

Brookville Road Animal Hospital

8049 Brookville Road, Indianapolis, IN 46239

phone: (317) 353-6143

Home Care Instructions

Diet: Ideally, he/she would be fed strictly canned food, at “meals” just prior to insulin administration. Canned food has very high protein, and low carbohydrates (<7%).

Cats do not typically adjust well to “meal feeding,” as they are typically “grazers”. Try to encourage some meal feeding/eating, by offering canned food just prior to insulin administration. If he will have access to dry food throughout the day, it should be a high protein dry food, such as Hill’s Prescription Diet M/D, or “Young Again Cat Food”. Also, allow free access to water at all times, as he will continue to have excessive thirst, until we have him well-regulated.

Things to Remember:

- Store the insulin in the refrigerator, and protect from light.
- Mix the insulin gently by rolling between hands, and inverting repeatedly, for 30 seconds.
- Administer at a 45 degree angle – with cats it is easy to poke “through and through” the skin, and accidentally inject onto the skin.
- Remember, it is more dangerous to have LOW blood sugar, than to have high blood sugar. If he/she is acting ill, and you **KNOW** he/she hasn’t eaten at all over a 12 hour period, SKIP that insulin dose. If he/she doesn’t eat prior to his/her next scheduled insulin injection, skip that as well, and bring him/her in **right away**. Review attached information for signs of LOW blood sugar (confusion, staggering, collapse, seizure). (Depending on how he/she responds, we may make changes later, and administer a partial dose if he/she doesn’t eat, but for now, follow these instructions.)

Follow-up:

- Schedule recheck exam in 14 days with your doctor. Offer food, and administer insulin as you normally would that morning – it will not affect this blood test (fructosamine.) This will give us an idea of his/her average blood regulation, over the past 3 weeks. Your doctor will also examine, and he/she will be weighed to monitor for gain/loss.
- Monitor his/her thirst and urination and appetite, as we will use these to help find the right dose for him/her as well.
- Please review the attached information regarding diabetes. If you have any questions, please feel free to contact your doctor or a technician.

Additional Instructions/Comments:

- Problems like dental disease can make it difficult to regulate diabetics, so we recommend having his/her teeth cleaned sometime in the next few months, especially if we have difficulty getting him/her regulated (finding the right dose).
- Diabetics are more prone to infections, especially urinary tract infections, so bring him/her in right away if he/she is acting ill.
- Some types of insulin, and all syringes require a prescription. We will give you a prescription or call this in to your preferred pharmacy.
- To dispose of syringes, a home “sharps” container can be used. We may have samples available, or these can be ordered on-line. You can also place them in a used plastic laundry detergent (liquid) container, and close tightly with the lid. This can then be disposed with your regular trash.

THE PET HEALTH LIBRARY

By Wendy C. Brooks, DVM, DipABVP

Educational Director, VeterinaryPartner.com

Diet for the Diabetic Cat

It is now well known that optimal dietary management for diabetic cats consists of a high protein / low carbohydrate diet, a completely different strategy than what is recommended for diabetic dogs. Appropriate foods may be either canned or dry and are probably best fed in meals as has been traditionally recommended though there are some exceptions. The following guidelines have been suggested.

- Obese cats will have to lose weight in order to achieve regulation. High protein / low carbohydrate diets are excellent for this purpose. Once an appropriate food has been selected, equal amounts should be fed approximately 12 hours apart just prior to insulin injections. Feeding meals discourages snacking and helps with weight loss.
- Obese cats should not lose more than 2% of their body weight per week. If they do, they are at high risk for developing hepatic lipidosis, a form of liver failure. This is a serious complication and should be avoided. If your cat is losing weight too quickly, notify your veterinarian.
- Skinny diabetic cats may have food left out at all times.
- The diet in question should be relatively high in arginine. Arginine is an amino acid that is stimulatory to the pancreatic beta cells that secrete insulin. Most meat-based proteins are high in arginine.
- The diet in question should be relatively high in L-carnitine, a biochemical that assists in transporting fats into cells to facilitate metabolism.

There are several therapeutic diets designed specifically to meet these guidelines. Ask your veterinarian which one is best for your cat.

Canned Foods

Most canned foods for cats are made to be adequately high in protein/low in carbohydrate. [Here is a list](#) should your cat find the therapeutic diets unacceptable.

Compare foods on the list for high protein content and low carbohydrate content.

If a canned food you are looking for is not there, it might be on their "old" page:

Dry Foods

[Dry alternatives](#) to the therapeutic diets are difficult to find as you will see from this list but there are a few.

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THE PET PHARMACY

By Wendy C. Brooks, DVM, DipABVP

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Insulin Administration in Cats

Vetsulin is once again available in the U.S., as of mid-April, 2013. It had been unavailable in the U.S. since 2009 due to manufacturing issues.

Insulin is the injectable medication you use to control your diabetic cat's blood sugar. The goal is dosing once or twice a day - usually twice - to maintain blood sugar levels in an acceptable range over the course of the day. Keeping the sugars in the proper range will control the excessive urination and appetite that your cat suffers from, and it will require some trial and error experimentation to get the correct dose. A dose will be selected based on what research has shown to be a good starting point, and after a couple of weeks your cat will return for a glucose curve in which blood sugar levels will be mapped out over the course of a 10 to 24 hour period. The curve will show if the insulin lasts long enough and if the dose should be raised, lowered, or kept the same. Alternatively, you can learn how to monitor your cat's blood glucose levels yourself but if you are a beginner you may want to master giving the injections before moving on to taking blood samples.

Insulin is a simple molecule but it does differ slightly between species (i.e., cat insulin is different from dog insulin, which is different from human insulin). There are currently four insulins commonly in use for cats: Vetsulin (also marketed as Caninsulin® in other countries), PZI insulin (currently available as Prozinc® insulin), Lantus® insulin (also called Glargine insulin), and Humulin (genetically engineered human insulin available in several formulations with different durations of action).

Vetsulin is of pork origin, which is handy for dogs because canine and pork insulin are identical. Vetsulin can also be used in cats, although feline insulin is closer in structure to beef insulin. Vetsulin is considered to be an intermediate-acting insulin.

PZI insulin is a long-acting insulin formerly available as a beef origin product. After its manufacturer exhausted its supply of beef pancreas it became unavailable, much to the consternation of many diabetic cat owners. Fortunately, a human origin PZI insulin (called Prozinc®) became available at the end of 2009. PZI is available through compounding pharmacies but these sources do not have batch to batch quality control, meaning the relative strength from batch to batch is not predictable. While pricing may be attractive, we recommend against purchasing compounded PZI insulin.

Lantus® insulin (<%= InternalLink:A:1812:Glargine %>) was marketed for human diabetics as a peakless insulin, meaning that it maintains glucoses in a narrow range. It is a long-acting insulin used in humans to provide a basis for glucose control, which is then fine-tuned with short-acting insulins. Lantus has proved effective for diabetic cats and is available at most regular drugstores. (Lantus has a [savings card](#) for paying no more than \$25 for up to three Lantus SoloSTAR pen prescriptions.)

Humulin was formerly available in several forms: N, L, R, and U, each with a different duration of action. Recently U and L have been discontinued.

Humulin R is fast acting and is similar to insulin secreted by one's body. This insulin acts too fast and lasts too short a time to be useful for pets in the home setting. It is often used in the hospital setting to quickly reduce dangerously high blood glucoses in an emergency.

Humulin N is intermediate acting. These are the most commonly used forms of insulin and are usually used twice a day in pets. In general, this insulin is not long acting enough for feline use.

It is normal for a small white layer to settle in the bottle after it has been sitting. When getting ready to use the bottle, roll the bottle in your palms to mix in this layer. Do not shake the bottle.

**Be sure you understand the dose of insulin you are to use.
Do not alter the dose on your own.**

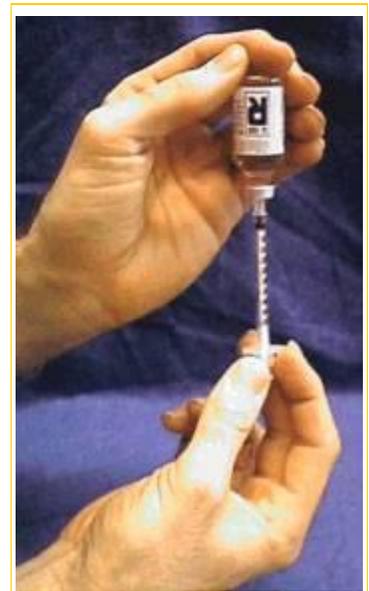
Storing Insulin

The bottle you are currently using need not be refrigerated although if you have a supply of insulin bottles, it is probably best to refrigerate the bottles that are not in use.

- Do not use insulin that is past its expiration date. In fact, it is a good idea to change to a fresh bottle every 6 to 8 weeks. Lantus® insulin can be kept for up to 6 months if refrigerated. Regardless of whether the insulin is refrigerated, any color alteration could indicate contamination and if this is seen, the bottle should be discarded.
- Do not use insulin that has been frozen. Insulin is not normally frozen but accidents happen, especially in smaller refrigerators.
- Do not expose insulin to direct light or heat.

Syringes

There are two types of insulin syringes: U-40 (for insulin of the 40 units per cc concentration) and U-100 syringes (for insulin of the 100 units per cc concentration). The type of syringes used must match the insulin used. Most human insulins (Lantus® and Humulin®) are 100 units per cc while most veterinary insulins (PZI and Vetsulin) are more dilute at 40 units per cc.



Insulin syringes may be available through your veterinarian's office or through your regular drugstore but do not be surprised if a prescription is needed from your drugstore. Insulin purchased at the drugstore may or may not require prescription. Insulin is considered an over-the-counter medication for humans but when it is used in pets, it is technically off-label so prescription may be needed.

Photo by Dr. Wendy Brooks

Insulin syringes are made extra fine so that human diabetics will not feel them. Veterinary syringes are similarly fine and your pet should not object to injections.

Syringes come in 0.5 cc volumes and 0.3 cc volumes. The syringes are graded in units. The smaller the volume, the easier it will be to read the tiny unit gradations. We recommend the 0.3 cc size for cats as it is easier to read the gradations, especially with U-100 syringes.

When drawing up the insulin, always hold the bottle vertically to avoid unnecessary bubbles in the syringe. Since insulin is being given under the skin, bubbles are not an enormous problem (as it would be with an intravenous injection) but we still want to minimize bubbles. If you get bubbles in the syringe, flick the syringe with your fingers until the bubble rises to the top and then simply push the air out of the syringe with the plunger.

Before injecting your pet, practice drawing up the correct amount of insulin and feel comfortable handling the bottle and the syringes.

View a [video guide](#) demonstrating how to draw up insulin. (The video is made on behalf of Prozac[®] insulin, but the procedures are the same for any of the insulin vials.)

Used syringes should be placed inside a thick plastic container, such as a liquid laundry detergent bottle or similar receptacle. If the needle is enclosed in such a container, the entire container can be closed up and disposed of in the regular trash at home. Specific containers can be purchased for needle disposal or the used syringes can be returned to the veterinary hospital for disposal.

How to Give the Injections

First, feed your cat. The blood sugar of a pet who has not eaten a normal meal but receives insulin may drop to a dangerously low level. If your cat is not eating, this could indicate a need for a checkup with your veterinarian. After your cat has eaten, you are ready to give the injection.

Pull up a handful of your pet's scruff. A triangle of skin is formed. Aim your needle for the center of this triangle and stick the needle in. The photos here show the injection given straight in the scruff but you actually want to vary the location with subsequent injections: sometimes use the center of the scruff, and sometimes use the loose skin towards the sides or over the shoulders. By varying the location, you avoid creating scarring or fat deposits that could interfere with insulin absorption. Do not be shy or the needle will not penetrate the thick skin in this area. Pull back slightly on the syringe plunger to be sure you do not get blood back in the syringe. If you do see blood, pull the syringe out and start over. If you do not see blood, press the plunger forward and deliver the insulin.



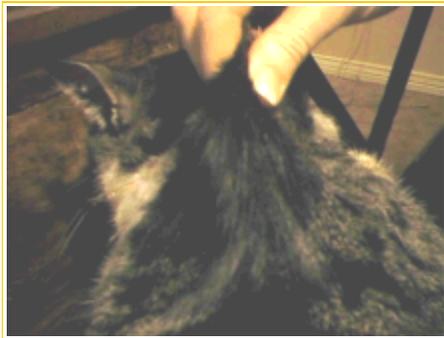


Photo courtesy of Wendy Brooks, DVM



Photo courtesy of Wendy Brooks, DVM

If there is struggling or your cat escapes, or for some reason you are not sure if your pet got the entire dose of insulin, **DO NOT GIVE MORE**. Simply wait until the next scheduled dose.

The manufacturer of Prozinc insulin put together a [video on giving insulin](#) to your cat. (Again, these steps would be the same for injecting any insulin.)

What to Watch for

It is not unusual for a pet's insulin requirement to change over time. When this happens, you will notice a return in weight loss, excessive appetite, and excessive thirst and urination. This is an indicator that your cat needs a glucose curve to re-adjust the insulin dose.

It is our policy not to give dosing information over the Internet.

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THE PET HEALTH LIBRARY

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Monitoring Glucose Regulation

Monitoring is crucial to determining your pet's proper insulin dose. Much monitoring can be done at home and it is possible to save a great deal of money by doing so; however, some tests simply must be done at the veterinarian's office. We will now review important parameters that you must keep an eye on if diabetic regulation is to be achieved long term. Consider keeping a notebook or spreadsheet with weekly, if not daily, notations regarding some of these parameters; the more information you have when it is time to see the vet, the better.

Download a printable PDF file of a [monitoring diary](#).

Clinical Improvement

The hallmark signs of diabetes mellitus are excessive water consumption, excessive urination, excessive hunger and weight loss. It is not necessary to measure your pet's water consumption as the fluid requirement will change with exercise level, environmental temperature, and other factors. Still, make a mental note about whether your pet's appetite, thirst, and urine production are "normal," increased or decreased. If you are keeping a notebook, consider making a daily notation in this regard. It is subjective somewhat but good to note.

Your pet's body weight is less subjective. If your pet is small enough, consider weighing your pet every couple of weeks. As your pet comes into regulation, weight will be gained. A well-regulated pet will maintain body weight. Keep body weights recorded in your notebook.

Ketones

Food provides our bodies with fuel. Most of our tissues can burn stored fat, though our brains require glucose. In normal life, there is plenty of fat and plenty of glucose to run our metabolism but in times of starvation problems start: we deplete stored glucose and must make it and we burn fat more desperately.

Ketones are a by-product of intense fat burning. The brain is able to use ketones as an alternative to glucose which is a good thing. The problem is that intense ketone production leads to metabolic pH changes leading to acidic blood and dangerous electrolyte imbalances.

When diabetes mellitus is complicated by infection or other problem, ketoacidosis can result. This is a serious complication that can lead to expensive hospitalization and even death. It is helpful to monitor your pet's urine for the presence of ketones.

Ketostix are urine dipsticks when indicate the presence of ketones in urine. Only a drop of urine is needed. Dip the dipstick in the urine and look for a color change. A color guide is on the dipstick bottle. This need not be done every day if the pet seems to be doing well but when it is done record the results in the monitoring notebook if you have one.

Occasional ketones are not an alarming finding in a diabetic pet but if ketones are found in urine three days in a row or if the patient showing ketones seems ill (poor appetite, vomiting etc.) then the pet should see the vet right away. In such a situation, diabetic ketoacidosis is likely occurring and serious treatment is likely needed.

Ketostix can be purchased at any drugstore.

(For more information on diabetic ketoacidosis [click here](#))

Collecting your Pet's Urine

Cats

For cats, a piece of cellophane can be placed over the litter box and some urine will be caught there even if the cat digs. Only a drop of urine is needed for the test so even if the cellophane is wrinkled up, hopefully a drop can still be obtained. Alternatively a very small amount of litter can be placed in the box. The cat will still understand what she is supposed to do but not all the urine will be absorbed by the litter.

It is not necessary or particularly even desirable to monitor urine glucose with dipsticks. The contents of the urinary bladder represent several hours of urine production, thus making interpretation of urine glucose challenging. In the past urine glucose monitoring has been recommended and certainly there is nothing wrong with collecting more information but it can be confusing to decipher and should be considered optional.

Glucose Monitoring

Fructosamine Level (my preferred method for cats)

Measuring fructosamine is a helpful way to help monitor glucose control and, if for whatever reason, it is not possible to run glucose curves this would be the next best thing. Blood glucose fluctuations leave a metabolic mark that lasts a week or two. Measuring fructosamine gives a sense of the average blood glucose over the previous couple of weeks. Control is designated excellent, good, fair, poor, or prolonged hypoglycemia. Because the fructosamine is looking at averages, it will not distinguish excellent control from wide swings of high to low glucose readings. Still, even with this limitation, fructosamine is good to include in periodic monitoring tests.

To do a Curve in the Animal Hospital

- Ideally you will bring your pet in with an empty stomach, his regular food, and his insulin and syringes.
- The veterinary staff will run a pre-insulin glucose level.
- After this is drawn, they will observe how you draw up and administer the insulin confirming that you are doing it correctly.
- The pet is then left with the food for the day and the veterinary staff will check blood glucose levels every 2 hours.
- Pick up your pet and receive new dosing instructions at the end of the day.

Other Tests

Your pet will still need regular veterinary checkups, typically every six months after regulation has been achieved. Obviously, if he seems sick or if the symptoms of diabetes seem to return, then he needs to be checked right away.

Urine Culture

It is largely inevitable that sugar will spill into your pet's urine, possibly even for a short time daily. Sugar in urine is highly encouraging to bacteria, and urinary tract infections are common in diabetic pets. Often symptoms are difficult to discern at home so periodically performing urine cultures is a good practice in ruling out latent infection.

See more information on [urinary tract infection](#).

A basic blood panel and urinalysis should also be expected when the pet returns for regular check up and evaluation.

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THE PET HEALTH LIBRARY

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The Hard to Regulate Diabetic Cat

The goal in long-term management of diabetes mellitus in cats is the alleviation of unpleasant clinical signs (constant thirst, weight loss, etc.) and prevention of dangerous secondary conditions (infections, **ketoacidosis**, etc.). To accomplish this, blood sugar levels should be regulated between 250 mg/dl and 80 mg/dl. This is not as good as the body's natural regulation, but it is a fair and achievable goal in most cases.

Some cats just seem completely unaffected by even high doses of insulin, and it is important to have a step-by-step plan to rule out causes of insulin resistance so that regulation can be achieved.

Insulin resistance is defined as requiring more than 1 unit of insulin per pound of body weight for regulation

or

All sugar levels for the day >300 gm/dl despite 6 - 8 units per dose of insulin.

Step One: Rule Out Insulin Administration Related Factors



This may seem basic but it is important not to skip the basics. Confirm that the amount of insulin being drawn into the insulin syringe is correct, that the injection technique is correct and that the patient is actually receiving the injection. Rule out any snacking or changes in the patient's feeding schedule. Be sure the bottle of insulin is not expired and that it has been properly stored.

Review insulin storage and handling. [click here](#).

Also important is making sure the diet is appropriate. Soft-moist foods are often preserved with sugars. Extra treats may be interfering with regulation. Ideally a low carbohydrate diet should be fed.

Step Two: Determine for sure that the Patient is Insulin Resistant

A glucose curve is needed to distinguish the following three phenomena.

Somogyi Overswing

In the case of Somogyi Overswing, the insulin dose is too high and drives the blood sugar low for part of the day. When the blood sugar is low, other hormones such as cortisone or adrenalin are released to raise blood sugar. These hormones can have a prolonged effect (many hours) thus creating hyperglycemia (high blood sugar). If the patient's high blood sugar has been caused by a Somogyi overswing, a lower dose should be used and a new curve performed in a week or two.

Rapid Insulin Metabolism

In this case, the insulin simply isn't lasting long enough to create sustained normal blood sugar levels. If the curve shows that the insulin effect is wearing off too soon, twice a day administration of the insulin may solve this problem or a longer acting insulin may be needed.

True Insulin Resistance

Here no significant drop in blood sugar level (levels stay greater than 300 mg/dl) is seen in response to the insulin dose used. Usually there is a history of prior increases in insulin dose all met with minimal response.

We shall continue assuming that the patient has true insulin resistance on the glucose curve.

Step Three: Are there Medications being used that could Elevate Blood Sugars?

The obvious medication would be a member of the cortisone (corticosteroid) family. This might be a pill, a shot, an asthma inhaler, or even a topical ointment, spray or ear cleaner. Always keep your veterinarian informed about products you are using.

Progestins (female hormones) were previously used frequently for behavior problems as well as skin diseases in cats. These medications were famous for inducing and promoting diabetes mellitus. If the cat is licking a hormone-containing topical medication from the owner's skin, this is also important to report.

Step Four: Rule Out Infection

Diabetic animals are at risk for developing bladder infections because they have so much sugar in their urine. Stress of any kind will contribute to high blood sugar, and infection would lead to stress. A urine culture should be done to rule out bladder infection plus the teeth and skin should be inspected for infection. If infection per se is not found, the patient should be screened for other chronic illnesses that might constitute a stress. A basic blood panel would be a logical starting point.

If infection or other stress is allowed to go unchecked, ketoacidosis, an especially life-threatening complication of diabetes mellitus, can develop.

Do not allow the pet's teeth to become a source of infection; have your veterinarian clean the teeth annually.

Step Five: Control Obesity

Insulin response is typically blunted in obese patients. If obesity is an issue, it should be addressed. A formal weight loss program using measured amounts of a therapeutic diet and regular weigh-ins is necessary for success. Read general information about [weight loss](#) for pets.

If these steps do not reveal a relatively simple explanation for the poor insulin response, then it is time to seek more complicated causes.

This generally means an additional hormone imbalance.

Hyperadrenocorticism (Cushing's Disease)

[Cushing's disease](#) is relatively common in dogs but less so in cats. In short, this condition involves an excess in cortisone-type hormones either from over-production within the body or over-treatment with medication. Cortisone (more accurately referred to as cortisol) is secreted naturally in response to a fight or flight situation and prepares the body for exercise by mobilizing sugar stores. If sugar is mobilized into the blood stream in the absence of a fight or flight situation, diabetes mellitus can result. If the excess cortisone situation is resolved, it is possible that the diabetes will also resolve.

About 10% of dogs with Cushing's disease are also diabetic. About 80% of cats with Cushing's disease are also diabetic. Testing for Cushing's disease cannot proceed until some degree of diabetic control has been achieved and the patient is not ketoacidotic.

Hyperthyroidism

Thyroid hormone is another hormone that alters glucose metabolism in cats but not in dogs. While [hyperthyroidism](#) is a common condition of older cats, less than 1% of hyperthyroid cats are also diabetic. Still, when a diabetic cat becomes hyperthyroid, control of the thyroid disease generally leads to better regulation of the diabetes.

Acromegaly

Acromegaly results from an over-secretion of the pituitary hormone known as growth hormone. This hormone normally is responsible for one's growth from infancy to adulthood. When adulthood is achieved, its secretion dramatically slows, bone growth plates close, and growth essentially stops. If for some reason, this hormone begins secreting again, growth resumes but not generally in normal proportions as the limb bones have closed their growth areas.

One of the effects of growth hormone is causing the body tissues to become resistant to insulin by interfering with tissue insulin receptors. Animals with acromegaly are frequently diabetic.

The prognosis and treatment for acromegaly is different between dogs and cats. Dogs generally develop acromegaly due to excess progesterone secretion (as would occur from an ovarian cyst). Canine patients

are thus usually older unspayed females and spaying may be curative depending on the remaining ability of the pancreas to secrete insulin.

The feline situation more closely approximates the human situation. Cats and people develop acromegaly when they develop a growth hormone secreting pituitary tumor. Over 90% of acromegalic cats are male (there is no sex predisposition in humans.)

The diagnosis of acromegaly can be difficult. Growth hormone can make soft tissue organs enlarge and cause characteristic proliferation of gum tissue in the mouth, but pituitary tumors require some kind of brain imaging (CT scan or MRI) for detection. In terms of blood testing, two values are helpful: a growth hormone level and an insulin growth factor-1 level. Growth hormone, unfortunately, is not secreted evenly throughout the day meaning there is overlap between what normal cats do and what acromegalic cats do.

Insulin Growth Factor-1, known as IGF-1 and previously known as somatomedin C, is produced by the liver in response to growth hormone and is responsible for many of the effects of growth hormone. IGF-1 can also be measured and may be a more helpful parameter since, unlike growth hormone, it is released in a more steady fashion. (Also, few laboratories run growth hormone levels so often only the IGF-1 value is available for interpretation.)

Treatment of feline acromegaly is difficult and may involve radiotherapy of the pituitary tumor causing the problem. Unfortunately, this condition seems to be more common than previously had been thought and research is ongoing.

Antibodies against Insulin

When a patient is treated with insulin from another species, the immune system recognizes the introduction of the foreign protein and generates antibodies. It was because of this phenomenon that most commercial insulin available is genetically engineered human insulin so that human diabetics no longer need to worry about making insulin antibodies.

But where does this leave dogs and cats? It leaves them making antibodies against human insulin, that's where.

One would think this would pose a big problem but in fact insulin antibodies are not always bad. Most of the time the antibodies simply interfere with removal of the insulin leading to a longer acting insulin than would be achieved with the same type of insulin made from the native species. For example, Humulin N (human insulin) will last longer in the dog than Canine Insulin N. This may be desirable depending on the patient; changing the species of origin of the insulin is one way to get the insulin to last a bit longer.

To become insulin resistant from antibodies, one must lose 70% or more of the insulin injection to antibody binding. This is unusual but possible and should not be forgotten as a possible cause of insulin resistance. Blood tests to measure insulin antibodies are available in some areas. Insulin can be switched to a species of origin more closely related to the species desired.

If a Cause Cannot be Found

If a cause cannot be found or if treatment for that cause is not practical or possible, the good news is that multiple high doses of insulin can generally overcome the resistance. Sometimes combinations of short and long-acting insulins are used together to achieve reasonable regulation. Some of the oral agents listed in the section on [controlling diabetes without insulin](#) may be helpful.

Difficult cases of getting diabetic cats under control is an area that not all veterinarians are comfortable performing. Discuss with your veterinarian whether referral to an internal medicine specialist would be best for you and your pet.

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