



## Chronic Kidney Failure

Kidney failure is the inability of the kidneys to remove waste products effectively from the blood. The term “chronic kidney failure” suggests that the kidneys have had ongoing damage and not been functioning well for months to years.



Eventually the kidneys will stop completely and are unable to make urine. However, before this happens, the kidneys actually produce more urine.

### ***Influence of Age***

Often, chronic kidney failure is the result of aging. The kidneys simply “wear out”. It can also be the result of ongoing damage to the kidneys from a chronic condition such as dental disease. For most dogs and cats, signs of chronic kidney failure occur between 10 to 15 years of age.

### ***How It Affects Dogs and Cats***

The kidneys filter the blood and remove many of the toxins produced by the body. They also keep the body hydrated and electrolytes balanced.

With ongoing damage or as pets age, the filtration process becomes inefficient and ineffective. The body responds by pumping more blood to the kidneys in an attempt to increase the filtration.

Because the kidneys also cannot concentrate urine as they once did, they produce more urine and mineral loss increases. To prevent dehydration, your pet will drink more water.

Early signs of kidney failure are increased thirst and increased urination. Advanced stages of kidney failure include loss of appetite, weight loss, nausea, vomiting, diarrhea, lethargy, anemia, and very bad breath.

### ***Diagnosis***

We diagnose kidney failure by monitoring two waste products in the blood, BUN (blood urea nitrogen) and creatinine. These values are very high in kidney disease because the kidneys cannot filter these waste products out of the body.

A urinalysis will indicate kidney problems at an earlier stage, when the blood may still look normal. The urine will usually be dilute because the kidneys are unable to concentrate it. Often there is protein in the urine as well.

Although BUN and creatinine levels reflect kidney failure, they do not predict the progression of the disease. There is damage in at least 75% of the kidney tissue before we see abnormalities in the blood. That explains why early kidney disease may show normal blood values.



Conversely, kidney failure may escalate for no obvious reason. Sometimes other diseases, such as hyperthyroidism in cats, can hide the changes in kidney values.

Besides blood tests and a urinalysis, we will test blood pressure. Pets can develop high blood pressure from chronic kidney disease and high blood pressure can cause kidney disease.

## Treatment

The goal of treatment is to improve kidney function, though, your pet's kidneys will never be normal again. However, often there is enough functional kidney tissue that treatment will be very rewarding.



A pet that is very sick with severe kidney disease needs intravenous (IV) fluids at the hospital to help flush the body of waste material and rehydrate. Usually, your pet will need several days of fluids before they start to feel better. We check blood tests frequently to monitor progress during this treatment.

Your pet also receives supportive treatment such as anti-nausea medicine, potassium supplementation, and force-feeding. If your pet responds well to treatment, he or she will go home with supportive therapies for kidney disease.

## Treatment at Home

Several therapies can slow down the deterioration of the kidneys and prolong a good quality of life.

**A kidney failure diet:** Prescription diets have lower (restricted) amounts of protein to prevent a buildup of protein waste products in the blood. They are lower in phosphates to help control the phosphorus level in the blood, and they are lower in salt to help decrease blood pressure.



**Potassium supplementation:** Potassium is lost in the urine when urine production becomes excessive. Low potassium levels can further reduce kidney function. A potassium supplement replaces that loss.

We can tell from blood tests whether your pet needs a potassium supplement. Too much potassium can cause serious problems so it's important to monitor blood levels.

**Fluids given at home:** You can give your pet subcutaneous (under the skin) fluids at home as needed to prevent dehydration. You may give fluids once daily to once weekly depending on the degree of kidney failure.



Most pet owners can easily administer these fluids. Try to increase your pet's water intake by offering water fountains and canned food.

**Antacid drugs:** Loss of appetite can result in excess stomach acid. Evidence indicates that excess stomach acid causes nausea and furthers the appetite loss. We will advise you to continue antacids only if the appetite improves.

**A phosphate binder:** Phosphorus levels increase in the blood due to the kidneys' inability to remove it. This increases lethargy and poor appetite. Certain drugs will "tie up" the phosphorus in the intestinal tract before it is absorbed, resulting in lower phosphorus levels in the blood.

If the low protein diet does not successfully maintain normal phosphate levels, a phosphate binder is used.

**A drug for high blood pressure:** The kidneys are also responsible for maintaining normal blood pressure. Pets with high blood pressure will get medication to reduce it. Some of the treatments for high blood pressure will also help if there is protein in the urine.



**Vitamin supplements:** These help replace vitamins lost through excessive urination and provide additional nutrients.

**Fish oil:** This supplement improves kidney function and the immune system.

*Herbs, nutritional supplements:* These therapies may improve the remaining kidney function and slow down disease progression.

### **Monitoring**

We will monitor the kidney function regularly through blood and urine tests to determine if we need to make changes in the treatment protocol. Initially, we check tests every 2-4 weeks and, once values stabilize, then every 3-6 months.

### **Life Expectancy**

Prognosis is quite variable and depends on the amount of damage when diagnosed, the response to initial treatment, and on your ability to perform the follow-up care. Treatment is encouraged because many pets will respond and have a good quality of life for several years.



Dr. K's cat, Mason, had kidney failure for many years and lived to be 21 years old.