

# Diabetes Mellitus and Your Pet

Diabetes Mellitus is a chronic hormonal disorder that occurs in dogs and cats. It is characterized by persistently elevated blood sugar (hyperglycemia) and results when either the pancreas is unable to produce enough insulin to meet the animal's requirements, or the animal does not respond to insulin correctly. Insulin is a hormone, which is needed to transport glucose (blood sugar) into the cells. With proper care and diet the lifespan and quality of life of a diabetic animal can be the same as for a non-diabetic animal.

## DIAGNOSIS

Both dogs and cats with diabetes can exhibit any of the following signs: weakness, increased thirst, frequent urination, rapid weight loss, depression, and abdominal pain. In addition they may also show excessive hunger, or lack of appetite. In dogs we may see cataracts forming and in cats we can see a symptom called polyneuropathy where the cat walks "flat footed" in the rear. A definitive diagnosis of diabetes mellitus is based on laboratory work to identify the abnormal levels of glucose in the blood and urine as well as other changes that may occur in diabetic animals such as urinary tract infections. We may also want to measure a baseline fructosamine level in your pet. Fructosamine is a molecule made up of protein and carbohydrate, which indicates an animal's average blood sugar level over the previous two weeks. Monitoring changes in the fructosamine level will help in regulating your pet's condition.

## TREATMENT

Treatment requires a significant commitment of time from you. There is no cure for diabetes, but it can be controlled with medications including oral hypoglycemics and insulin (there are several types), diet (generally one of several prescription formulas), and exercise. Once your pet has been diagnosed with diabetes, we will discuss with you the different treatment options, which are available for your pet. Some cats with diabetes can be controlled with oral medications that lower blood sugar (hypoglycemics). However, most pets will require insulin injections once or twice daily. Typically we start at a standard amount of insulin, and retest the glucose level in your pet's blood weekly to determine the effectiveness and duration of the insulin. On occasion a glucose curve will be required which entails hospitalizing your pet so we can measure the glucose levels frequently throughout the day. This will help us to fine-tune the insulin amounts. If the results of the blood glucose curve do not agree with how your pet seems to be doing at home we may need to recheck a fructosamine level. Once adequate control is achieved evaluations should be completed every four to six months depending on how they are doing at home.

## HOME CARE

If you are using insulin to treat your diabetic pet you will need to give the insulin injections once or twice daily, usually for the rest of its life. Some cats experience spontaneous remission of their diabetes and no longer require insulin injections. However, this remission is rarely permanent. It is important that the insulin injection(s) be given at the same time each day. The injection is given just under the skin and is not painful to your pet

**Injections:** Insulin should be refrigerated when not in use. When preparing the insulin gently roll it back and forth between your palms. DO NOT shake the insulin. Insert the needle of the syringe into the bottle and draw out the appropriate amount of insulin. Have your pet calmly sit in front of you or in your lap, and have someone else there to help initially. Quickly insert the needle under your pet's skin, draw back on the plunger to make sure no blood is drawn up, and inject the insulin. Be sure to praise your pet and give them food after giving the injection. "Sterilizing" the skin with alcohol before injection is not necessary and may sting your pet. Be sure to rotate the locations of the injections to minimize local reactions. Finally, it is very important to be sure that the proper type of insulin syringe is being used. There are two different concentrations of insulin available, and each requires a specific type of syringe. Using the incorrect type of syringe can result in dangerously overdosing or underdosing your pet.

Sometimes your pet may have an insulin reaction caused by a marked decrease in their blood sugar (hypoglycemia). This reaction usually occurs several hours after the insulin injection. The earliest signs resemble a drunken state where your pet will be weak and walk with a wobbly, uncoordinated gait. You may also notice nervousness, abnormal vocalizations, muscle tremors, and dilated pupils. This stage may progress to seizures and/or coma and death. Should you notice signs of hypoglycemia, give Karo or corn syrup orally at a dose of 1 tablespoon per 10 pounds. This can be repeated in 15-20 minutes if necessary. Contact us at the hospital immediately if there is no improvement seen in 15 minutes. A blood sugar level significantly below normal can be a life-threatening emergency. Following a suspected hypoglycemic episode give no insulin for two to three days, monitor for clinical signs of diabetes, and recheck your pet's blood glucose to rule-out spontaneous remission. Remember, low blood sugar is acutely more dangerous than high blood sugar, so it is always better to err on the side of giving syrup if you suspect your pet is hypoglycemic.

**Feeding:** We typically like to have diabetics eat a fixed formula prescription diet. Which diet will depend on your individual pet. The prescription diets are designed to help pets lose weight and to help smooth out the amount of glucose that is released into the blood stream. This is the only food that they can have from now on. Like in humans they need to keep to a strict diet. NO TABLE SCRAPS!! In addition to the type of food, timing of the feedings is also important. Your pet should have access to food immediately after each insulin injection. We like to have our patients eat at least twice a day.

**Activity:** There are no exercise restrictions on our diabetic patients, and often weight loss is needed, so exercise is good for them. A consistent level of activity is important for good regulation. Diabetic cats should always be kept strictly indoors. Diabetic female cats and dogs should not be bred since diabetes can be very difficult to regulate during pregnancy.

## FINAL THOUGHTS

Although diabetes can be controlled with medications, diet, and exercise, these pets are more susceptible to other health problems. Diabetes can cause an increased incidence of infections, slowed healing, cataracts (dogs only), gastrointestinal dysfunction, kidney disease, heart disease, pancreatitis, and nervous system disorders. Signs that you may notice at home that may indicate serious problems include seizures, coma, lack of appetite, deviations from normal behavior, depression, drunken state, or cataracts.

Please keep in mind the following points: (1.) perfect regulation of diabetes is rarely possible and is probably not necessary, (2.) blood sugar that is too high is always safer short term than blood sugar that is too low, therefore you should always treat for low blood sugar if you are suspicious, (3.) monitoring your pet's clinical signs (weight changes, appetite, activity level, drinking, and urination) is crucial to effective regulation, (4.) consistency is very important - diet (what type, when fed, how much), insulin injections (storage, mixing, time of day, person injecting), and activity level.

**Cost:** The cost of caring for a diabetic pet should be thought of in three stages: (1.) initial diagnosis, including examination, bloodwork (complete blood cell count, chemistry profile, baseline fructosamine level), and urinalysis, (2.) stabilization, and (3.) maintenance. Stages 1 and 2 are by far the most expensive since we need to recheck your pets blood glucose levels or fructosamine level fairly frequently, typically every one to two weeks. Stage 3 costs typically involve only the cost of the insulin and syringes (approximately \$35 to \$85 for a vial of insulin, and approximately \$21 for a box of 100 syringes), sharps disposal box (\$10) and periodic blood glucose checks and/or measurement of fructosamine levels.

### **You will need to purchase from us:**

1. Box of insulin syringes
2. Vial of insulin
3. Sharps disposal box

### **At home please do the following:**

1. Feeding Instructions: \_\_\_\_\_
2. DO NOT GIVE ANY TREATS.
3. Give \_\_\_\_\_ units of \_\_\_\_\_ insulin every \_\_\_\_\_ hours.
4. Schedule a recheck of your pet's blood glucose level as directed.
5. Maintain as consistent a lifestyle for your pet as is possible.
6. Monitor your pet's clinical signs very carefully.
7. Treat for low blood sugar if you suspect it.

If you ever have questions regarding any of the above information, please do not hesitate to contact us. Visit us online at [www.WhiteBearAnimalHospital.com](http://www.WhiteBearAnimalHospital.com).

## **WHITE BEAR ANIMAL HOSPITAL**

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