

# Diabetes in pets

Diabetes mellitus, or diabetes, is a common, treatable condition in both people and certain pets that occurs when the body can't use glucose (a type of sugar) normally.

Diabetes in dogs and cats may occur at any age. However, diabetic dogs are usually 4 to 14 years old, and most are diagnosed at roughly 7 to 10 years old. Most diabetic cats are older than 6 years. Diabetes occurs in female dogs twice as often as male dogs, and certain breeds of dogs and cats may be predisposed to the condition.

These health factors can increase your pet's risk of developing or having diabetes:

- Obesity
- Pregnancy
- Pancreatic disease
- Amyloidosis (cats)
- Hyperthyroidism (cats)
- Hypothyroidism (dogs)
- Cushing's disease (dogs)
- Dental disease
- Kidney disease (cats)
- Urinary tract infections
- Skin infections
- Long-term use of steroid medications or progestin

Fortunately, diabetic dogs and cats can live long, comfortable lives with appropriate treatment and monitoring. It all starts with a visit to your veterinarian, and a commitment from you to take a few extra steps in caring for your pet.

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## What are the signs of diabetes in pets?

Noticing the signs of diabetes is the most important step in taking care of a diabetic pet. Immediately take your pet to the veterinarian if you see any of the following:

- Excessive drinking and increased urination
- Weight loss, with or without an increased appetite
- Lethargy or weakness
- Cloudy eyes (due to cataracts, especially in dogs)
- Chronic or recurring infections (including skin and urinary tract infections)
- Walking or standing unusually, with the ankles touching or nearly touching the ground (cats)

The earlier your pet is diagnosed and started on treatment, the better chance of avoiding complications caused by chronically high blood sugar.

## When does diabetes occur in pets?

Diabetes occurs in pets when their body can't use sugar the way it should. Glucose, the type of sugar in question, is the main source of energy for the body's cells, and the levels of glucose in the blood are primarily controlled by a hormone called insulin.

If there isn't enough insulin (or if the body is unable to use the insulin) glucose accumulates in high levels in the blood—a condition called hyperglycemia. When that glucose reaches a certain level, it overflows into the urine—a condition called glucosuria—and draws large volumes of water with it. Because of this, diabetic pets often drink more water and urinate more frequently and in larger amounts.

In diabetic pets, not enough glucose gets transported into the body's cells. As a result, the cells don't have enough energy to function normally, and body tissues become starved for energy. This state of metabolic "starvation" causes the body to breakdown fat and muscle tissue. The breakdown of body tissues results in the weight loss often seen in diabetic patients.

In people, diabetes is classified as type I or type II. Type I diabetes occurs when the pancreas doesn't make enough insulin, and type II occurs when the body can't respond normally to the amount of insulin the pancreas makes. Although diabetes in dogs and cats is sometimes classified as type I or II, there's less of a difference between these types in pets than there is in people.

### How is diabetes diagnosed and treated?

Your veterinarian may suspect diabetes based on the signs your pet is showing. To confirm any suspicions and rule out other diseases, your veterinarian will recommend a panel of blood and urine tests, including urine bacterial culture. Diabetic pets consistently have high amounts of glucose in their blood and urine. They also may have a urinary tract infection.

Successful treatment of diabetes requires regular monitoring, including veterinary checkups, blood and urine tests, and assessments of your pet's weight, appetite, drinking, and urination. Your veterinarian may need to adjust the treatment schedule from time to time, based on these results.

The aim of treatment is to keep your pet's blood sugar levels within a healthy range to prevent complications and maintain a good quality of life. Insulin injections and dietary therapy are core components. For cats not previously treated with insulin, your veterinarian may recommend—instead of insulin—an oral medication (sodium-glucose cotransporter 2 inhibitor, or SGLT2) that lowers blood glucose by increasing its excretion by the kidneys.

### MEDICATION

If insulin is recommended, your veterinarian will prescribe an initial dose and type of insulin that best suits your pet's individual needs. The veterinary team will teach you how to give insulin injections, which involve a very small needle and are generally very well tolerated by pets. Insulin injections usually need to be given twice a day to keep blood glucose levels under control. The dose and timing of the injections may need a few adjustments at first, depending on how your pet responds.

Newer drugs for cats are available that are once daily oral medications, where there is less concern for strict timing and monitoring involves checking for Ketones, rather than strictly worrying about glucose levels. These newer generation drugs bind to excess glucose to cause the extra glucose to be excreted from the body, rather than staying in the blood and causing symptoms.

### DIETARY THERAPY

Dietary therapy centers on helping obese pets lose weight, and stopping diabetes-associated weight loss in others, while providing suitable amounts of protein and carbohydrates. Regular exercise may be prescribed, too, based on your pet's age, weight, and overall health. Getting cats to exercise can be a little challenging, so be sure to ask your veterinarian for ideas.

## How do I care for my diabetic pet?

Dogs with diabetes, and many cats with the condition, usually require lifelong treatment. This said, some cats are lucky in that, with proper treatment, the diabetes may be reversible, with no further need for blood sugar-controlling medications. In those cases, it's best to have your veterinarian confirm any suspected disease reversal, before stopping or adjusting any treatment.

The key to managing diabetic pets is to keep the animals' blood glucose near normal levels and avoid too-high or too-low levels that can be life-threatening. A treatment plan that works for one pet might not work as well for another pet, and patience is important as you and your pet adjust to the new diet, medications, and lifestyle.

These are a few important things you can do to give your pet their best chance at success:

- Maintain your pet's medication and feeding schedules as recommended by your veterinarian.
- Ensure your pet maintains a normal appetite while receiving insulin or an SGLT2 inhibitor, or they may develop hypoglycemia (low blood sugar) if not eating and absorbing enough sugars to balance the medication's blood sugar-lowering effect.
- Monitor your pet's blood and urine glucose levels, as recommended by your veterinarian. If your cat is receiving an SGLT2 inhibitor, you also may be asked to monitor your pet's urine ketone levels to ensure those levels remain within the normal range.
- Monitor your pet for complications.

Hypoglycemia—as may be caused by an insulin or SGLT2 overdose—is an important complication to be aware of, as it can be a medical emergency. Watch for these signs that something's wrong:

- Weakness or lethargy
- Tremors
- Seizures
- Uncoordinated movements or walking strangely

There's also diabetic ketoacidosis, which may occur with too little insulin or diabetes medication. This life-threatening condition can develop when the body's cells are unable to use glucose for energy and break down fat instead. This buildup can cause a shift in the body's acid-base balance, leading to other dangerous abnormalities. So, watch out for these signs, too:

- Sweet-smelling breath
- Acting more quiet than usual
- Reluctance to eat or drink
- Vomiting
- Diarrhea
- Troubled or rapid breathing
- Weakness or collapse

Immediately contact your veterinarian or an emergency clinic if you observe any of the listed signs, and ask about what you can do to help your pet until the veterinarian can see the animal. Because signs of an insulin/SGLT2 overdose can be similar to those of an insulin/SGLT2 underdose, it's important that changes in the amount or timing of your pet's medication only be made by a veterinarian.

Other complications to watch for include cataracts, hind leg weakness due to low blood potassium, high blood pressure, and urinary tract infections. If you notice any changes in your pet's behavior or weight, consult your veterinarian.