



# HEART DISEASE

## FACT SHEET 18

### THE HEART AND CIRCULATION

The heart is a large muscular organ located within the chest cavity and functions primarily as a circulatory pump. It is divided into 2 halves, each of which has 2 chambers; a larger ventricle and a smaller atrium. These are separated by valves which help control blood flow.

Blood enters the heart via one of the atria and is then forced past the corresponding atrioventricular valve into the larger ventricle. The atrioventricular valves consist of a number of flaps that allow the blood to flow in only one direction, ensuring the efficiency of the pump. Blood leaves the ventricles through the great vessels of the body. The left side of the heart pumps blood into the aorta and the right side into the pulmonary artery which supplies the lungs. Additional valves, located at the junction of the ventricles with these great vessels, prevent the blood returning to the heart.

The right side of the heart pumps blood to the lungs via the pulmonary circulation. The pulmonary artery carries blood to the lungs, where it is oxygenated and then returned to the left side of the heart by the pulmonary veins. The oxygenated blood is then pumped by the left atrium into the left ventricle and then distributed to the body by the aorta. The aorta is the main artery of the body and divides into smaller and smaller branch arteries, eventually becoming very small capillary vessels. This delicate network of vessels supplies blood to the body tissues.

Deoxygenated blood carrying waste products and carbon dioxide is collected by a series of blood vessels known as veins, the largest of which are known as the vena cavae. These return blood to the right side of the heart. This side of the circulation comprises the systemic circulation, which is distinct from the pulmonary circulation.

In order to pump blood around the body properly, the heart must contract rhythmically, ensuring that the atria and ventricles function in a co-ordinated manner. The muscles in the different parts of the heart contract in a definite automatic sequence. Control originates from some specialised muscle cells, which form the electrical conduction system. The spread of the electrical impulses through the heart incites electrical currents within the surrounding fluids. These can be measured by an instrument known as an electrocardiogram, or ECG.

The actual beat of the heart can be detected by listening to the chest with a stethoscope. The sounds that are detectable represent the opening and closing noises of the heart valves as they flap shut. The number of beats per minute is known as the heart rate. For a small dog this should be about 120 beats a minute and about 70-80 per minute for a large breed. The average heart rate for a cat is about 100-130 per minute. A number of factors can affect the heart rate. Younger animals have a faster heart rate than older animals and exercise, temperature, excitement and illness will also have an effect.

## **HEART DISEASE**

This may take various forms. Some heart problems are:

- Congenital

These are present at birth and are usually serious. Although often life-threatening, some of these conditions are now surgically correctable. Fortunately, they are rare.

- Due to valve problems

By far the most common problems are linked with the heart valves. Ageing gradually causes the valves to degenerate so that they become inefficient, allowing blood to flow back through them. This accounts for most incidences of the condition known as a heart murmur. The left atrioventricular (mitral) valve is most commonly affected, with a particularly high incidence of disease in smaller breeds of dogs such as Cavalier King Charles Spaniels, Chihuahuas and Pekingese. The heart valves can also be damaged by bacterial or viral infections, which can cause the valves to become distorted.

- Due to rhythm-based problems

Another set of specific conditions arise through problems with the heart rhythm, causing the heart to beat abnormally. Such conditions are known as dysrhythmias or arrhythmias.

## **SIGNS AND SYMPTOMS**

The heart has some considerable reserve capacity and many dogs and cats will not show signs of disease until it is quite advanced. Signs of cardiac failure linked to valvular disease (left sided or right sided cardiac failure, or both) and dysrhythmias will only appear when the heart is no longer able to cope and output of blood from the heart is inadequate.

Symptoms vary with severity and type of heart disease and include:

- Exercise intolerance
- Lethargy
- Breathlessness
- Coughing
- Weak and rapid pulse rate
- Pale mucous membranes
- Fluid retention

Fluid build-up can either involve the chest, leading to a dry cough and difficulty breathing, or the abdomen, causing distension and apparent weight gain. Poor circulation can, ultimately, lead to failure of other organs including the liver and kidneys and, consequently, a decline in general health.

## **DIAGNOSIS**

If you suspect that your dog or cat has any sort of cardiac problem, you should consult your vet. Some problems are easily detectable by listening to the chest with a stethoscope. In some cases, further investigations are required, including X-rays of the chest, the use of an ECG machine or ultrasound.

## **TREATMENT**

Following diagnosis, your vet will advise on the best course of action. There are now some very effective drugs to help treat many of the common cardiac problems. These include drugs to increase the strength of the heartbeat, to correct rhythm abnormalities, to improve the circulation and diuretics to remove excess fluid build up.

Too much salt or sodium in the diet can exacerbate cardiac problems. This leads to water retention within the body and puts extra strain on the heart and circulation. Diet, therefore, is of major importance. Low sodium or low salt recipes are normally recommended.

## **HOW DENES CAN HELP**

### **Dietary help**

We do not add any salt to our recipes. The following recipes have low levels of salt, when compared with our other recipes. The level of salt (on a dry matter basis) is stated in brackets after each entry.

For Dogs – canned foods

- Low Calorie With Chicken & Liver (0.19%)
- Senior With Chicken, Lamb & Rice (0.2%)
- Senior With Turkey, Rabbit & Rice (0.25%)

For Cats – canned food

- Older With Turkey & Lamb (0.67%)

For Cats – dry food

- OPTIONS Healthy Skin Rich in Chicken & Turkey With Rice (0.41%)

### **Herbal help**

A number of Denes herbal remedies are useful in dealing with some of the problems associated with heart disease:

- **Denes Garlic Tablets.** Garlic can assist in preventing chest infections. These sometimes occur where there is fluid retention in the lungs. Garlic also contains potassium, which is depleted from the body when some diuretics are being used on a long-term basis.
- **Denes Milk Thistle Plus Tablets** can help by supporting the liver, where cardiac problems lead to liver impairment.
- **Denes Kidney Tablets** can be used in a similar situation where the kidneys are affected.

If you have any queries concerning your pet's health or feeding problems, you can contact us for free pet care advice by:

- Visiting our website [www.denes.com](http://www.denes.com)
- Emailing us at [info@denes.com](mailto:info@denes.com)
- Calling us on **01273 325364** Mon-Fri, 9am – 12Noon
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