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Basic Insulin Facts: How to Measure Insulin

Types of Insulin

1. Humulin R (Regular) U-100
2. *Humulin L (Lente) U-100
3. *Humulin U (Ultralente) U-100
4. NPH U-100
5. Lantus (Glargine) U-100
6. PZI U-40
7. Vetsulin U-40

* These types of insulin are discontinued. Dr.'s Foster and Smith still has Lente and Ultralente

Types of Syringes for Insulin

U-100 – 100 units/ml

U-40 – 40 units/ml

These are the most common. U-40 are very hard to come by. Please note the difference in the U-40 and U-100 by reviewing these syringes here.

How is insulin measured and stored?

The concentration of insulin is measured in units. Insulin syringes are marked in units, and may also be marked in milliliters. Be sure to use the unit scale. Also, be sure you are using the appropriate insulin syringe for the concentration of insulin you are using.

An insulin syringe has 4 basic parts: the barrel, plunger, needle, and needle guard. Many brands of syringes have the needle permanently attached to the syringe barrel so it cannot be removed.



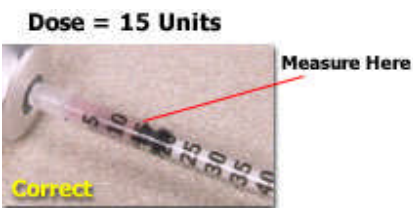
1. Prior to removing a dose of insulin from the vial, **mix the contents by gently rolling the vial between the palms of your hands.** DO NOT SHAKE INSULIN as that will cause air bubbles to form, and it will be more difficult to get an accurate measurement. The insulin should be uniformly cloudy in the bottle when you draw it into the syringe. Glargine is clear & does not need mixing, as it stays suspended.



2. Hold the vial stopper-side-down, remove the needle guard from the insulin syringe, and insert the needle of the syringe into the vial through the rubber stopper.



3. Pull back on the plunger of the syringe to draw the insulin into the syringe once, then inject it back into the bottle. Redraw the proper dose back into the syringe. This is helpful in accurately dosing as insulin may stick to the inside of the plastic syringe or an air bubble may be present in the syringe. If any air enters the syringe, you can also expel that back into the vial by keeping the vial upside down, and the needle of the syringe pointing up.



4. Recheck that you have withdrawn the proper amount of insulin.

5. Remove the syringe from the vial and replace the needle guard.

6. Return the insulin to the refrigerator.

7. You are now ready to administer

Diabetes Mellitus is more common than Diabetes Insipidus. Diabetes Mellitus occurs when the pancreas no longer produces insulin or an adequate amount of insulin and results in an inability to concentrate urine. *Diabetes Insipidus is a totally unrelated disease.

*Diabetes Insipidus occurs from deficiency in hormones normally produced by the pituitary gland.

Signs that may be seen in a Diabetic patient:

1. Ravenous appetite, but keeps losing weight
2. PU/PD
3. Cataracts in canines
4. Dropped hocks or carpi, mostly in cats
5. Ketones in urine ~ generally means diabetes is out of control

When checking a diabetic patient in – ask:

1. Time insulin was given
2. Dose given
3. Appetite
4. Water intake, amount of urination
5. Activity level, attitude, sleeping more
6. Ketones and/or Glucose in urine
7. ALWAYS give water

Blood Tests

Blood Glucose ~ generally 4 hours post insulin

Blood Glucose Curve ~ every 2 hours for 8 or 12 or 24 hours, and patient may need to go to 24 care to continue testing if indicated.

Fructosamine * ~ Tests the blood glucose average over 10-20 days. Can be drawn at any time.

* If an animal has just started on insulin, this test should be run no sooner than two weeks post start date.

Sample Sites (Refer to information for owner)

1. Pad of paw – paw should be rubbed for at least fifteen seconds to allow blood flow. It does not matter which paw you choose.
2. Ear Pinna – the ear pinna or flap should be rubbed as well. The sample should be taken from the underside of the ear pinna.
3. Tail – like above, should be warmed. Either base or tip of tail. May need to shave spot.
4. *Marginal ear vein ~ last ditch option. Please do not recommend to owner without first speaking to the primary veterinarian. This sample location can be very dangerous for obvious reasons.