



## **Feline Chronic Kidney Disease:** **Diagnosis and Recommendations**

Kidney failure is the one of the more common causes of death in dogs and cats. It is important to recognized kidney failure in the early stages (<70-85% loss of function) when your pet has minimal to no symptoms to prevent progression to the later, more severe stages. Kidney failure will not show up on most blood profiles until 85% of kidney function has been lost.

Watch for the following signs, which could indicate early kidney failure in your pet: weight loss, excessive drinking, excessive urination, constipation, and high blood pressure. Once severe symptoms have developed it is more difficult to treat your pet and kidney damage is difficult, or impossible, to reverse.

### **Stage 1 Kidney Insufficiency Diagnosis:**

1. Blood kidney values are normal!!
2. Urine Specific Gravity (urine concentration) of early morning sample is less than 1.030 - 1.035. This means the urine is not concentrating correctly.
3. Or Protein is in the urine. If bloodwork is normal, but protein is in the urine, this is a sign of early kidney failure.
4. Abnormalities on ultrasound of the kidney may also indicate early kidney failure.
5. Urine culture, blood pressure, FELV/FIV, and x-rays are recommended.
6. Your pet will most likely appear normal at this stage of kidney failure!

### **Stage 1 Kidney Insufficiency Treatment:**

1. Diet designed for kidney failure can double the life span of your pet at this stage. We recommend Hills K/D, D/M or Royal Canine Modified LP for life.
2. Make sure that your cat always has access to water. We recommend bottled drinking water, and a recirculating fountain to encourage them to drink more. Also keeping multiple water dishes around your home can remind your cat to drink more frequently.
3. Start Epakitin (phosphorus binder) to prevent additional damage to the kidneys. The goal is to maintain the phosphorus between 2.5 - 4.5 mg/dl on bloodwork.
4. Start fish oil (DHA) 10 mg per pound per day. A 10 pound cat would receive 100 mg of DHA per day. If too much is given they may develop diarrhea.
5. Recheck bloodwork and urine in 1 month. We will add Rehmannia-8 at that time, if the abnormal values have not improved. Rehmannia-8 is a dilator for the blood vessels in the kidneys to improve function.
6. Bloodwork and Urine will be rechecked every 3-6 months for the life of your pet, this will help adjust therapy as the disease slowly progresses. Blood pressure monitoring may be performed to make sure that additional medications are not required.
7. Treatment in this stage is important to prevent and slow progression of the kidney failure.
8. If your pet has dental disease a dental cleaning is recommended.

### **Stage 2 Kidney Insufficiency Diagnosis:**

1. Blood kidney values are slightly elevated: Creatinine is 1.6 - 2.8
2. Urine Specific Gravity (urine concentration) of early morning sample is 1.015- 1.008.
3. Severe amount of protein may be present in the urine.
4. You may start to notice your pet is drinking more, losing weight, and acting more lethargic. They may not be grooming as well as normal.



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### **Stage 2 Kidney Insufficiency Treatment:**

1. Continue encouraging water consumption, kidney diet, fish oil, epakitin.
2. If not already started Rehmannia-8, may be started at this time.
3. If plasma potassium levels are low normal or low (less than 4.5 mmol/l) we will start potassium supplements.
4. If kidney infections are suspected, long term antibiotics may be recommended.
5. Bloodwork, blood pressure and urine will be checked every 3-6 months. 6. If your pet has dental disease a dental cleaning is recommended

### **Stage 3 Kidney Failure Diagnosis:**

1. Moderate kidney value elevation- Creatinine is 2.8-5.0. BUN values are elevating.
2. Urine Specific Gravity is 1.012- 1.008 (No longer concentrating)
3. Many times anemia is noted on bloodwork.
4. Symptoms that your pet is showing include: drinking excessively, weight loss, frequent urination, vomiting, significant decrease in appetite, significant increase in lethargy. At this stage medications and treatments are necessary to maintain the quality of their life.

### **Stage 3 Kidney Failure Treatment:**

1. Continue encouraging water consumption, kidney diet, fish oil, epakitin, Rehmannia-8, and potassium. If blood pressure medications are needed they may be added at this time.
2. Add Azodyl at this time. This is a bacteria that aids in digestion of the toxins in the kidneys.
3. Subcutaneous fluids may be recommended at this time. We give these fluids under the skin 2 times per week to help flush out the kidneys. This acts similar to dialysis to help flush out the kidneys. Adding flavoring to the drinking water may help stimulate them to drink more (can try Viyo or small amount of low-sodium chicken broth).
4. If albumin is low, egg whites may be recommended on a regular basis.
5. Vitamin B in the form of injections or pet tinic may also be recommended especially in cats. We can instruct you how to give the Vitamin B injections or you may come in for them on a regular basis.
6. At this stage bloodwork, urine and blood pressure should be checked every 3 months for life.
7. Appetite stimulants (mirtazapine, cyproheptadine, diazepam) may be recommended, if your cat is not eating well.
8. Famotidine and Sucralfate may be recommended to help settle the stomach.
9. If your pet has dental disease a dental cleaning is recommended.
10. If your pet has high blood pressure benazapril and/or amlodipine may be recommended.

### **Stage 4 Kidney Failure Diagnosis:**

1. Severe kidney value elevation: Creatinine is greater than 5.0, and moderate to severe elevations in BUN.
2. Many clinical signs are usually present; including mouth ulcers, diarrhea, vomiting, dehydration, bone and joint pain, and anorexia.
3. Many values are irregular on bloodwork, including anemia.

### **Stage 4 Kidney Failure Treatment:**

1. All previously recommended medications are continued. The doses of these medications may be increased or altered depending on bloodwork, urine, blood pressure, and clinically how your cat is doing. Medications will be required to prevent the rapid decrease in quality of life.
2. Dental cleaning may be recommended; however at this stage the dental will usually require additional hospitalization to flush out the kidneys before and after the dental. Antibiotics both before and after the dental will be required.
3. Aluminum Hydroxide may be added to help reduce phosphorus.
4. If diarrhea develops, Fortiflora may be recommended as a probiotic.



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5. The fluids that are given under the skin may be increased to every other day, or even daily, if needed. If you are having trouble giving the fluids under the skin, a GIF tube may be implanted under the skin to allow you to give fluids quicker and easier.
6. If your cat is not eating well, we will discuss placing a feeding tube. This allows for easier access to perform feedings and administer medications.
7. If your cat is anemic, less than 20% on the PCV, we may recommend erythropoietin or darbepoietin.
8. To encourage your pet's appetite, anabolic steroids can aid in kidney function and regrowth of red blood cells.
9. Arthritis medications or pain medications may be required for joint pain.
10. Hospitalization, IV fluids, and IV medications may be required to help flush out the kidneys.

**Stage 5 Kidney Failure:**

Stage 5 kidney failure will require dialysis or kidney transplant for survival and for most euthanasia is the best option.