

# Diabetes Mellitus in Cats

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## BASIC INFORMATION

### Description

Diabetes mellitus (DM) is also known as sugar diabetes. The word *mellitus* means “sweet” and refers to the increased blood and urine sugar levels that occur with this disease. DM arises when the pancreas gland does not produce enough insulin. Insulin is the hormone that allows many tissues of the body to utilize blood sugar (glucose). As insulin levels falls, blood sugar becomes elevated, producing many adverse side effects in the body.

### Causes

The most common cause of DM in the cat is the destruction of beta cells in the pancreas. Beta cells are responsible for insulin production. This destruction often arises from chronic inflammation of the pancreas gland. This type of diabetes is known as type I DM.

Type II DM, which arises either from the development of resistance to insulin or from a decreased action of insulin within the body, is uncommon in cats.

### Clinical Signs

- DM affects many different breeds and types of cats. The disease is most often seen in neutered male cats, 10 years of age or older.
- Common clinical signs include increased thirst and urination, increased appetite, and weight loss. Because glucose cannot be utilized by the body, it is almost as if the cat is starving in the midst of plenty.
- Some cats are also lethargic and weak and may walk with the hocks (ankles) of their hindlegs dropped to the floor.

### Diagnostic Tests

DM is diagnosed when the fasting blood sugar concentration is significantly elevated. Cats that are stressed have the ability to temporarily raise their blood sugar to levels above normal, so repeated blood glucose tests and the testing of urine for the presence of glucose may be needed to confirm the disease.

Additional tests are often indicated to look for other diseases (such as urinary tract infection or fatty infiltration of the liver) that may accompany DM. Such tests include a complete blood count, biochemistry profile, urinalysis, urine culture, abdominal x-rays, etc.

Because older cats are also prone to hyperthyroidism (elevated production of thyroid hormone), thyroid tests may also be submitted.

## TREATMENT AND FOLLOW-UP

### Treatment Options

Cats with type II DM or very mild type I DM may respond to an oral medication (glipizide) that lowers blood sugar.

Most cats, however, require injections of insulin to control their disease. Several forms of insulin are available, and each has a different duration of action:

- Protamine zinc insulin (PZI) is preferred in many cats because it can often be given just once daily. It is not always readily available, however. Other types of insulin that may be tried in the cat are Ultralente and NPH insulin.
- Glargine (*Lantus*) is a new sustained-release insulin that has been tried in small numbers of cats, using a once- or twice-daily dosing schedule. Until more cats are treated with this insulin, initial dosing can be tricky.
- Vanadium, an oral supplement, is occasionally given to cats that require large doses of insulin, in an attempt to lower the amount of insulin they need each day.

In addition to insulin, the diet may be changed to a low-fat, high-fiber type of diet that contains complex carbohydrates. Several such foods are available by prescription through your veterinarian. Although it is difficult to train cats to eat meals, it is best if they eat around the time the insulin injection is given.

### Follow-up Care

Diabetic cats can be difficult to monitor at home because collection of their urine can be tricky, they often eat throughout the day rather than eating their meals all at one time, and they become stressed and may not eat when hospitalized.

Most monitoring is done by checking the level of glucose in small blood samples. Samples may be taken by your veterinarian at specific times during the day or throughout the day, over a prolonged period.

Monitoring may also be done at home in some instances, through pinprick sampling and testing of those samples on glucometers designed for use in diabetic people.

It is important to work closely with your veterinarian to establish a method for monitoring blood sugar and/or urine sugar while the cat is on insulin therapy.

### Prognosis

The prognosis for many cats with DM is good, as long as the disease can be regulated and other ancillary problems can be controlled or resolved.

Successful treatment of this disease requires that the owner learn to give injections, become familiar with the signs of insulin overdosage and underdosage, and learn how to adjust insulin dosages.

With dedication on the part of the owner, many diabetic cats live active, normal lives for many years.