help you decide if your dog is coping with their progressing heart failure is to score your dogs wellbeing or happiness and also their tolerance of exercise. Use a simple scoring system from 1 to 5 and record a score weekly for your dog so you can spot when they are starting to show a downward trend in their happiness or willingness to exercise.

**Top Tip:** Try scoring the following at least monthly so you can spot when your dog starts to show a decline in their scores.

	SCORE: 1 none or very poor 2 poor 3 okay 4 good 5 very good				
Appetite					
Exercise					
Happiness					
DATE					

