

## TOP TIPS FOR TECHS

# Helping Clients Get a Grip on Diabetes



**Diabetes mellitus** is a common disease in both dogs and cats, but it can place a heavy burden on pet owners. Veterinary technicians should be aware of the commitment it takes to manage this disease in order to empathetically guide owners on how to care for their diabetic pet at home. The first stages of diagnosis and management, in particular, can be overwhelming for clients.

Here are some top tips for how you, as a technician, can be a valuable resource for your patients and their families during those first few weeks:

### 1 Be knowledgeable on the condition.

Every pet is unique, so diabetes for one patient may look a little different than it does for another one. Knowing the basics of diabetes is the first step.

**Diabetes mellitus is a condition where the body cannot convert glucose into energy due to issues producing or regulating the hormone insulin.**

**In a clinically normal patient, blood glucose (BG) should be approximately: Dogs: 60-120mg/dL | Cats: 70-150mg/dL**

When a patient has diabetes, glucose cannot be taken into cells to convert to energy, so it remains in the bloodstream, causing the BG to be elevated (hyperglycemia). Once the BG concentration reaches approximately 200 mg/dL in dogs or 250-300 mg/dL in cats, glucose will spill over into the urine (glucosuria).

### THERE ARE TWO TYPES OF DIABETES MELLITUS

**Insulin-dependent:** These patients cannot produce their own insulin, so they require insulin therapy for life. Diabetic dogs are typically insulin-dependent, similar to type 1 diabetes in humans.

**Insulin-resistant:** These patients can produce insulin, but it does not have the desired effect. They usually require insulin at the start of therapy, but sometimes can go into remission and be managed with an appropriate diet. Most diabetic cats have insulin resistance, similar to humans with type 2 diabetes.

### 2 Know the clinical signs.

**Most patients present with a combination of:**

- Polyuria (PU, increased urination) and polydipsia (PD, increased thirst)
- Weight loss
- Polyphagia (increased appetite)
- Dehydration
- Sudden cataract formation in dogs
- Plantigrade posture in cats (walking on their hocks)

The most common signs of diabetes in dogs and cats are increased thirst and urination.

Diabetic pets may also show lethargy, weakness, vomiting, or anorexia. (These may be signs of diabetic ketoacidosis—see section 6!)

### 3 Know how diabetes is diagnosed.

Technicians take a big part in performing diagnostics. Knowing what tests are available and what each one is looking for allows you to understand what the doctor recommends—and helps you answer questions from anxious clients as they try to absorb information about their pet's illness.

**Diagnostics:**

- Clinical signs, physical exam, and thorough history
- Glucometer reading to check blood glucose level—**note that BG can be high in non-diabetic patients—especially cats—due to the stress of the vet visit**
- Urine dipstick to look for glucosuria—**note that even stress-induced elevated BG can lead to glucose in the urine**
- Serum chemistry to rule out other concurrent diseases
- Serum fructosamine—this reflects what the patient's BG has been over a period of weeks, so it can help rule out stress hyperglycemia

**Diabetes mellitus is diagnosed based on clinical signs combined with persistently high blood glucose and persistent glucose in the urine.**

### 4 Know treatment options.

Both types of diabetes will require insulin therapy at the beginning of treatment, but some patients with type 2 diabetes will go into remission and be managed with dietary restrictions alone.

**Treatment:**

- Know the types of insulin your practice recommends and how they're different.
- Some patients will require twice-daily (BID) insulin while others may do well on once-daily administration. Nearly all patients will need to start with BID insulin.
- Oral drugs do exist to help lower blood sugar, but they are not especially effective in companion animals and are not recommended for most patients.
- There are a variety of prescription diets made for diabetic cats and dogs, but not all patients will require or do best on a prescription diet. Diet recommendations will be determined by the veterinarian for each patient.

## 5 Know how to use insulin.

**Patients will need to be given an injection either once or twice a day.**

### **Insulin storage and handling:**

- Insulin is stored in the refrigerator
  - Most types of insulin must be rolled gently between your hands rather than shaken (this will help thoroughly mix the bottle contents without damaging the insulin), but some brands do need to be shaken. Read the bottle directions carefully.
  - Use only the appropriate syringe. Insulin is administered with an insulin syringe only (measured in units, not milliliters). Each bottle of insulin will be labeled for a specific type of insulin syringe.
- To avoid over- or under-dosing, it's essential to check the bottle (and teach clients to check it as well) to be sure you've matched the right syringe to the right insulin.

### **Insulin administration:\***

- Insulin can be given subcutaneously (SC) or intravenously (IV—in clinic only).
- SC administration will be used in most cases, such as hospitalized but non-critical patients and for at-home administration by owners. Insulin should only be given IV at the direction of a veterinarian for inpatient care of more critical cases.
- Showing pet owners how to handle and administer insulin is an important part of helping pet owners navigate the early days of a diabetes diagnosis. They are likely feeling overwhelmed, so be patient and give them a way to practice (such as using saline and an orange or a stuffed animal) before they try giving insulin to their pet.

**\*Never administer insulin if the patient has not eaten, unless directed by a veterinarian.**

## 6 Know what's an emergency.

### **Diabetic ketoacidosis (DKA) is a medical emergency!**

This develops when a substance called ketone bodies build up during uncontrolled diabetes. The body starts breaking down fat for energy, resulting in a buildup of acidic ketones in the blood.

- Clinical signs (in addition to PU/PD and other signs of diabetes):
  - Lethargy
  - Weakness
  - Anorexia
  - Tachypnea
  - Vomiting
  - Odor of acetone on breath
- These patients will need to be brought in right away so you and your veterinary team can start taking action. Hospitalization, fluids, bloodwork, and insulin therapy will likely be required. 24-hour monitoring and care will need to be provided for severe cases.

Hypoglycemia is possible when patients are receiving insulin but may be going into remission, on too high a dose, or refusing food for any reason. Clients should always be warned of the possibility of hypoglycemia and be aware of the clinical signs to look for:

- Lethargy
- Weakness
- Inappetence
- If a pet owner notices possible hypoglycemia at home, they should have a protocol to follow from your veterinarian, such as giving a high-carbohydrate meal if the pet is conscious or rubbing corn syrup on their pet's gums if the pet is poorly responsive, while they call your office or the emergency clinic.
- If the pet does not respond to the protocol at home, or if they are profoundly lethargic and not responsive, they should be brought to a veterinarian immediately.

## 7 Know how diabetes is monitored.

- Serum glucose curve (serial monitoring)
  - Sample is taken before morning insulin, then blood samples are collected q2hrs for 12hrs.
  - Can be done in the hospital, although that can be stressful for pets and therefore increase their BG readings, or at home by owners if they have their own glucometer.
  - Many owners are interested in learning to do this at home and will need help learning good technique for sampling.
- A curve is usually done soon after insulin treatment begins, then at intervals while the dosage is being adjusted.
  - Continuous glucose monitoring (CGM) device such as the Freestyle Libre
- Sensor is placed on pet's skin by the veterinary team—a good video is found **here** (hair must be clipped before placement)
- The pet owner can use an app on their smartphone or a special reader to scan the sensor and read their pet's glucose level.
- These sensors can stay in place for 10-14 days if pets tolerate them well—but even 1-2 days of readings can be helpful for pets who get stressed coming into the clinic for glucose curves.

Diabetes is a lifelong disease, even for cats who go into remission. This resource will help you guide pet owners through those scary first few weeks, but don't forget they'll need long term support. Make sure they know who to call for after-hours care, schedule regular follow-up visits and calls and remind them when they're coming up, and make sure to check in with them emotionally now and then to make sure they have the resources they need to feel as comfortable as possible with their pet's treatment plan.

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