

# Kidney disease in pets

## *What is it and how can I help my pet?*

Use this handout to learn more about diagnosis and management of kidney disease in your cat or dog.

Kidneys play an essential role in keeping your pet's body running properly. They balance certain substances in the blood and filter out the body's wastes as urine. They maintain normal concentrations of salt and water in the body. Kidneys also help control blood pressure, aid in calcium metabolism and regulate phosphorous levels. Additionally, they manufacture a hormone that encourages red-blood cell production. When kidneys don't function properly, toxins build up in the blood and a pet will become ill.

### **What Causes Kidney Problems in Pets?**

There are two types of kidney failure: acute and chronic.

**Acute** kidney failure is a sudden decline in function that occurs over a period of days. Pets can develop acute kidney problems as a result of ingesting toxins, including antifreeze, certain medications, tainted foods, etc. Other reasons for this type of kidney failure include decreased blood flow or oxygen delivery to the kidneys, infections and urinary obstruction. Lyme disease can be a cause of kidney failure, so be sure to protect your pets from ticks.

**Chronic** kidney disease shows up over a period of time and its causes are harder to determine. This condition develops slowly and affects mostly older pets. It is often caused by underlying illness as well as some conditions your pet may be born with. But surprisingly, a main cause of chronic kidney failure in pets is dental disease. Bacteria associated with advanced dental disease enter the blood stream and invade multiple organs, causing irreversible damage to the heart, liver and kidneys.

### **What Are Some Signs of Kidney Problems?**

- Change in water consumption
- Change in volume of urine produced
- Change in frequency of urination
- Weight changes
- Bad Breath
- Vomiting
- Dull or matted fur
- Depression and listlessness
- Loss of or decrease in appetite
- Poor balance or seizures
- Other hard-to-recognize signs

It is estimated that over 1 in 3 cats and 1 in 10 dogs will develop kidney disease in their lifetimes. Recent studies suggest kidney disease is even more common and until now has been under-recognized.

Early diagnosis, before signs become obvious, can be key in identifying the base cause of kidney disease. This provides more time to treat the underlying cause or to slow progression of the disease and also may help your pet to feel well for as long as possible.

## How is kidney disease diagnosed?

A combination of tests is necessary to determine accurate diagnosis and staging of kidney disease, which allows proper management and the best outcome for your pet.

### Physical exam

- change on physical exam can indicate that kidney disease *may* be present, but as these changes are very non-specific diagnostic tests are necessary to make a diagnosis

### Blood tests

- early stage kidney disease can be diagnosed by testing **SDMA**
  - SDMA (symmetric dimethylarginine) is a renal biomarker specific to kidney function. It has proven to be a more reliable indicator of kidney function than creatinine, enabling veterinarians to detect both acute kidney injury (AKI) and chronic kidney disease (CKD) earlier than ever before
- **Chemistry Panel**
  - changes to urea, creatinine, phosphorous, calcium, and other parameters on a serum biochemistry panel occur as kidney disease progresses
- **Complete Blood Count**
  - changes to white blood cell count will be present if kidney disease is caused by infection (urinary tract infection, dental disease, etc)
  - changes to red blood cell count occur in later stages of kidney disease as anemia occurs, because kidneys make a hormone that signals the bone marrow to produce red blood cells, and the hormone can't be produced adequately by failing kidneys.

### Blood Pressure

- blood pressure can increase even in the early stages of kidney disease

### Urinalysis

- **Urine Protein:Creatinine ratio**
  - measures the level of protein present in the urine (any protein present is abnormal)
  - determines whether the protein is present due to kidney failure or another cause
- **Urine Specific Gravity**
  - checks the concentration of the urine. Failing kidneys are unable to adequately concentrate urine.
- **Urine Cytology**
  - kidney cells may be present in various stages of degeneration
  - cancer cells may be seen if kidney failure is secondary to a tumour
  - bacteria and white blood cells will be seen if an infection is causing kidney failure
  - red blood cells may be present from infection or damage to the kidney
  - crystals may be seen if kidney stones are causing kidney failure

### Imaging

- **Ultrasound**
  - ultrasound evaluation of the kidneys, ureters, bladder, and urethra may reveal structural abnormalities
  - changes in size of a kidney can be measured
  - tumours can be visualized
- **Radiographs**
  - x-rays can more readily show the size and number of kidney stones than ultrasound
  - changes to kidney size or presence of a tumour may also be seen, though ultrasound is more accurate

## How can the disease be managed?

While acute kidney failure is usually more immediately life threatening, it may be possible to reverse the damage and cure the disease. Chronic kidney disease, on the other hand, can be managed to slow the progression and make your pet feel better, but it cannot be cured.

## Initial Treatment

Treatment at the time of diagnosis can involve three different goals:

1. Treating/removing the inciting cause. For example, if infection is the cause of the kidney disease, your pet will require a course of antibiotics.
2. Symptomatic treatment to stabilize your pet and get them feeling better quicker. For example, dehydrated pets who have been vomiting may require hospitalization for IV fluids, anti-nausea medication, and assisted feeding.
3. Kidney-specific treatment to slow progression of the disease. These treatments will continue for the rest of your pet's life and are discussed in "ongoing management."

## Ongoing Management

Long-term management of kidney disease aims to slow the progression of the disease and maintain a good quality of life for your pet. Animals who receive treatment can live for many years longer than untreated pets. There are two key parts to ongoing management: treatment and monitoring.

Monitoring is essential to make sure the treatment is working correctly, and that additional treatments are initialized promptly as the disease progresses from one stage to the other.

<b>Stage 1:</b>	<b>Stage 2:</b>	<b>Stage 3:</b>	<b>Stage 4:</b>
kidney filtration performance begins to decline, up to a 67% loss	kidney filtration performance is 25% to 33% of normal	kidney filtration performance is 10% to 25% of normal	kidney filtration is at less than 10% of normal
<i>treatment is primarily aimed at removing the inciting cause</i>	<i>slowing down the course of the disease is the goal</i>	<i>slowing down the course of the disease is the goal</i>	<i>treatment is aimed at symptomatic therapy</i>
-strict diet of prescription senior food will keep your pet feeling good	-medication to regulate the elevated pressure in the kidney -strict diet of prescription renal food will prevent build up of toxins in the body	-medication to regulate the elevated pressure in the kidney -strict diet of prescription renal food will prevent build up of toxins in the body -may also need anti-nausea medications or medications to bind toxins that have accumulated in the body	-medication to regulate the elevated pressure in the kidney -a strict diet of prescription renal food will prevent build up of toxins in the body -likely need anti-nausea medications and medications to bind toxins that have built up -may require sub-cutaneous fluids

To ensure your furry friend has the best possible quality of life, and lives comfortably as long as possible, it is *essential* that you follow all treatment recommendations, give food and medication exactly as prescribed, and follow up with re-check exams and diagnostics as recommended by your veterinarian.

If you have any questions, please call Cascade Vet Clinic at (250) 295-0312.  
Your veterinary team is ready to help!