



Chronic Kidney Disease in Dogs and Cats

What do the kidneys Do?

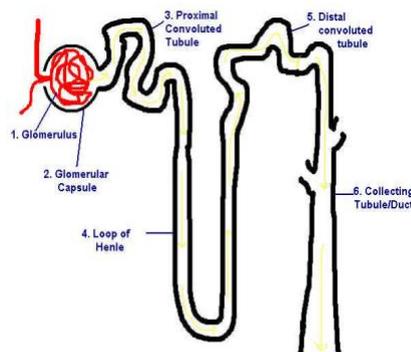
The kidneys are a complex filter system that removes waste products from blood that are generated from the digestion of food, ingestion of toxins, poisons, or many drugs that are given to treat other diseases. The waste products are removed from the body with water in the form of urine. The filtering system is also designed to keep 'good' substances in the blood. The kidneys also provide a vital role in maintaining 'homeostasis' or the balance within the body.

The kidneys regulate the amount of water in the blood by removing extra water when present and by retaining water to prevent dehydration when water intake is reduced. This is achieved by varying the amount of urine that is produced. The kidneys help regulate blood pressure by saving or eliminating sodium based on how much sodium the pet is eating. The kidneys help regulate calcium and vitamin D which keep bones strong. The kidneys produce a hormone that helps with the creation of new red blood cells. Because the kidneys have so many functions, when the kidneys are not working normally, there are many signs that the pet may show.

Structure of the Kidneys

The kidneys are made up of thousands of functional units called nephrons. When your pet is young not all the nephrons are functioning, and some are held in reserve. As the animal ages or if the kidneys are damaged, some nephrons die, and other resting nephrons take over the work of those that die. Eventually all the remaining nephrons are working.

When there are no extra nephrons remaining and kidney damage continues the pet will start showing signs of chronic kidney disease. Because of this stepwise loss of nephrons, the kidneys are able to "hide" the fact that they are damaged until the damage is severe. When 2/3 of the nephrons have been lost the pet is no longer able to conserve water and the pet passes larger amounts of dilute urine. By the time a pet has an elevation in the waste product creatinine in its blood, 75% of the nephrons in both kidneys have been lost.





Signs of Chronic Kidney Disease

Common signs include:

- Drinking too much and urinating large volumes of urine
- Increased volume of urine in the bladder may lead to, or worsen incontinence (leaking urine), especially at night
- vomiting and/or diarrhea
- Lack of appetite and weight loss
- General depression related to the elevation of waste products
- Anemia resulting in pale gums and weakness due to a low blood count
- Overall weakness from low blood potassium

Less common signs include:

- High blood pressure can lead to sudden blindness
- Bleeding into the stomach or gut or bruising of skin

Diagnosis

Diagnosis of chronic kidney disease relies on a blood test coupled with a urine test. A blood test will show increased waste products in the blood (urea and creatinine) and a urine sample will show dilute urine as the kidneys have lost the ability to concentrate the urine. If these two components are found, kidney disease is present.

Treatment

This is a chronic progressing disease and therefore cannot be cured. Treatment is aimed at slowing down the progression and improving longevity as well as quality of life. Diet therapy is an integral part of managing kidney disease. By modifying the diet, waste products take longer to build up in the blood and the animal will remain healthier for longer. Special formulated diets include protein restriction, reduced phosphorus and sodium and increased B vitamins and omega fatty acids. It is also very important that food intake is sufficient to maintain a healthy body condition.

As animals with chronic kidney disease often have high blood pressure, medication is given to reduce blood pressure. Maintaining a normal blood pressure can significantly slow progression of renal disease, especially in cats. If the animal is already sick, and has a buildup of waste products and toxins, fluid therapy is used to help flush the toxins out of the blood

