

Diabetes Mellitus

Diabetes mellitus is caused by a lack of production of the hormone Insulin from the pancreas. Insulin is normally produced from the pancreas to allow blood sugar (glucose) into cells so that the sugar can be used. When the pancreatic cells become unable to produce insulin, the body has no way of bringing glucose into the cells of the body for use. The excess glucose in the blood is excreted through the kidneys at a higher rate, causing the animal to drink increased amounts of fluids, to move the excess sugar into urine and out of the body.

Clinical signs of Diabetes are:

- Increased thirst and urination
- Weight loss
- Increased appetite
- Poor hair coat
- Persistent infections – especially urinary tract infections
- Neurologic Signs (Cats) - Walking flat on back legs to the level of the ankle
- Early Cataract Formation

Diabetics are more prone to infection and must be watched more closely than other animals. Once on Insulin therapy, depression and weakness must be carefully monitored since this may suggest an excessively high or low blood sugar level.

*If Diabetes goes untreated or is improperly treated, the excess sugars in the body can be metabolized into toxins called **ketones**. If ketones build up, they can make an animal very sick, depressed, weak, and potentially cause collapse. Death is a possibility. It is extremely important to monitor your pet closely, watching for signs of increased thirst and urination as well your pet's attitude. Your vet may encourage you to monitor your pet's urine for glucose and ketones.*

Cause of Disease: Inability of the body to produce Insulin, or an inability of the body tissue to respond to insulin. Diabetes can occur both in dog and cats. There may be a heritable predisposition in certain family lines. Some breeds of dogs are more susceptible, such as the Keeshond, Miniature Pinscher, Cairn terrier, and possibly Poodle, Dachshund, Miniature Schnauzer and Beagle. It is generally seen in older cats and dogs, greater than 8 years of age. There are also disease conditions that make an animal more prone to diabetes, such as chronic pancreatitis, hyperadrenocorticism (Cushing's Disease), tumours of the pancreas or long-term steroid medication.

Diagnosis: The symptoms of increased thirst and urination, weight loss, and not eating can be seen in conjunction with several diseases, (e.g. kidney disease, liver disease, hyperthyroidism, cancer...) so your veterinarian may suggest some of the following diagnostics tests:

- **Complete Blood Count:** This allows your veterinarian to detect severe low red blood cell counts (anemia), high white blood cell counts suggestive of infection or low platelet counts suggesting that your pet may have a bleeding problem.
- **Chemistry:** Allows detection of other problems within the liver, kidney, and blood sugar, electrolytes, which may suggest disease or organ involvement.
- **Urinalysis:** Analysis of the urine allows the veterinarian to make sure the kidneys are adequately concentrating urine, detects the urine for infection of the bladder or kidneys, checks for sugar suggestive of diabetes, or checks the urine for unusual cell types that could suggest infection or cancer.
- **X-rays:** Your veterinarian may suggest chest or abdominal x-rays be taken to rule out the possibility of abdominal or chest tumours that could be contributing to your pet's disease. The images will also allow your veterinarian to assess the liver, kidneys, intestinal system and other organs for changes that could suggest disease.

Treatment: Treatment is focused on:

- **Insulin therapy:** Administering Insulin by injection 1-2x/day dependent on the type of insulin and your animal's response to it.
- **Diet:** Feeding diets low in rapidly burned carbohydrates and high in fibre allows your pet to better control the amount and type of carbohydrates it consumes, making the regulation insulin *much* easier.
- **Glucose Curve:** It may be necessary for your veterinarian to follow blood sugar levels over the course of a 12-24 hour period to see how well insulin therapy is working. This test may have to be repeated a number of times until your pet's diabetes is under control.
- **Ketostix:** There are very useful strips to measure the amount of glucose or ketones in urine. By measuring the amount of glucose in urine throughout a day, we can better estimate control and will not need to do as many glucose curves.

Your veterinarian may suggest combinations of treatments not listed dependent on the outcome of early diagnostics and response to treatment.

Please contact us immediately:

- *If your animal begins to act **weak, depressed, or shaking**; this may suggest a low level of sugar due to too much insulin. A small amount of honey placed across the tongue can help. Never squirt directly back into the mouth as this could cause aspiration into the lung field.*
- *If your pet is **depressed, won't eat and begins to vomit**, this may suggest too much sugar in the body being turned into a toxin called a **Ketone**. A urine strip can help us determine if there are ketones in the body.*
- *If there is any overall change in the health of your pet.*