



Chronic Kidney (Renal) Disease (also known as CKD or CRD)

Expert health and behavior advice from the feline care professionals at
Paws, Whiskers & Claws
The Feline Hospital
www.pawswhiskersandclaws.com

Your cat's kidneys are essential to their health. Their main functions are to filter protein waste from the blood, regulate the level of essential nutrients such as potassium and phosphorus, maintain hydration, and produce urine. They also help to regulate the cat's blood pressure, body temperature, and the production of red blood cells.

What is Chronic Kidney Disease?

Chronic kidney disease (CKD) occurs when the kidneys slowly stop performing their main functions, leading to a buildup of toxic waste products in the cat's blood. The kidneys are amazingly efficient, so your cat won't show signs of illness until at least 75% of their kidney function has been lost to disease. For that reason, damage to the kidneys has probably been happening over a period of months or even years before signs of kidney disease become obvious.

A cat with healthy kidneys can concentrate and eliminate the filtered waste products with a normal amount of water intake. In the early stages of kidney disease, the kidneys can no longer concentrate the waste products as efficiently, so they need to excrete them in a lower concentration with higher volume (more urine which is dilute). This is known as compensated renal failure. After approximately 75% of the kidney tissues are destroyed, there is a rapid rise in waste products in the bloodstream and you'll see what appears to be the sudden onset of kidney disease.

CKD is most commonly seen in older cats; only about 10% of cases occur in cats less than 3 years old. Often the early signs of disease, such as weight loss and poor coat quality, are dismissed as normal aging changes. Other signs, such as drinking and urinating a lot, mislead owners to think that their cat is well-hydrated and that their kidneys are functioning normally. In fact, the opposite is true. With CKD, your cat is simply unable to drink enough water to make up for the kidney disease. A cat with CKD is constantly dehydrated, which leads them to drink more and more frequently.

What causes CKD?

CKD is often the end stage of other illnesses. It can result from a number of reasons, including:

- Congenital malformation of the kidneys;
- Bacterial kidney infections (pyelonephritis);

- Glomerulonephritis - damage caused by toxins, drugs, inflammatory diseases, etc;
- Neoplasia - various cancers of the kidney, most commonly lymphosarcoma;
- Amyloidosis - the build-up of a type of protein that prevents the kidney from functioning normally;
- Viral infections such as feline leukemia or feline infectious peritonitis;
- Aging – the most common cause of CKD

How is CKD diagnosed?

Usually your vet will diagnose renal disease by checking the level of kidney waste products in your cat's blood – SDMA, blood urea nitrogen (BUN), and creatinine – as well as the urine specific gravity, which is the measurement of how concentrated the urine is. Additional tests for substances such as potassium and phosphorus, or to check for anemia, urinary tract infection and white blood cell (WBC) count may be required in order to determine the best treatment for your cat.

Could the kidney disease have been diagnosed earlier?

Early diagnosis is difficult because signs of the disease usually aren't evident until there has been significant loss of kidney function.

PWC recommends a blood chemistry profile for all senior pets at least once (if not twice) each year in order to check BUN and creatinine, and a urinalysis to diagnose kidney disease at its earliest detectable level.

You should always monitor your cat's drinking and elimination habits. If you notice excessive thirst and urination, contact your vet right away.

How does CKD affect my cat?

Because the kidneys perform a variety of different functions, the clinical signs of renal disease are not the same in every cat. The most common signs are increased thirst and urination, weight loss, poor coat quality, bad breath, variable appetite (which may be associated with ulcers of the mouth, esophagus and/or the stomach), vomiting, lethargy, and depression.

Sometimes kidney disease is seen as sudden onset blindness that is secondary to high blood pressure. High blood pressure can cause cats to act in ways that you might refer to as cranky, easily agitated, or aggressive towards people and other animals. Illness, pain or discomfort often causes cats to behave in an unusual way. They may hide, be less social, and change their eating and elimination habits. They may also feel too weak to get to the litter box, food and water.

What treatments are available?

Depending on the results of blood tests, your cat may be diagnosed with multiple conditions that require different treatments. Most cats with CKD can be effectively managed with diet change and one or two of the other treatments listed below.

1. Diet

A diet of high-quality protein in lower amounts and low phosphorus will lower the level of waste products in the blood. These prescription diets are only available at a veterinarian's office. PWC carries a variety of canned and dry kidney diet foods. The canned diet is preferred because it adds more water to your cat's diet, but both can and dry should be offered daily. Your cat should be allowed to eat as much of these diets as she wants.

However, it is most important that your cat eats a high-quality food regularly. If your cat won't eat the kidney diet, prescription urinary diets may be recommended instead. While the urinary diets aren't as restricted in high-quality proteins, they do still have low phosphorus which is very beneficial. If they won't eat kidney or urinary diets, there is a dietary supplement that may be added to your cat's regular food. This supplement binds to the phosphorus in the food and removes it from the body, which reduces the work required from the kidneys. If you have multiple cats with different dietary needs, we can help simplify feeding so that all of their nutritional requirements are met.

We may also recommend adding in a supplement like HydraCare. HydraCare is a packet of a broth type food that helps to hydrate the cat and encourage water consumption. It is best fed separate of other foods, but some cats like it with their regular canned foods.

2. Subcutaneous (SQ or Sub Q) fluids

Your cat's body may need help in removing the waste products from the blood. Because dialysis is not readily available in veterinary medicine, your cat may need SQ fluids. If this becomes necessary, we will teach you how to administer these at home, or you can bring the cat in and wait while we administer the fluids for you. The process takes only about 5 minutes.

It may seem daunting to think about inserting a needle into your cat to give fluids, but it's actually a simple procedure that gets easier with practice. There are detailed steps available in a separate handout, and our staff will give you a hands-on lesson. We have lots of tips to make it easy for you and your cat!

The amount and frequency of fluids will be determined by your vet, and may be adjusted after periodic rechecks of your cat's blood.

3. Antibiotics

If your cat has a lower urinary tract infection (UTI, also referred to as a bladder infection) or an upper kidney infection (pyelonephritis), antibiotics may be prescribed.

4. Potassium supplementation

Cats with renal disease tend to lose too much potassium in their urine, which leads to muscle weakness, stiffness, poor hair quality, and decreased appetite. This may not be evident initially in either the blood work or your cat's behavior or appearance. It may occur after SQ fluids are begun, so potassium levels will be checked regularly when SQ fluids are given on a steady basis. There are a few ways to supplement potassium: in the SQ fluids, as well as orally in gel or tablet form, or a powder that can be mixed with food. We must monitor the potassium

levels after starting supplementation because if it somehow gets too high, this can cause life-threatening heart complications.

5. Blood pressure medication

Many cats with kidney disease also have high blood pressure. In some cases, the blood pressure may rise before the BUN or creatinine levels rise. Lowering the cat's blood pressure not only helps them feel better but also protects the kidneys from the damage that high blood pressure can cause.

Alternatively, blood pressure may be low (due to dehydration) to normal at the time of diagnosis. If SQ fluids are given, you are adding volume to the body and re-hydrating your cat, so the blood pressure may rise too high. For these reasons we will often recommend periodic rechecks of blood pressure, even if it was normal initially.

Blood pressure in cats is treated with an inexpensive human medicine that can be purchased from us or from any pharmacy.

6. Treatment of anemia

The kidneys initiate the production of red blood cells in the body. Many cats with CKD are anemic. This can make them feel weak, lethargic and leads to loss of appetite. Like low potassium, this is often not apparent until after the start of SQ fluids. There is medicine called Varenzin that can help stimulate red blood cell (RBC) production if your cat becomes anemic from chronic kidney disease.

7. Treatment of low body temperature

Cats with advanced CKD can have difficulty maintaining their body temperature. They'll appreciate having soft bedding in a warm, sunny location. Consider giving your cat a Snuggle Safe, which provides hours of warmth without electricity.

8. Treatment of high phosphorus

Blood levels of phosphorus can rise above normal in CKD and this makes cats feel badly and cause other problems in the body. There are no medications to lower the phosphorus in the blood. Subcutaneous fluids will help dilute and flush phosphorus out. Prescription kidney and urinary diets are low in phosphorus. Additionally, we can use phosphorus binders which bind to phosphorus in food and escort it out of the body in feces so that it never enters the bloodstream. These phosphorus binders can sometimes decrease the palatability of food for a cat that already may not want to eat, so we may not be able to use these phosphorus binders in some cats.

9. Enteric (GI) Dialysis

Azodyl is a capsule supplement given by mouth 1-3 times a day. It is beneficial bacteria that metabolize and flush out kidney toxins that have diffused from the blood stream into the bowel. This helps slow down the buildup of kidney toxins in the blood, helping your kitty feel better. Azodyl can be used in addition to or in some cases instead of SQ fluids.

Another great option is called Porus One. It helps with the build-up of those kidney toxins within the intestines by removing the proteins that become the kidney toxins before they have the chance to convert. It is a very fine textured, tasteless powder so it could also be mixed up with a special treat or mixed into

food. It has to be given two hours before or after any other medication to work best. Porus One can also be used in addition to Azodyl and SQ fluids.

10. Additional Supportive Care

Many cats with kidney disease become nauseous from their elevated kidney toxins and have a decreased appetite. A cat does not have to vomit to be nauseous – sometimes they will lick their lips, hypersalivate, have extra crusting around their lips, or walk up to their food as if interested and then walk away after eating no food or only a few bites. If we believe your cat is experiencing nausea symptoms, anti-nausea and anti-vomiting medications, such as Zofran (ondansetron) and Cerenia (maropitant) may be recommended. These two medications work differently, and so we often use them together for best effects. Appetite stimulants may also be added in *once we've controlled the underlying nausea as it's not fair to make a nauseous cat hungry*. Appetite stimulants exist in many forms and varieties, and include medications like mirtazapine and capromorelin (Entyce, Elura).

YOUR CKD CAT MUST HAVE FRESH WATER AND CLEAN LITTER AVAILABLE AT ALL TIMES because they tend to urinate frequently and dehydrate quickly. Make sure that there's fresh water available on every floor of your home. It's also a good idea to encourage them to eat by also providing additional food bowls.

Because these cats must drink so much water, they will have an increased urgency to pass large volumes of urine. **You must provide additional large litter boxes throughout your home.**

How long can I expect my cat to live?

Most cases of CKD advance very slowly, especially when caught early. With treatment and regular rechecks as prescribed by your veterinarian, your cat can have many good, active years ahead.

In some cases after approximately six months of SQ fluid treatment, the remaining normal kidney tissue can hypertrophy, or enlarge, and essentially compensate to some extent for the damaged kidney tissue.

The best prognosis comes with early detection and intervention with treatments recommended by your veterinarian. We recommend screening all cats for kidney and other common geriatric diseases annually starting at 7-8 years of age.