

# INSULIN ADMINISTRATION

*Trae Cutchin, DVM*

## INSULIN IDENTIFICATION

Until recently we had always used human insulin products, due to changes in human diabetes technology, the insulin types we had previously used are no longer available. This meant that veterinarians had to develop insulins specific for dogs and cats. Vetsulin (Porcine Insulin Zinc), 40 units/ml or PZI Vet (Protamine Zinc Insulin), 40 units/ml were specifically designed for dogs and cats. With rare exception these two types of insulin are what we use at *Friendship Springs Veterinary Care*.

## INSULIN CARE

Each time before using insulin, mix the contents of the vial well. To mix it, roll the bottle in the palms of the hands; do not shake it. The reason for this is to prevent foam formation, which will make accurate measuring difficult. Some of the types of insulin used in pets settle out of suspension quickly. If it is not mixed well, dosing will not be accurate—this can cause complications associated with overdosing or underdosing.

Insulin is a hormone that will lose its effectiveness if exposed to direct sunlight or high temperatures. While it does not have to be refrigerated, it is best to keep it in the refrigerator; this will help avoid any accidental exposures to heat or sunlight.

## INSULIN PREPARATION

1. Clean gross contamination from the bottle top, using alcohol only if needed.
2. Remove the guard from the needle.
3. Fill the syringe with an amount of air equal to the dose of insulin required by drawing back the plunger to the required volume mark.
4. Insert the needle through the center of the rubber diaphragm of the insulin bottle.
5. Inject the air into the bottle (this prevents a vacuum from forming within the bottle).

6. Holding the bottle upside down, slowly draw more insulin than you need into the syringe (do not withdraw the needle yet).
7. Slowly return the plunger to the correct volume mark squirting the excess insulin and any air back into the bottle.
8. Withdraw the needle from the bottle.
9. Usually, there will be the smallest of bubbles at the plunger level. Do not worry about this. However, if there is any excess air in the syringe, carefully tap the syringe barrel to make the air bubble rise to the top where it can slowly be expelled. Be sure not to expel insulin as well as air.

## INSULIN ADMINISTRATION

1. Check the dose volume one more time.
2. If you have a small pet, put your pet up on a table or counter top.
3. Pick up a pinch of clean skin somewhere along your pet's back or side with your left hand (if you are right-handed). Pick a different spot each day.
4. Hold the syringe in your right hand (if you are right-handed). Hold it between thumb and fingers three, four, and five with your (index finger two) finger resting on top of the plunger.
5. Quickly push the needle through center of the fold that you are pinching. This should be easy and painless. However, take care to push the needle through only one layer of skin and not into your finger or through two layers of skin.
6. With your index finger, push the plunger quickly all the way down.
7. Pull the needle straight out.
8. Do NOT attempt to recap the syringe. Discard it in an appropriate waste container.
9. Reward your pet for sitting quietly through the procedure.

Although the above procedures may at first seem complicated and somewhat overwhelming, they will very quickly become second nature. With practice the actual injection process (steps 5, 6, and 7 above) will take only a fraction of a second. Your

pet will soon learn that once or twice each day it has to sit still for a few minutes. In most cases, a reward results in a fully cooperative pet that eventually may not even need to be held.

regular treatment; this approach should be used only rarely.

- See the accompanying article about *Diabetes Mellitus* for more important information.

## OTHER CONSIDERATIONS

- You may often hear that some people recommend dosing insulin on the basis of whether or not the pet is eating at a given time. This works well for dogs, but pets will be pets and they will eat when they want. Always give insulin at the full dose at the correct time if your cat is acting “normal”. *If your cat is not acting normal, call us for instructions.*
- It is neither necessary nor desirable to swab the skin with alcohol to “sterilize” it. There are three reasons:
  1. Chances of causing infection with an injection through clean skin are miniscule.
  2. The sting caused by the alcohol carried in with the needle can make your pet dislike the injections.
  3. If you do not use alcohol and if the skin or hair is wet following an injection, then you will know that the injection was not done properly.
- Try to have only one or two people in the house giving the insulin. This will reduce the chances of over/underdosing accidents occurring. Formulate and use a chart so you and other care givers will know the dose for the date and hour has been given.
- Whenever your pet goes somewhere to visit or board, always take the insulin and enough syringes with you, including when going to the veterinarian.
- Try to give the insulin at the same time every day or at least within the same two hour window every time. For example, if the insulin is due at 7 p.m., then try to give it at least between 6 p.m. and 8 p.m. If you are more than one hour outside of this window on either side, skip the dose of insulin. For instance, if you can’t give it at all between 5 p.m. and 9 p.m., don’t give it. This technique is not an acceptable regimen for