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Kidney Disease In Dogs and Cats

Dogs and cats, like people, have two kidneys. They are complex organs that perform several vital roles to keep your pet healthy:

- **Filter out waste products** from the blood and excrete them in urine
- **Regulate water and salt balance** in the body
- **Produce various hormones** and help to control blood pressure
- **Help with red blood cell production**

If the kidneys cannot do these jobs properly, waste products build up in the blood, the body dehydrates easily, abnormal blood pressure can develop, and your pet may become anaemic.

Chronic Kidney Disease (CKD) is a very common condition, particularly in older cats and dogs. When a pet develops CKD, their kidneys gradually lose the ability to perform these essential functions. Because the progression is gradual, symptoms often don't become obvious until a significant amount of kidney function has already been lost. While there is no cure, a combination of diet, medication, and monitoring can often give your pet a happy, comfortable life for months or even years after diagnosis.

What Causes Kidney Disease?

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Many factors can be responsible for kidney damage, including infection, severe dehydration, bladder obstruction, trauma, various toxins (like lilies or antifreeze), high blood pressure, genetics (e.g Polycystic kidney disease in Persian cats), and cancer.

However, in most cases we see, the disease is a result of slow, age-related degeneration over time as the kidneys begin to 'wear out'. We call this slow, progressive condition **Chronic Kidney Disease (CKD)**. It is more common in cats than dogs—in fact, as many as 20-40% of cats over 10 years of age have some degree of chronic kidney disease.

The Signs of Kidney Disease

Because the progression is gradual, symptoms often do not become obvious until significant damage has occurred.

The Earliest Signs:

- Increased thirst (polydipsia)
- Increased urine volume (polyuria)

(Note: These signs can be challenging to pick up in cats, as many drink and urinate outside.)

When More Than 2/3 of the Kidneys Are Damaged:

- Weight loss
- Poor hair coat
- Reduced appetite and nausea



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- Recurrent bladder infections

Advanced Signs (Further Reduced Function):

- Further loss of appetite and extreme weight loss
- Vomiting
- Ulcers in the mouth
- 'Uraemic' (foul, ammonia-smelling) breath
- Lethargy and muscle weakness

How is Kidney Disease Diagnosed?

During an examination, your vet may suspect kidney problems based on the above symptoms. Sometimes, abnormally small or large kidneys can be felt depending on your pet's size and shape. To confirm, we use two main tests:

1. Urine Testing

Poorly concentrated urine can be a sign of kidney disease, and this reduced concentration develops *before* changes occur in the blood. The urine is also tested for infection, protein loss, and blood.

2. Blood Tests

As the kidneys become less effective at filtering, waste products rise in the blood.



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- **Urea and Creatinine:** These are the standard markers checked. However, they only tend to rise when around **70%** of the kidneys are damaged. Pets in the early stages may have normal levels.
- **SDMA (Symmetric Dimethylarginine):** If we suspect kidney disease but urea and creatinine are normal, we may measure SDMA. This marker rises much earlier—when around **40%** of the kidneys are damaged—making it a highly sensitive test in some cases where it is consistently elevated. SDMA is less affected by changes in muscle mass so can be useful in older animals who have lost muscle. SDMA may be normally higher in some breeds and in other medical conditions.

Finding the Underlying Cause

For older pets, we often attribute the disease to age-related wear and tear. However, for younger or middle-aged pets with no obvious reason for CKD, we may recommend further investigation to see if a reversible cause exists:

- **Ultrasound Scan:** To check the size, shape, and internal structure of the kidneys, and look for cysts or tumours.
- **Sterile Urine Culture:** A sample taken directly from the bladder using a needle (cystocentesis), to check for deep-seated infectious causes.



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- **Kidney Biopsy:** Rarely recommended due to the required general anaesthetic and risks of complications.

Staging Chronic Kidney Disease

We use the **IRIS (International Renal Interest Society)** staging system to standardise how we monitor and treat CKD (more info at www.iris-kidney.com).

Based on your pet's blood tests, they will be placed into a stage from 1 (mildest) to 4 (most advanced). From there, we check three additional factors to create a tailored treatment plan:

- **Blood Pressure:** Checked routinely. If high, we will prescribe medication such as **amlodipine** to protect the brain, eyes, and remaining kidney tissue. Please note that blood pressure may need to be measured over several visits allowing your pet to acclimatise to the veterinary environment to ensure that any elevations are persistent.
- **Protein in the Urine (UPC Test):** If the kidneys are leaking protein, we will prescribe medications like **Semintra** or **Fortekor** to reduce the leakage.
- **High Phosphate Levels:** If blood phosphate is elevated, we will manage this using a renal diet and/or a daily **phosphate binder** added to their food.



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IRIS STAGE	Creatinine μmol/l		SDMA μg/dl		Phosphorus mmol/l Target	Blood pressure Repeatedly >160- 170mm Hg	Urine protein: creatinine ratio > 0.5 (dogs), > 0.4 (cats)
	Dog	Cat	Dog	Cat		Yes/no	Yes/no
1	<125	<140	<18	<18	<1.5		
2	125- 250	140- 250	18- 35	18- 25	<1.5		
3	251- 440	251- 440	36- 54	26- 38	<1.6		
4	>440	>440	>54	>38	<1.9		

Management

If an underlying cause (like an infection or toxicity) is found, we may be able to reverse the damage. For standard progressive CKD, it cannot be cured. Instead, our goal is to slow down future damage and manage the symptoms to keep your pet feeling well for as long as possible.

Dietary management to reduce the build up of waste products in the blood is essential for management of chronic kidney disease in dogs and cats and **is the mainstay of treatment** to slow disease progression.



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The aim is to feed controlled levels of high quality protein and restrict phosphorous and sodium. For stage 1 and early stage 2 disease 'senior' or specific Early Renal therapeutic diets are suitable, whilst for established stage 2-4 disease therapeutic Renal diets are recommended. There are many kidney diets available - examples include Hills k/d (early renal or renal care) and Royal Canin Early Renal or Renal diet.

One of the consequences of kidney disease is the inability to concentrate the urine to retain water so it is easy for pets with kidneys disease to become dehydrated which in turn can damage the kidneys further. **Ensuring adequate water intake** by feeding wet food, adding water to food and ensuring there are multiple fresh water sources available around the house e.g water fountains, water bowls in different rooms, can help to combat this. Products such as Purina Hydracare for cats may also help to increase overall fluid intake.

By accurately staging your pet's condition and addressing blood pressure, protein loss, and phosphate levels, we can create an individualised care package designed to maximise their quality of life.

Because kidney disease progresses over time, regular monitoring every 3-6 months is recommended to ensure optimal management.

Additional treatments may be recommended by your veterinary surgeon in specific cases, including treatment for anaemia in cats, anti-nauseants and appetite stimulants.



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Please contact your pet's veterinary surgeon with any questions or concerns, make an appointment if your pet is unwell or to arrange for further assessment or monitoring.

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