

Feline Diabetes

Source: Cornell University College of Veterinary Medicine Feline Health Center
http://www.vet.cornell.edu/fhc/Health_Information/brochure_diabetes.cfm



Diabetes mellitus is a condition in which the body cannot properly produce or respond to the hormone insulin. This results in elevated levels of the sugar glucose, which is the main source of energy for the body.

Like the human body, the cells in a cat's body need sugar in the form of glucose for energy. However, glucose in the blood requires insulin, a hormone produced by the pancreas, to "unlock" the door to cells. Insulin attaches to cells and signals when the time is right to absorb glucose. By absorbing glucose, cells in fat deposits, the liver, and the muscles get vital fuel while lowering levels of glucose in the blood.

In Type I diabetes, glucose concentrations are high because of a decrease in the production of insulin. In the case of Type II diabetes, glucose levels are high because cells in the body do not respond appropriately to insulin. Cats with diabetes most commonly suffer from the Type II form of the disease. Between 0.2 and 1 percent of cats in the general population are believed to suffer from diabetes.

Clinical Signs

Weight loss is an important sign of diabetes in cats. In both Type I and Type II diabetes, the cells in the body are unable to absorb glucose from the blood and they become starved of energy. To get the energy it needs, the body turns to other sources, breaking down fats and proteins to feed glucose-starved cells. This breakdown results in weight loss, despite increased appetite.

Excessive thirst and urination can also signal diabetes in a cat. High levels of glucose in the blood can cause the body to excrete excessive amounts of glucose in the urine (since urine is made by the kidneys filtering the blood). This high urine glucose concentration can actually pull excessive amounts of water into the urine, resulting

in increased urine volume, increased urinary water loss, a propensity for dehydration, and a compensatory increase in thirst.

In rare cases of uncontrolled diabetes, cats may experience damage to the nerves in the hind limbs, resulting in a “plantgrade” stance of the hind limbs (walking or standing “down in the hocks”). Risk factors for diabetes in cats include [obesity](#), increasing age, physical inactivity, male gender, [neutering](#), and glucocorticoid (steroid) therapy. In addition, the Burmese breed has been reported to be at higher risk of developing diabetes.

Diagnosis

Diabetes is diagnosed by testing glucose concentrations in the blood and urine. In addition, your veterinarian will ask about any clinical signs, including increased thirst and urination, and weight loss despite an increased appetite. These signs may indicate that your cat has diabetes, although they may also be caused by other diseases.

Using a blood test to diagnose diabetes isn’t always straightforward, because healthy cats under stress (as they may experience in a veterinary clinic) often have high glucose concentrations in their blood (called stress hyperglycemia). For this reason, some cats that do not have diabetes may have temporarily elevated blood glucose concentrations when they are checked in the veterinary clinic. Veterinarians sometimes avoid this pitfall by measuring the concentration of a molecule called fructosamine in the blood. Fructosamine concentrations are elevated in cats with chronic diabetes, and they are not believed to be significantly affected by stress hyperglycemia that may be brought on by a veterinary visit, so they are very useful in determining a cat’s true blood glucose status and in verifying a diagnosis of diabetes in cats.

Treatment

The goals of treating cats with diabetes include:

- Restoring normal blood glucose concentration (glycemic control)
- Minimizing or eliminating signs of weight loss
- Minimizing or eliminating signs of increased thirst and urination
- Normalizing the appetite
- Avoiding inducing inappropriately low blood glucose levels with therapy

Insulin Therapy

Cats with diabetes are most often treated with injectable insulin. Oral drugs for humans (hypoglycemic medications) such as glipizide rarely work in controlling diabetes in cats.

Insulin injection (see Figure 1) can be taught to most owners and, with a bit of experience, both owners and cats usually adapt to these injections very well. There are a variety of insulin preparations available, and each works for a different duration and has different effects on the ups and downs of blood glucose. Ideally, your veterinarian will perform a 12-24 hour glucose curve, during which insulin is administered intermittently and blood glucose is measured to establish the type of insulin and dosing frequency that best controls blood glucose while avoiding inappropriately low blood glucose levels (hypoglycemia).

Dietary Management

Your veterinarian may recommend feeding your cat a diet restricted in carbohydrates, which has been shown to improve control of blood glucose levels. When it comes to diet, it's important to help your cat combat the weight loss that often occurs as a result of this disease. In diabetic cats that are underweight, this often means feeding multiple meals per day or allowing access to food at all times. If your cat is overweight, however, work with your veterinarian to institute a weight loss program, as managed weight loss in overweight diabetic cats will likely help the cat maintain steadier glucose levels.

The optimal timing of meals for diabetic cats is controversial. Many veterinarians recommend feeding at the time of insulin injection to avoid a dangerous drop in blood glucose levels. However, there is no definitive evidence that the timing or frequency of meals in diabetic cats protects them from insulin-induced hypoglycemia. If food must be withheld for any reason, your veterinarian will usually recommend giving 50 percent of the usual dose of insulin, with careful follow-up monitoring to assure good glycemic control.



Prognosis

While there is no cure for feline diabetes, this disease can usually be managed fairly well with appropriate education and support of owners. Cats with well-controlled diabetes can live many years of high quality life. Some cats may lose their need for insulin treatments (termed “remission”), but even in these cases it is recommended that owners continue to monitor for the recurrence of clinical signs of diabetes and keep the cat on a low carbohydrate diet.

Figure 1: To administer an injection, pull the loose skin between the shoulder blades with one hand. With the other hand, insert the needle directly into the indentation made by holding up the skin, draw back on the plunger slightly, and if no blood appears in the syringe, inject gently.



Tips for Treatment

1. You can do it! Treating your cat may sound difficult, but for most owners it soon becomes routine.
2. Work very closely with your veterinarian to get the best results for your cat.
3. Once your cat has been diagnosed, it's best to start insulin therapy as soon as possible.
4. Home glucose monitoring can be very helpful.
5. Tracking your cat's water intake, activity level, appetite, and weight can be beneficial.
6. A low carbohydrate diet helps diabetic cats maintain proper glucose levels.
7. With careful treatment, your cat's diabetes may well go into remission.
8. If your cat shows signs of hypoglycemia (lethargy, weakness, tremors, seizures, vomiting) apply honey, a glucose solution, or dextrose gel to the gums and immediately contact a veterinarian.

Possible Complications

Insulin therapy lowers blood glucose, possibly to dangerously low levels. Signs of hypoglycemia include weakness, lethargy, vomiting, lack of coordination, seizures, and coma. Hypoglycemia can be fatal if left untreated, so any diabetic cat that shows any of these signs should be offered its regular food immediately. If the cat does not eat voluntarily, it should be given oral glucose in the form of honey, corn syrup, or proprietary dextrose gels (available at most pharmacies) and brought to a veterinarian immediately. It is important, however, that owners not attempt to force fingers, food, or fluids into the mouth of a convulsing or comatose cat.

Diabetic cats with uncontrolled diabetes may develop a condition known as ketoacidosis. This occurs when cells starved for glucose begin to break down fats for energy, a process that creates chemicals called ketones, which make the blood more acidic. Ketoacidosis is considered a medical emergency, and cats diagnosed with this complication require hospitalization for ideal management.

Monitoring Your Cat At Home

Monitoring a diabetic cat at home requires careful attention to a few things. Cats with well-controlled diabetes should maintain a normal activity level and demeanor. Owners should also monitor daily water intake, urine production, appetite, body weight, amount of insulin administered, and urine or blood glucose levels, depending upon how well-controlled a cat's blood glucose is. Monitoring is best coordinated in close collaboration with your veterinarian.

Insulin injections are the preferred method of managing diabetes in cats.

More: http://www.vet.cornell.edu/fhc/Health_Information/brochure_diabetes.cfm

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