



Memorial-610 Hospital for Animals
910 Antoine Drive • Houston, Texas 77024
Telephone: (713) 688-0387 • FAX: (713) 682-6359
<http://www.mem610.com>

Diabetes Mellitus Information

Prepared for Your Pet Animal

Your Pet has been diagnosed as having Diabetes Mellitus. This information is provided to help you learn about the disease and how to care for your pet at home.

Diabetes Mellitus is a chronic endocrine disorder that occurs in dogs and cats. It is characterized by high blood sugar (hyperglycemia) and results when the pancreas is unable to produce enough insulin to meet the animals' requirements, or is unable to effectively use the insulin it does produce.

Insulin is a hormone which is needed to transport glucose (blood sugar) as well as certain amino acids (the building blocks of protein) and minerals through the blood to energy producing cells in the body. When a lack of insulin or poor insulin utilization occurs, the glucose cannot move into the cells and the glucose level in the blood rises to abnormally high levels.

Signs of Diabetes

An animal with diabetes mellitus will exhibit some or all of the following symptoms: weakness, increased thirst, frequent urination, rapid weight loss, depression and abdominal pain. Cats may exhibit abnormalities of gait or chronic vomiting and diarrhea. An animal may also show signs of either increased hunger or lack of appetite. In some animals, the sudden development of blindness due to cataracts formation may indicate diabetes.

Causes

Diabetes mellitus in dogs and cats is caused by damage to the pancreas. Predisposing factors are: obesity, genetic predisposition, poor diet,

hormonal abnormalities, stress and drugs. The sex of the animals can also be a predisposing factor. In dogs, females are affected twice as often as males and in cats, diabetes is more prevalent in males.

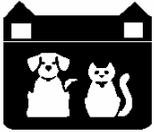
Diagnoses

Your veterinarian will perform a thorough physical examination of Your Pet and ask you questions about your pet's health history. Next, it may be necessary for Your Pet to fast for a short period of time so that his blood sugar level can be tested and a urine check can be done. Your Pet may need to be hospitalized for 1-2 days to help ensure the accuracy of this test. Diabetes is often complicated by urinary tract infections, other hormone disorders, infections, or build-up of chemical compounds called ketones in the body. Provided these or no other complications are present, the blood sugar tests and urine test will help determine whether or not Your Pet is diabetic. If there are complications, more testing may be necessary.

Treatment

Treatment requires a commitment of time and management for you, the owner. There is no cure for diabetes mellitus, but, as with humans, it can be controlled with insulin injections diet and exercise management. With such therapy, Your Pet can lead a happy, comfortable life.

Once your pet has been diagnosed with diabetes mellitus, his diet must be stabilized and specific insulin requirements need to be determined. Your Pet will be placed on an appropriate diet for a variable period of time before insulin is started. As each pet's insulin needs are unique and often vary from day to day, your pet may need to be



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hospitalized at times in order to determine the specific needs. This is accomplished by your veterinarian giving Your Pet an insulin injection and testing the blood sugar levels at regular intervals throughout the day. These results are to determine his initial insulin requirements. Because your pet's insulin needs may change once it returns home, due to changes in diet, exercise and certain environmental stresses, periodic reevaluation over the next two weeks is recommended until satisfactory control is achieved. Once control is achieved, further evaluation should be completed every 2-4 months.

Home Care

You must provide the daily injections of insulin for the rest of his life. Oral medication is rarely effective for most diabetic animals. It is also important that the insulin injections are given at approximately the same time each day. The injection is given just under the skin and should not be painful for Your Pet. Your veterinarian or nurse will show you how to administer the injection. Detailed information on insulin injection is available in this information handout for your reference. The staff at Memorial-610 Hospital for Animals is here to help you care for Your Pet should you have any questions.

The Insulin Dose

The type of insulin and the daily dose are tailored to meet the needs of each animal. Some animals only need one daily injection, while most others need two injections per day. Other medications may also be prescribed, depending on concurrent complications.

When regulating a diabetic animal's blood glucose level, the goal is to keep it between 80 and 150 mg/dl. The recommended dose of insulin determined while Your Pet was in the hospital may need adjustment once your pet is home. This is

because the food, exercise and stress levels he receives at home may be different.

To adjust the dose, your veterinarian will continue to test and regulate your pet in several ways. The two most common methods involved testing for substances in the blood. Your veterinarian may request that you bring Your Pet into the hospital for the day to test the blood glucose levels several times throughout the day. Another test, called serum fructosamine, may be used after the pet is more regulated and involves only a single blood sample.

Handling Insulin and Syringes

Insulin should be kept cool at all times, but never frozen. Insulin is a fragile suspension of protein and can be damaged by extremes in temperatures. In addition, the protein can also be destroyed if shaken vigorously. For this reason, you will need to gently roll or invert the bottle of insulin to re-suspend the material within prior to withdrawal of the insulin into the syringe.

The syringe and needle should be stored in protective wrappers to keep them sterile. Syringes and needles have 4 parts that consist of the syringe barrel, the plunger, the needle and the needle guard or "cap".



Various syringes are suitable for injecting insulin. They are marked on the barrel for measuring small amounts. These syringes and needles are disposable or "single use only". After injecting Your Pet with insulin, place the cap or guard over the needle and dispose of it in a suitable container. For their safety, it is extremely important that children do not have access to the syringes or needles.

Drawing Up the Insulin



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Set out the syringe and needle, insulin bottle and have Your Pet ready. Then:

1. Remove the plunger guard and needle guard from the needle. Draw back the plunger to the desired dose level.
2. Insert the needle into the insulin bottle.
3. Inject the air in the syringe into the bottle to prevent a vacuum from forming in the insulin bottle.
4. Withdraw the plunger, filling the syringe with the correct amount of insulin.

Before injecting him with the insulin, check to see there are no bubbles in the syringe. If you see an air bubble, draw up slightly more insulin than the exact dose. Now, tap the syringe barrel with your finger to move the air bubble to the nozzle of the syringe, then, gently, expel the air bubble by pushing the plunger upwards.

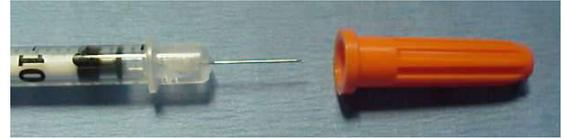
Now, check to see that you have the correct amount of insulin in the syringe. The correct dose of insulin is measured from the “0” on the syringe barrel to the end of the plunger nearest the needle. If you have the correct dose in the syringe, remove the needle from the insulin bottle and place the syringe in a protected location.

How to give an injection

(Before actually giving an injection, see the feeding instructions below)

1. Hold the syringe in your right hand (or left, if you are left-handed).
2. Have a friend or member of your family hold Your Pet as you pick a fold of skin along the pet’s back with your free hand (pick a slightly different spot each day).
3. Push the sharp and thin needle through the pet’s skin quickly. This should be an easy and painless process when using an insulin needle. Take care to push the needle through one fold of skin, not into your finger, his underlying muscle, or through

both layers of skin.

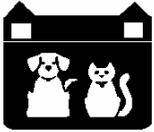


4. Pull back gently to make sure no blood fills the syringe.
5. With your thumb on the plunger, push the plunger further into the syringe.
6. Withdraw the needle from the pet’s skin and immediately cover the needle with the needle guard.
7. Praise Your Pet for sitting quietly. A reward of affection and/or food quickly creates a cooperative pet that may not even need to be held.
8. “Sterilizing” the skin with alcohol is counterproductive if it stings and causes your pet to want to avoid the injection.

Sometimes Your Pet may have an insulin reaction caused by a marked decrease in blood sugar. This reaction usually occurs 2-6 hours after the morning injection. The earliest signs resemble a drunken state; that is, your pet will be weak and walk with a wobbly, uncoordinated gait. This stage may progress to seizure or coma. Should this occur, give 1-2 teaspoons of Karo Syrup orally. Contact a veterinarian if no improvement is seen in 15 minutes. A blood sugar level significantly below normal is an immediate threat to life and needs to be dealt with as an emergency situation.

When To Feed

When you feed Your Pet is as important as what you feed him. If he is sometimes reluctant to eat or his appetite is inconsistent, be certain that Your Pet consumes a meal before you give the insulin injection. Without the presence of food either before or after the injection, insulin may precipitate hypoglycemic shock. If he does not eat or only eats a small amount of food, contact your veterinarian regarding how much, if any, insulin to administer.



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In addition, Your Pet must be fed the recommended food in the correct quantity at a regular time each day in conjunction with the insulin. Correct dietary management is a critical part of the successful management of the diabetic animal. As a general rule, diabetic animals should be fed more than once daily to help maintain blood sugar at a constant level. Your veterinarian will determine your pet's feeding schedule based on its glucose curve.

What to Feed

Do not feed any food not recommended by your veterinarian. It is important that the food Your Pet consumes is consistent in ingredient content and nutrient source. Diabetic control is difficult to obtain if the pet food varies. Studies indicate that in dogs, high fiber, high carbohydrate, fixed formula foods lower the insulin requirements and blood glucose levels. Fiber slows the absorption of glucose from the intestinal tract and decreases the high blood sugar. If your pet is overweight, weight reduction may be necessary. Obesity reduces the body's tissue responsiveness to insulin (both the body's natural insulin and that which is injected) and results in dangerous high blood sugar levels.

Cats often do better with a high-protein, low-carbohydrate diet similar to a cat's natural diet.

Exercise

There are no restrictions on Your Pet's normal activity. However, it is important that your pet's exercise be moderately regulated and consistent in order to keep the insulin needs as consistent as possible.

Special Considerations

Although diabetes mellitus can be controlled with insulin and diet, diabetic animals are more susceptible to other health problems. Diabetes mellitus can cause an increased incidence of infections (especially urinary bladder infections), slowed healing, cataracts, gastrointestinal dysfunction, kidney disease, heart disease, pancreatitis and nervous system disorders. A diabetic female animal should not be bred because it is extremely difficult to control diabetes during pregnancy and may cause a life-threatening situation.

Things to watch out for at home:

- Seizures
- Coma
- Lack of appetite
- Deviations from normal behavior
- Depression
- Drunken state
- Cataracts
- Increased drinking and urination

If Your Pet exhibits any of these signs, please contact us as soon as possible at 713-688-0387.