



## DIABETES MELLITUS (Sugar Diabetes)

### What is diabetes mellitus?

Diabetes mellitus refers to a medical condition where there is an excessive quantity of sugar (glucose) in the blood. This is caused by a relative or absolute deficiency of the hormone insulin, which is secreted by the pancreas.

The clinical signs seen in diabetes are largely a consequence of the raised concentrations of glucose in the blood, and the inability of the body to use glucose as an energy source (due to the deficiency of insulin).

Diabetes mellitus is an uncommon disease in cats, but is seen more frequently in middle to old-age cats and more common in males than females. Brown Burmese cats are more commonly affected than other breeds.

### What clinical signs do you see in diabetes mellitus?

The most common clinical signs seen in diabetic patients are an increase in the volume of urine that is produced and, to compensate for this, an increase in the amount of water that is drunk. Weight loss is also a common feature, and an increase in appetite may be noticed in some cats. Recognition of these signs is variable though, particularly because of the life-style of some cats. If a cat spends a lot of time outdoors for example, it may drink from ponds or pools of water outside rather than appearing to drink excessively from what is provided indoors.

### How is diabetes mellitus diagnosed?

The diagnosis of diabetes mellitus is made by finding appropriate clinical signs, together with a persistently elevated blood glucose concentration and the presence of glucose in the urine. However, a diagnosis of diabetes cannot usually be made on a single blood and urine sample as other conditions, and in particular stress, may also cause a transient rise in glucose levels. Confirmation of diabetes may therefore require more than one blood sample collected over a period of time (perhaps several days), or special blood tests that average out the blood glucose level obtained over several weeks.

### How is diabetes mellitus treated?

Diabetes mellitus is a treatable condition. Although long-term treatment does require commitment, it can be very rewarding to successfully manage this condition.

Initial steps in treating a diabetic cat may involve removal of any predisposing causes for the diabetes. For example, the administration of some drugs predisposes cats to develop diabetes, and withdrawal of these drugs may lead to resolution of the condition. Also obese cats are more prone to develop diabetes and again, reduction in bodyweight can lead to resolution of the signs in some of these individuals.

If there are no predisposing causes, or if correction of the predisposing causes does not lead to resolution of the diabetes, specific treatment is required. Although a small proportion of cats will respond to a form of tablet ('oral hypoglycaemic') designed to increase the amount of insulin produced by the pancreas and increase its effectiveness, most cats will require insulin supplementation in the form of injections to control the diabetes.

During the initial stages of treatment, it is common for a cat to be hospitalised at a veterinary surgery so that appropriate monitoring can be carried out while a suitable dosage and preparation of insulin is being determined. Some vets prefer to stabilise cats on an outpatient basis. Once a cat has been stabilised (which usually takes a few days to a week or so), treatment can be continued at home. For most cats, this involves a twice daily injection of a small dose of insulin. Very small needles are available for this which cause no pain to the cat, and within a short period of time the procedure becomes very routine. Normally insulin is given at 7-8 a.m. and 7-8 p.m. with equal feeds being given immediately to 1 hour after the insulin. Some vets prefer once daily injections with a different type of insulin

## **Do treated cats need to be monitored?**

Yes, it is important to monitor treatment to make sure it is working properly, and to determine if any adjustments are necessary to the dose of insulin given.

Monitoring can be done in part through collection of occasional blood samples by your veterinary surgeon, but it is particularly valuable to keep accurate records of the following information:

### **Daily records:**

- Time of insulin injection
- Amount of insulin injected
- Amount of food fed and eaten (and time)
- Amount of water drunk

### **Weekly record:**

- Weight of the cat

In addition to these records, it can be valuable to monitor the quantity of glucose passed in the urine as a guide to the effectiveness of the treatment. This is best done on urine that is passed during the night or first thing in the morning. To collect urine, it is usually easiest to replace the normal cat litter with clean (washed) aquarium gravel at night which will not soak up any urine passed. The urine collected can either be tested by your veterinary surgeon, or they may supply you with a kit to test it yourself. If there is any marked change in the amount of glucose in the urine, this **may** indicate the need to alter the insulin dose, **but you should never change the dose of insulin**

**without first discussing it with your veterinary surgeon.** Changes in the insulin dose are usually based on **trends** in urine glucose concentrations as there is normally some day-to-day variation.

## **What happens if my cat receives too much insulin?**

If a cat receives too much insulin, it is possible for the blood sugar level to drop dangerously low. For this reason it is important to be very careful in ensuring the cat receives the correct dose of insulin.

The typical signs displayed by a cat with a very low blood sugar level are severe weakness and lethargy, shaking, unsteadiness and even convulsions. If a diabetic cat shows any of these signs it is important to seek urgent veterinary attention. If the more severe signs are displayed (ataxia or unsteadiness during walking, and/or convulsions) a tablespoon of a saturated glucose or sugar solution should be given by mouth immediately. As this is an emergency, it is useful to have a small amount of a glucose solution stored in a refrigerator for any cat receiving insulin.