

How to Monitor Blood Glucose Levels at Home

BACKGROUND

If your pet recently has been diagnosed with diabetes, home monitoring of your pet's blood sugar (blood glucose) can help your veterinarian make sure the correct amount of insulin is being given. Measuring glucose if your pet seems "off", or not quite themselves, can also help rule out low blood sugar related to insulin administration.

Checking the blood glucose levels at home is easy and can provide more accurate results than when the pet arrives at the veterinary hospital. Many pets become stressed when visiting the hospital, which can temporarily elevate the blood glucose and give an inaccurate reflection of the diabetes. This is especially common in cats.

Monitoring the blood glucose levels is easy. It can take some time to become comfortable with the technique, but it is important to understand that it is a safe and comfortable procedure.

GETTING STARTED

Equipment/materials needed:

- Recommended blood glucose home monitor (veterinary specific monitors are preferred)
- Glucose strips
- Sterile lancet or needle
- Cotton ball
- Alcohol
- ± Petroleum jelly/Vaseline

TROUBLESHOOTING BEFOREHAND

You should not attempt to take a blood glucose reading when your pet is agitated or stressed. Your veterinarian will indicate the times you should check the glucose levels. Sometimes, a *blood glucose curve* will be recommended whereby several readings will be needed throughout one day.

You should be able to complete this procedure alone. However, if you have a pet that is active, you may need the help of another person to keep the pet still for a few seconds. If your pet becomes difficult to handle, discontinue the process and call your veterinarian to discuss other options.

PROCEDURE

- In cats, place a cotton ball on the nonhaired (inside) surface of the ear flap, and hold it in place with your left thumb and forefinger if you are right-handed. The cotton ball provides a buffer to reduce the risk of needlestick injury to yourself. The process is the same in dogs, although dogs with thick haircoats may first need to have the hair shaved away from a patch of the ear flap.
- For dogs, there are multiple other sites beside the ear flap that can serve the same purpose for obtaining blood. You can see which site works best for you and your dog. For dogs with a callus (thick dark skin) over the elbow, this is an excellent option. Other options include the side of the paw pad or the inner lip.
- Apply a thin film of petroleum jelly/Vaseline to the outermost 1/4 to 1/2 inch, or 0.5 to 1 cm, of the ear flap (margin), on the haired side, directly where you will be pricking with the needle or lancet. This very thin film will cause the blood to bead on the skin surface, making it easier to collect.
- The goal is to get a drop of blood from the raised, branch-like network of blood vessels just below the skin surface. This is painless because no significant nerve endings are in this region.

- Take the needle in your right hand and place it horizontally so the tip is touching the raised blood vessel that arcs around the margin of the ear flap, on the haired side. DO NOT aim the needle perpendicularly (directly at) the surface of the ear flap, because you risk going through the ear flap entirely and injuring your own left finger with the needle.
- Prick the tip of the ear with a sterile lancet or needle. This is a quick, superficial prick meant to draw a tiny amount of blood (1 small drop). The depth of the prick is very little but still deep enough to reach the small vein. In a cat this means approximately 1 mm ($\frac{1}{16}$ of an inch); in a large dog with thick ear flaps, like a golden retriever, the needle prick may extend to 5 mm ($\frac{1}{4}$ of an inch). This should be absolutely painless.
- Place the glucose strip on the drop of blood, and insert the glucose strip into the meter according to the instructions for that device.



View of the haired side of the ear flap (pinna) in a cat. Note the branch-like pattern of raised veins near the margin.



Correct use of a needle to draw a drop of blood from the ear vein. The needle is directed horizontally across the ear flap, to enter the vein from the side. This is to avoid a needlestick injury to yourself.

- Place mild pressure on the ear flap directly on the site of the needle prick for 30 to 60 seconds to stop bleeding.
- Record the reading.

If your pet's glucose reads "low" or less than 50 mg/dL (2.8 mmol/L), you should contact your veterinarian to discuss whether an immediate treatment is necessary. If your pet's glucose reads "high" or greater than 300 mg/dL (16.7 mmol/L), you should likewise call your veterinarian. A low glucose can sometimes require immediate attention; a high glucose is not an immediate emergency, but your veterinarian must be notified because it can cause deterioration of the diabetes over time. You will be given instructions on how to proceed.

AFTERWARDS

Many or most pets become accustomed to having blood glucose sampled this way. Make sure to reward your pet with a diabetic-friendly treat after each blood sampling to make this a pleasant experience they eventually may look forward to. (Store-bought processed dog and cat treats are often high in calories and fat and can adversely affect glucose levels, so these should be avoided.)

FREQUENTLY ASKED QUESTIONS

If my pet does not eat, should I check the glucose levels and give the insulin?

If your pet does not eat for one meal, you should only give a half dose of insulin. You can check the glucose levels, making note that your pet did not eat that meal. If your pet will not eat for 24 hours, you should call your veterinarian.

What if the bleeding does not stop on the tip of my pet's ear?

Hold pressure on the tip of the ear for several minutes. The bleeding will stop in virtually every case; if not, you should contact your veterinarian.

You should keep a diary of all blood glucose readings you obtain at home. This should include the date, the time of day the reading was taken and for comparison, also the time of day insulin was last administered and the pet fed. Be sure to give your veterinarian a copy of this diary at your next visit.

Although home blood glucose readings are extremely useful for dose adjustments made in consultation with your veterinarian, avoid the temptation to change the dose based on a single glucose reading on your own. Fluctuation in dosing can wreak havoc with blood glucose control. Unlike human diabetics, fine hour-to-hour control is not necessary. Instead, steady control is the goal. If you think the readings you have been getting are too low or too high, contact your veterinarian for advice.

Make sure your pet is receiving an appropriate diet recommended by your veterinarian for the treatment of diabetes. It is very important to regulate your pet's food intake. Ensure your pet is exercising regularly, as exercise can affect glucose levels. Your pet's food, insulin, and exercise schedule should remain the same every day, preventing false elevation or a decrease in glucose levels.

My pet seems very weak. Should I check the glucose level?

Yes. If the glucose is low, offer your pet food immediately and call your veterinarian. Do not give insulin at that point.

Is it safe to prick the same location of the ear each time?

It is advised to switch ears with each prick. You may change the location so long as it is anywhere on the nonhaired surface of the ear flap, preferably toward the tip.



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