

Discharge Instructions for Pets Diagnosed with Diabetes

Diabetes is a disease that is caused either by the body not producing enough insulin or by the body not being able to use the insulin it does produce. As a result, the blood sugar (or glucose) levels rise and the body doesn't function like it should. Diabetic patients often have signs of increased drinking and urination, increased appetite and weight loss in the early stages of the disease, but can progress to decreased appetite and drinking as they get sicker. They can ultimately develop a condition called Diabetic Ketoacidosis that can be quite severe and fatal if left untreated. Depending on your pet's clinical signs and bloodwork changes, the diabetes may be treated with outpatient care or your pet may need to be hospitalized. With proper management, most diabetic cats and dogs can have good quality of life. However, diabetes is a disease that requires a managerial and financial commitment for the life of the pet. It is important that you and your veterinarian work together as a team to manage your pet's individual needs. Please do not hesitate to contact us if you have questions or concerns about your pet's care.

Diabetes can be diagnosed through the use of blood and urine tests. Sugar may be found inappropriately in the urine along with elevated levels of blood sugar. Fructosamine is another test that may be used to help diagnose diabetes. This level looks at more of an average of your pet's blood sugar over 14 days. Diabetic patients often have other concurrent illnesses and diseases such as urinary tract infections, kidney infections, and gastrointestinal disease. Diagnostics and therapies targeted to these concurrent illnesses may be needed.

Dietary Management

Dogs and cats have specific dietary needs in order to successfully manage diabetes. However, their needs differ significantly. Water intake is also important, both in maintaining adequate hydration as well as in monitoring the efficacy of treatment. Water should NEVER be withheld from a diabetic patient. Care should also be taken to ensure that no more than 10% of the daily calories are from treats.

- **Dogs**

Dogs require consistency in their diet in order to successfully manage diabetes. Occasionally, we will recommend a prescription diet to help manage your dog's diabetes. More often, however, we will recommend selecting a food that your dog likes and eats consistently. It is EXTREMELY important that once the diet is selected that it is fed in an appropriate volume for your pet. Some dogs are overweight, while others are underweight at the time of diagnosis. Your pet's veterinarian will help to make recommendations that are unique to your pet's needs. Changes in the flavor of diet, formula or brand of diet, or quantity of diet all could sabotage the regulation of blood sugar.

- **Cats**

The level of success increases exponentially in cats managed with low carbohydrate, high protein varieties of canned food. Dry food contains high carbohydrates and could alter your cat's metabolism enough to make regulation of its diabetes difficult. We will provide you with a list to help with purchase. Some cats are very addicted to dry foods and canned diets should never be forced on them. A slow, gradual transition is needed to allow them to adjust to a new diet without a decrease in appetite. We can provide additional information about helping to transition your cat to canned food if needed. Obese cats will need to lose weight in order to get their diabetes under control. They should have slow controlled weight loss of no more than 2% per week with appropriate calorie intake. Thin cats can have food left out all of the time, however the volume per day should be appropriate in calories and care should be taken not to overfeed your cat.

Insulin Management

The use of insulin to manage diabetes in pets is crucial for both dogs and cats. Insulin therapy protocols in pets are very different than that used in human medicine although some of the same insulins brands are used. Insulin is most commonly administered twice daily, as close to every 12 hours as possible. Insulin therapy is most often lifelong, however in cats, there may be a portion of cats that go into remission with aggressive therapy and whom no longer require insulin. They may be managed long term with diet alone, although relapses are common.

- Insulin should be kept in the refrigerator when it's not being used. **We have found keeping the insulin toward the back of refrigerator helps maintain a longer shelf life. When insulin is placed in the door, the frequent opening of the refrigerator can cause enough temperature fluctuations that can make the insulin expire/ineffective much quicker.** You should replace the insulin vial every 4 months in order to ensure good efficacy. Different brands of insulin do not necessarily regulate the blood sugar in the same way. As a result, you should **never change brands of insulin without discussing the change with your veterinarian.**
- Insulin should be rolled gently between the hands to ensure that it is thoroughly mixed before administration. You should generally never shake insulin.
- There are two types of insulin syringes: U-100 and U-40. Human insulins use U-100 syringes, which means that there is 100 units of insulin per milliliter. Veterinary insulins are U-40 insulins and use unique syringes that have 40 units per milliliter. It is extremely important that you **double check** your syringes every time you purchase them.
- The bottle of insulin should be held upside down while drawing up the dose to prevent drawing in air bubbles into the syringe.
- Injections should be given in different areas each time to avoid scar tissue formation. If you are unsure whether the full dose of insulin got into your pet, you should not administer any more. Wait until the next dose is due and administer as normal.
- Adjustments in insulin dose should **NEVER** be made without the input of your veterinarian. Even small dose changes can cause large swings in the glucose levels of our patients. Diabetes is **NOT** managed in pets the same as it is in people and longer periods of time are required for your pet to adjust to new insulin doses.
- Insulin should be administered after your pet eats and within one hour of the meal. If your pet doesn't eat at least half of its meal, do not administer the full insulin dose. Only administer ½ of the usual dose. If your pet doesn't eat its full meal two meals in a row they should be seen by the veterinarian as soon as possible to rule out additional metabolic problems.
- For the entire period of time that your pet is on insulin it is extremely important that you monitor for signs of hypoglycemia, or low blood sugar. This may be seen after a dose change, or may be seen at anytime in a cat due to the possibility of clinical remission. Signs of hypoglycemia include trouble walking or standing, wobbliness, weakness, tremors, seizures, and even coma or death if left untreated. If you note signs that may be consistent with low blood sugar, we recommend that:
 1. You should NOT administer insulin if it is due.
 2. You should immediately offer food if your pet is able to swallow, or rub karo syrup or maple syrup on your pet's gums if they are unable to swallow. DO NOT force your pet to eat if they are not readily willing to do so on their own.
 3. You should then bring your pet to a veterinarian right away. You may need to seek care at an emergency hospital if you note symptoms at night or on the weekend or a holiday. You should not wait to have your pet seen.

Glucose Monitoring

Monitoring of your pet's glucose levels over time is critical to ensuring that the blood sugar is kept even and that your pet's clinical signs resolve. Monitoring may take place in the hospital or may be done in the home setting in some patients. Glucose curves are the monitoring of choice at our hospital. Blood sugar measurements are taken every one to two hours over a 8-12 hour period to evaluate the control of your pet's diabetes. We are looking at how high the glucose goes, how low the glucose goes, and how long the insulin is acting on the glucose levels. We will also ask about your pet's clinical signs such as their appetite, their drinking and urination, the presence of vomiting or diarrhea and will check for weight loss or gain. We will also be able to help you with any problems you may be having at home.

Additional curves may be needed as the dose of insulin is changed. Most patients are regulated within the first 6-8 weeks on insulin.

Additional glucose curves may be indicated based on clinical signs. It is extremely important to understand diabetic treatment/management is a long-term commitment.

Physical Examinations

Physical examinations are important in the management of diabetes in your pet. Oftentimes, your veterinarian will be able to discern quite a bit of information about your pet's diabetes regulation from a full physical. We will be monitoring for the detrimental effects of high blood sugar on the body such as muscle wasting, cardiac and neurologic health, and on ocular health.

Bloodwork Monitoring

Initially, your veterinarian will need to do additional bloodwork to evaluate your pet's overall health. This may include chemistries to evaluate for problems with kidney, liver, and electrolytes, a CBC to evaluate the white blood cells and red blood cells, and a urine test to evaluate for infection. We may also do a thyroid test or a urine culture. In a stable diabetic, this blood work should be repeated every 6-12 months to help monitor for any changes/fluctuations in your pet's vital organs.

Disposal of syringes/needles

We keep insulin syringes and disposal kits in stock for purchase at our office. You may also create your own disposal container at home safely. All disposal kits or homemade disposal containers can be thrown in your regular garbage once full and completely/safely sealed. You do not need to bring your sharps or disposal containers back to the clinic or other medical facility for disposal. For additional info, please visit:

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