

Canine Diabetes Mellitus

What is diabetes mellitus and how is it diagnosed?

- Diabetes is a disorder caused by an insulin deficiency or a lack of sensitivity to insulin, resulting in high blood sugar (hyperglycemia). Insulin is a hormone made by the pancreas, which allows cells to take up sugar from the bloodstream and use it as energy. Insulin is also important in the metabolism of fats and protein.
- Your veterinarian is able to diagnose this disorder based on a physical exam and a routine blood and urine test.



What causes this disease?

- Diabetes occurs when the pancreas does not make sufficient insulin to meet the body's needs. The body may require more insulin because the tissues are less sensitive to it. This may be brought about by genetics, obesity, poor diet, drug reactions and a variety of other factors.

Why is treatment important?

- Animals with diabetes mellitus have very high blood sugar. This produces a variety of symptoms, which may include increased drinking and urination with dehydration, significant weight loss, depression, weakness and increased hunger or lack of appetite. Other complications may include cataracts and blindness, as well as infections.
- Diabetes becomes a true medical emergency when it remains untreated and the body begins to burn fat for energy, resulting in excessive ketone production. Ketones are toxic to the body in large quantities.
- Treatment requires a commitment of time for the owner. There is no cure for diabetes, but with daily insulin injections, diet and exercise management, your pet can live a happy, comfortable life. The risk of complications is greatly reduced with treatment, and most animals will live a much longer life than those not treated.
- Most diabetic dogs develop cataracts with time regardless of treatment.

Getting Started: determining an appropriate dose of insulin

- Newly diagnosed diabetics are placed on daily insulin therapy. It takes the body some time to adjust to the insulin. To determine the appropriate insulin dosage for your pet, roughly one week of insulin (as prescribed by your veterinarian) should be given before performing a blood glucose curve.
- When coming in for the glucose curve, your pet should be given his or her normal feeding in the morning followed by the insulin injection, and then brought into the clinic. Here we will take blood sugar readings every few hours throughout the day. This allows us to tailor the appropriate type and dosage of insulin with your pet's needs. A blood glucose curve may need to be repeated several times over your pet's lifetime in order to keep them well regulated.
- Unlike human diabetics who may check their blood glucose several times a day with an electronic instrument, this is not done for animals. Reasons for this include practicality issues and an inability to monitor our animals 24 hours a day. As well, animals have shorter life spans than people so we do not see as many long-term complications with

slightly higher blood sugar. We rely strongly on the blood glucose curve to regulate your animals sugar levels.

Handling Insulin:

- **Insulin should be kept in the refrigerator at all times, be sure to replace it every 3 months.**
- **Caninsulin:** *Shake the vial thoroughly until a homogenous, uniformly milky suspension is obtained. Foam on the surface of the suspension formed during shaking should be allowed to disperse. In case the suspended particles have settled during the waiting period, the product should be mixed again, gently this time, prior to use, to maintain a homogenous, uniformly milky suspension.*
- **Levemir (Detemir):** *No mixing/shaking required.*

Handling Syringes:

- Keep syringes out of reach of children.
- Store the syringe in its protective wrapping to maintain sterility.
- Syringes are for single use and should be used once only.
- Replace the cap after using the syringe and place it in a safe container such as a clean and dry bleach container. They may be brought back to the clinic for safe disposal.

Food BEFORE Insulin:

- It is very important that your pet eats before getting the insulin injection.
- **If your pet has no appetite and refuses to eat, do not give the insulin.** Call your veterinarian for further advice. An animal that gets an insulin injection and refuses to eat may subsequently have low blood sugar, which may result in an emergency.

How to Draw Up Insulin:

1. Remove the cap from the syringe, and push the plunger all the way in so no air is in the syringe.
2. Insert the needle into the bottle
3. Turn the bottle upside down and draw back the plunger, filling the syringe with the correct amount of insulin.
4. Hold the plunger at this level while withdrawing the needle from the bottle.
5. Double check that you have the right amount of insulin in the syringe.
6. Ensure there is no air in your syringe. If any air is present then flick the side of the syringe to float the air bubbles to the top, then depress the plunger to expel the air.

How to Give an Injection:

IMPORTANT: Always have the same family member give the injection, or have a schedule posted so that double injections are not given. Double doses can cause serious complications.

1. Have someone else hold your pet as still as possible. This often means giving your pet a hug around the neck and shoulders.
2. Hold the syringe in your dominant hand.
3. Pick up a fold of skin, picking a different spot each day.
4. Push the needle through the skin quickly, while avoiding depressing the plunger.
5. As we want to avoid injecting into a blood vessel, pull back gently on the plunger to ensure there is no blood drawn back. If you see blood, pick a different spot.
6. Push the plunger into the syringe to inject the insulin.
7. Withdraw the needle from your pet's skin.
8. Place the cap back on the needle and discard properly.
9. Reward your pet with a treat or some kibble. This creates a more cooperative pet for this procedure in the future.

What Do I Feed My Diabetic Pet?

- Dietary management of diabetics is very important. Often, weight reduction is critical, so your veterinarian may advise a low-calorie diet. Each animal has different dietary needs based on their weight and medical history. In some cases, a veterinary diabetes management diet may be prescribed. Please discuss these issues with your veterinarian.
- As a general rule, the diabetic patient is fed at least twice a day to maintain proper blood glucose levels.
- Table scraps should be avoided, and a consistent high quality food should be fed.

What About Exercise?

- Exercise should be moderate and consistent. This helps stabilize the insulin needs.

When Should I be Concerned?

- If your pet accidentally receives a double dose *or* refuses to eat, yet was given an insulin injection, call your veterinarian immediately.
- Contact your veterinarian immediately if you see your animal exhibit:



- ✓ **Seizures**
- ✓ **Depression/Coma**
- ✓ **Drunken State**
- ✓ **Lack of Appetite**
- ✓ **Cataracts**
- ✓ **Atypical behaviour**

Keep corn syrup on hand to use in case of emergency!

We can provide details on how and when it should be administered.

After hours emergency: Winnipeg Animal Emergency Clinic (204)452-9427

Special Considerations:

- Diabetic animals who are well controlled live happier, longer lives than those who are not on insulin therapy. However, even controlled diabetics are more susceptible to other health problems than the average pet. These can include an increased frequency of infections (especially bladder infections), slowed healing and cataracts, among others.
- Diabetic females should not be bred as it is difficult to control diabetes during pregnancy, and may cause a life-threatening situation.

Cost:

- ✓ The financial cost of caring for a diabetic pet is an important consideration. The cost does vary depending on any additional problems which may arise and the size of your animal. To estimate your costs, it is best to break down the treatment stages:
 1. Initial diagnostic workup
 2. Stabilization
 3. MaintenanceYour veterinarian can discuss the costs involved for each stage.
- ✓ A commitment of time is also required of diabetic pet owners. This commitment may not seem easy, especially initially, but can be very rewarding for both the pet and owner.