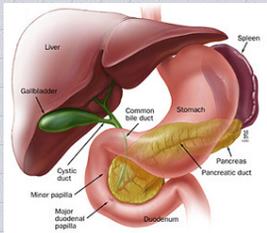


## Mountainview Animal Hospital

### SPRING NEWSLETTER

#### The Bottom Line

*The pancreas is an organ that sits next to the stomach. It has two main functions. As part of the endocrine (hormonal) system, it produces many important hormones, like insulin. As part of the digestive system, it produces digestive enzymes that help break down food.*



*An example of type III diabetes mellitus is gestational diabetes. The hormones produced during pregnancy can cause insulin resistance in both humans and dogs. Interestingly, gestational diabetes does not occur in the cat.*

#### DIABETES MELLITUS

Diabetes mellitus, commonly referred to as sugar diabetes, is one of the most common hormonal diseases seen in humans, dogs and cats. It is so common in fact, that you likely already know someone who has diabetes mellitus.

Diabetes is a complex and serious disease, at times even fatal. While there is no cure for diabetes, in most cases it can be well controlled and most dogs and cats with diabetes continue to have long and happy lives. There are several risk factors that contribute to the development of diabetes mellitus including genetics, age, obesity, auto-immune destruction of insulin producing cells, inflammation of the pancreas, other hormonal diseases and certain medications.

Generally, diabetes mellitus is the body's inability to use the sugar (glucose) that is circulating in the blood stream for normal metabolism. Normally, the beta cells in the pancreas produce a hormone called insulin. Insulin is required by the cells in the body to absorb glucose from the blood stream and use it as energy. When there is not enough insulin being produced or the body cannot use it properly, then the cells of the body are starved for energy, even when the blood sugar levels are high. Not only is the lack of available energy for cellular function a problem, but the high levels of glucose in the blood can also cause organ damage.

There are three main types of diabetes mellitus, type I, type II and type III:

- In type I diabetes, there is little or no insulin production by the pancreas because the cells that produce insulin (beta cells) have been destroyed.
- Type II diabetes occurs either because there is not enough insulin being produced or the insulin that is being produced is not being received by the cells in the body in the correct manner.
- Type III diabetes mellitus or secondary diabetes mellitus occurs secondary to another disease or medication, either because they destroy the insulin producing cells in the pancreas or they interfere with insulin's function at the target cells. In some cases, treating the primary disease early may resolve the diabetes as well.

While dogs and cats being treated for diabetes do very well, patients with untreated or poorly controlled diabetes mellitus have a tendency to develop secondary or complicating conditions. These patients are prone to infections, heart disease, cataracts and neurological disease.

One such secondary disease is Diabetic Ketoacidosis. This is a condition where an untreated diabetic animal has become particularly sick, often quite suddenly, sometimes before a pet owner is even aware that their pet has diabetes. These animals are weak, they refuse to eat, they are often vomiting and may also be breathing fast. Diabetic ketoacidosis is quite serious and requires immediate treatment; many of these patients require hospitalization and intensive care. Fortunately, it is uncommon.

## **The Bottom Line**

*Urinary tract infections are common in diabetic animals; the high urine sugar levels and suppressed immune system make these animals vulnerable. Performing a urine culture in addition to a normal urinalysis is recommended in diabetic patients.*

*Some cats have a unique approach to diabetes mellitus. They begin as having type II insulin dependant diabetes mellitus and then change their minds, so to speak. After they have been stabilized by getting insulin injections and have lost some weight, their diabetes may shift to a type II non-insulin dependant diabetes. This means that they no longer need insulin injections to control their blood glucose levels. While this is a positive thing, the way they go about it can be problematic. These cats will often give no warning signs that things have changed until they suddenly collapse from hypoglycemia (low blood glucose).*

In most cases, diagnosing diabetes mellitus is fairly straight forward and relatively easy on our furry friend. A thorough physical examination, blood test and urine test should be all that is needed to tell us if our patient is suffering with diabetes mellitus. It is also important to determine if there are any other diseases that might be present that could be causing the diabetes (type III diabetes) or that could complicate the treatment.

### **Diabetes Mellitus in the Dog**

It is estimated that the incidence of diabetes mellitus in dogs is between 1 in every 100 - 500. It usually occurs in middle aged to older dogs. These dogs are generally overweight.

The signs of diabetes mellitus in the dog include:

- drinking more water
- urinating more or having accidents in the house
- increased hunger
- weight loss
- cataracts, sometimes causing sudden blindness
- loss of energy
- poor hair coat

**The principles of treating diabetes mellitus in the dog:**

- Identify and treat diabetic ketoacidosis if necessary, immediately
- Identify and treat any predisposing diseases and medications
- Weight loss in dogs that are obese
- Diet. Feed a diet that helps maintain an ideal body weight, moderate to higher fiber levels and provide an excellent quality protein source.
- Insulin injections. Because dogs have type I insulin dependent diabetes mellitus, insulin injections will be required as part of the treatment. While this may sound scary, it is not. Most clients learn to give their dogs the injections easily and comfortably.

### **Diabetes Mellitus in the Cat**

It is estimated that the incidence of diabetes mellitus in the cat is 1 in 250. This estimate has increased dramatically over the last few decades. While the cause of this increase is not fully understood, the rise in the number of obese cats is suspected.

The signs of diabetes mellitus in the cat include:

- drinking more water
- urinating more or having accidents in the house
- increased hunger, sometimes not as obvious in the cat
- weight loss
- neurological weakness, inability to jump, strange gait, mild staggering
- loss of energy
- poor hair coat: greasy in spots with a lot of dandruff along the back

**The principles of treating diabetes mellitus in the cat:**

- Identify and treat diabetic ketoacidosis if necessary, immediately
- Identify and treat any predisposing diseases and medications
- Weight loss in cats that are obese; controlled weight loss is key in managing many diabetic cats.
- Diet. Cats required a diet that is higher in protein, moderate in fat and lower in carbohydrates.

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## The Bottom Line

**Hypoglycemia** occurs when the blood glucose levels become too low. For diabetic patients, this occurs when too much insulin is given for the patients needs. This might occur if a pet owner accidentally gives too much insulin or gives insulin to a pet who is not eating. This will also occur in cats who have suddenly become non-insulin dependant.

Pets who are hypoglycemic may initially become anxious or agitated, they may show unusual behaviour or have muscle tremors. This will progress to seizures, collapse and unconsciousness.

If you notice that a diabetic pet is behaving abnormally, offer food immediately. If the pet refuses to eat rub corn syrup on the gums and under the tongue. Mild hypoglycemia will respond quite quickly to this. Pets that are still showing symptoms should be seen by a veterinarian immediately.

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Did you know that cats are not very attracted to sweet tastes? They lack the receptors in their taste buds to detect sweet flavours. Cats tend to prefer meats and fats.

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- Insulin injections. Unlike dogs, not all cats with diabetes mellitus will require insulin injections as part of their longterm treatment. Roughly 25% of cats may require insulin as part of the initial control process but eventually may be managed without insulin injections. Does the mere suggestion of giving a cat an injection of insulin sound impossible? You would be shocked as to how well cats accept a tiny needle as part of their daily routine.

## Treating diabetes mellitus - the glucose curve:

Once we have diagnosed diabetes mellitus we will select the most appropriate diet and feeding schedule for our patient. Since most diabetic animals are obese, weight loss will be an important part of our treatment plan. In all dogs and most cats we will schedule a day for the patient to be hospitalized to initiate insulin therapy. We calculate the initial insulin dose based on the species and body weight of our patient. Most animals will require an insulin injection twice daily. Then, throughout the day, we will take a number of tiny blood samples to measure the blood glucose (sugar) levels. While it is important for the blood glucose levels to come down into the normal range, we must be very careful that they do not drop too low. Below normal blood glucose levels can be very dangerous. We then plot these blood glucose measurements on a chart. This is called a glucose curve. This process will need to be repeated several times until we find the right insulin dose for that individual patient.

Once we have determined the correct insulin dose, we will continue to monitor our patient's glucose levels periodically throughout the year. A quick and easy blood test called a fructosamine test can help us evaluate how well the diabetes has been managed over a period of two to four weeks. While this test is excellent at giving us an overall picture, it cannot be used to regulate or re-adjust insulin levels. Of course, the pet's family will often become aware if the insulin levels will require re-adjusting, as they will see a change in their pet's overall health.

Although diabetes mellitus is a complex and life threatening disease, it can now be dealt with very successfully. An increased awareness of the disease, new diets and insulins have greatly improved our ability to control this disease in dogs and cats. Most pets with diabetes mellitus live long, happy and relatively normal lives. They tolerate the tiny insulin injections extremely well and seem to thrive with the extra tender loving care their families give them. A good relationship with your veterinarian is important. There is a lot to learn; never be afraid to ask questions.

## TIME WITH TUX

While it is not in a cats nature to be helpful to the canine population, I am stepping out of my comfort zone to make a public service announcement to all of my canine "friends" (I use that word loosely). Stop eating the brown stuff, man!!!! Oh, get your mind out of the gutter, I mean the sweet brown stuff the humans call chocolate. This year I saw more than the usual number of dogs requiring treatment for chocolate toxicity in the few weeks following Christmas. And now with Easter coming, I just know that all you nose following, tail wagging knuckle heads will do it again and steal your humans' chocolate stash. I don't get it, you don't see cats eating things that are bad for them. Well, maybe there was that one cat who ate a Barbie shoe. Oh yeah, there was also that cat who swallowed a marble. And come to think of it, there have been a few cats that have eaten string. So I guess we are not perfect ..... I don't want to talk about it.



## \*\*\* IMPORTANT SUMMERTIME REMINDERS \*\*\*

### The Bottom Line

*An infected dog can have over 200 heartworms in the heart and adjoining blood vessels.*

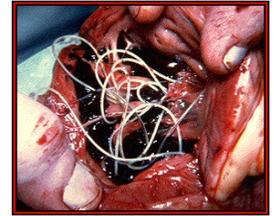
*The drug companies that produce the various heartworm preventative medications will guarantee your dog's protection only if you use the medication correctly and have your dog's blood tested every year.*

**Caution!** Some flea products marketed in the pet stores to dogs are extremely toxic to cats. Always read the label carefully; better yet, ask us about choosing the safest products for your pets.

*Bordetella bronchiseptica (Kennel Cough) is a bacterial infection of the respiratory system. It causes coughing, fever, depression and loss of appetite. Vaccination is recommended for dogs going to boarding kennels, puppy classes, grooming facilities or off leash parks. If your dog is not vaccinated against Kennel Cough and is likely to be exposed, please call us to schedule an appointment.*

### Heartworm Disease

Heartworm disease is caused by a large worm which can live in a dog's heart and adjoining blood vessels. Permanent and potentially fatal damage to the heart, lungs and liver can occur long before there are any visible signs. The heartworm is spread from one dog to another by the mosquito. Treatment is available but is often costly and difficult. A long recovery time can be expected and often irreparable damage to the heart, lungs and liver has already occurred.



Fortunately, prevention is so easy. Simply give your dog the preventative medication once a month from June through November. There are various types of heartworm medication available; some will also include prevention for intestinal worms and/or fleas. Blood testing your dog prior to starting the medication is an important part of prevention and is strongly recommended. Early detection of a heartworm infection before your dog gets sick will not only increase the success of the treatment and ensure a complete recovery, but will also help reduce the spread of the disease.



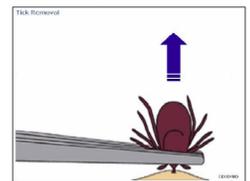
### Fleas



Both cats and dogs are at risk of becoming infested with fleas during our warm summer months. Fleas are extremely irritating to your pet. Flea bites can cause itchy skin rashes and even serious allergic reactions. Left untreated, just 10 adult fleas can multiply to over 250,000 fleas in only 30 days! Your pet can come into contact with fleas on walks, at the park, or even in your backyard. Those of you who have had fleas in the past know how difficult it is to get rid of them; prevention of flea infestations is much easier, cost effective and safe. Call us to start your pet on the safest and most effective flea prevention this spring.

### Ticks

The tick is also a biting insect that feeds off the blood of their host. They are most commonly found in deep bush and tall grassy areas where the ground is moist. Over recent years the tick population has been growing in Southern Ontario. The main concern with ticks is the possibility that they are carrying a number of potentially fatal diseases. Among these are Babesiosis, Anaplasmosis, Ehrlichiosis, Hepatozoonosis, Rocky Mountain Spotted Fever, Tick Paralysis, Cytauxzoonosis, Lyme Disease, Q Fever and Tularemia. Many of these disease can affect humans as well. If you find a tick attached to your skin or that of your pet's, remove it immediately. The longer the tick is attached, the more likely it is to transmit disease, if it is a carrier. Once the tick has been removed, keep it. It is important to have the tick identified and if it is the right species, tested to see if it is a carrier of disease. Ticks removed from a human should be taken to a local health unit. Ticks removed from your pet can be brought to us for testing. A blood sample taken from your dog can also be tested for tick-borne diseases. If your pet spends time in the deep bush or tall grassy areas, talk to us about the various tick repellent products available.



### Wellness Blood Testing

Over the next few months we will be taking many blood samples from dogs who are having their heartworm test done. This would be a great time to consider a wellness blood test; it would cause them no extra stress to have a few more drops of blood drawn and it is a great way to screen for underlying disease.

Although cats are not having heartworm testing done, any cat that is coming in for an annual physical examination may also benefit from wellness testing.