



Veterinary Professionals FAQs

Diabetic cats are challenging to diagnose, treat, and monitor, so here is some additional information to help with individual regulation. There are also many misconceptions about treatments and responses when dealing with feline diabetes mellitus.

Remission Questions:

- **What factors have been shown to consistently impact the chance of remission?**

Study Overview: Gostelow R, Forcada Y, Graves T, et al. Systematic review of feline diabetic remission: separating fact from opinion. *Vet J* 2014;202(2):208-221

Twenty-two studies were included in the review, assessing influence of pharmaceutical intervention (n = 14) and diet (n = 4), as well as diagnostic tests (n = 9) and feline patient characteristics (n = 5) as predictors of remission. The current level of evidence was found to be moderate to poor.

No single factor predicts remission, and successful remission has been documented with a variety of insulin types and protocols.

Dietary carbohydrate reduction might be beneficial, but requires further study.

Factors associated with remission resemble those in human medicine and support the hypothesis that reversal of glucotoxicity is a major underlying mechanism for feline diabetic remission.

- **What is the chance that a patient will go into remission?**

Remission is not possible with all cats. Key contributors include:

- Cats that achieve tight regulations of their blood sugar will be more likely to experience remission
- Early initiation of dietary and insulin therapy are the first steps to regulation
- Remission can be achieved in cats that have developed diabetes as a result of exogenous steroid use
- Remission can occur months (and sometimes more than a year) after initiation of therapy
- Diabetes can be transient if caused by acute pancreatitis

See Remission page in the toolkit for more information.

- **Which patient is most likely to achieve remission?**

Patients that:

- Have shorter duration of the disease
- Achieve prompt glycemic control
- Have lower BG at diagnosis
- Have a lack of diabetic neuropathy
- Have a lack of concurrent diseases (with the exception of pancreatitis)

- **What else should I consider about remission?**

- Tight glycemic control increases risk of hypoglycemia
- At least 25% of cats that achieve remission subsequently resume insulin dependence
- Even cats that are in remission may fail a glucose tolerance test: once a diabetic, always a diabetic, always at risk for recurrent insulin dependence
- Frequency of routine veterinary visits and testing based on the individual cat and situation

What are Risk Factors for DM?

- Obesity has been directly related to insulin resistance in cats and humans
- Sex: 60-70% of diabetic cats are neutered males
- Age: 20-30% of cats are diagnosed between ages 7-10, 55-65% diagnosed older than 10 years of age
- Diet: high carbohydrate diets (the use of dry food as a risk factor has been challenged)
- Breed/Genetics: Burmese, in Australia and UK, but not North America
- Concurrent Disease: pancreatic disease, hyperthyroidism, renal disease, neoplasia, acromegaly, hyperadrenocorticism, and infection
- Corticosteroid use

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What is the Best Way to Monitor Blood Sugar?

- Ear vein or foot pad sample (A client video can be found in the digital diabetes toolkit)
- Protocol: spot checks versus blood glucose curves, which depends on patient and client
- Accuracy can be obtained through the AlphaTRAK® monitor
- Human glucometers generally read lower by 18-36 mg/dL (1-2mmol/L) than analyzers validated for veterinary use in cats and dogs
- RBC's use glucose and can falsely lower the reading in whole blood samples not immediately tested or serum samples not separated from clot
- Free Style Libre monitor may be considered for continuous monitoring (alternative to BG monitoring) (*see References list – Accuracy of a Flash Glucose Monitoring System in Diabetic Dogs, 2016*)

See the Monitoring Protocols page in the toolkit for more information.

Is Anesthesia Safe in Diabetic Patients?

- Anesthesia can be performed safely in diabetics, regardless of whether the disease is controlled
 - Blood sugar monitoring should continue throughout the anesthetic and peri-anesthetic periods (There is no consensus on frequency of monitoring during anesthesia. Some recommend monitoring q30 minutes or more when needed, and others make a determination of monitoring frequency, and insulin doses for the day of surgery, based on each cat)
 - Complete fasting may not be ideal. A small meal with 1/2 insulin dosage in the morning prior to surgery may benefit the patient
 - A small amount of food (1-2 tsp canned slurry) should be considered post-operatively as soon as the patient is sternal and able to voluntarily consume food
 - Uncontrolled diabetes or increased age should not be considered a reason to avoid dental care under anesthesia
- Diabetic conditions that should be treated and resolved prior to anesthesia include:
 - Hypoglycemia
 - Hyperosmolar diabetic crisis (extremely rare)
 - DKA
- Anesthesia may be required to treat
 - Urgent conditions: trauma (i.e., hit by car, bite wounds, fractures, etc.), intestinal obstruction, obstipation, urinary tract blockage
 - Non-urgent conditions which are interfering with diabetic control (i.e., dental disease, urinary tract disease, infected masses, etc.)

What Will Happen if the Diabetic Patient is Not Treated?

- Insulin and dietary management are the ideal methods of controlling diabetes. There is a small population of cats that can have relatively normal quality of life without glycemic control or with only dietary management using low carbohydrate diets.
- Treatment is recommended, but in cases where the owner is unwilling or unable to treat the patient, it is not unreasonable to see how the patient does with diet alone (in order to minimize clinical signs such as PU, PD, PP and stabilize weight) or to consider oral hypoglycemic agents.
- If quality of life is poor without treatment, humane euthanasia should be considered. (OSU has a tool called "How Do I Know When it's Time?" See link in digital toolkit.)

What if a Diabetic Cat's Condition was Triggered by Corticosteroids and Ongoing Use is Required?

- Some cats have concurrent medical conditions that require treatment with corticosteroids.
- Treatment with steroids may complicate diabetic control.
- If there is no suitable alternative, steroid treatment can continue during diabetic management.
- Budesonide is not necessarily a better alternative to prednisolone in diabetic patients.
- Consider using immunomodulating therapies other than corticosteroids.

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What if the Diabetic Patient is Unwilling to Eat the Recommended Diet?

- Consider kitten food since it tends to be higher in protein and lower in carbohydrates compared to adult maintenance diets.
- Consider all or mostly canned foods since they tend to be higher in protein and lower in carbohydrates.
- For extremely picky eaters, you will have to troubleshoot why they are picky eaters and then try to find a suitable balanced diet. Review Diagnostics page for more information.

Can Oral Hypoglycemic Agents be Used Instead of Insulin?

Right now, glipizide and glyburide are used for treatment of non-insulin dependent diabetes in humans (Type II). The complete mode of action is not 100% clear. Effects of these drugs include:

- Stimulating beta cells to produce insulin
- Potential enhancement of insulin receptor activity
- Potential reduction in basal hepatic glucose production

Type II diabetic cats have exhausted beta cells from glucose toxicity. Cats on glipizide may go in to remission, but most will need exogenous insulin in order to maintain wellbeing and avoid ketosis. Oral hypoglycemics should not be considered a first line treatment above insulin and diet.

What if the Blood Glucose Values are Inconsistent?

Most cats do not have reliable blood glucose curves and values can vary substantially from day to day. Veterinary professionals need to determine if other factors are causing the inconsistency such as comorbidities, PU/PD/PP, weight loss, or client compliance issues with consistency.