

Diabetes mellitus is a complicated condition caused by an absolute or relative deficiency of insulin. Insulin is produced by the pancreas and released into the bloodstream where it travels to all the tissues of the body. Its main role is to enable cells to take up glucose (sugar), which is needed as an energy source. It is also important in the metabolism and storage of carbohydrates, proteins and fats.

In a diabetic animal, the insulin deficiency results in impaired glucose uptake by cells, leading to hyperglycaemia (elevated blood glucose levels) and glycosuria (glucose in the urine). As the cells are starved of glucose, they start using the body's fat and protein stores as energy, leading to weight loss and accumulation of toxic waste products, which can cause a diabetic crisis (ketoacidosis).

An absolute insulin deficiency is due to failure of the pancreas to produce insulin. Often however there is a combination of insufficient insulin secretion, and "peripheral insulin resistance" which means that the cells of the body fail to respond to insulin as effectively as they should. Insulin resistance can be caused by a number of conditions including pregnancy, obesity, some drugs (eg: corticosteroids or progestagens), and other hormonal conditions (such as hyper-adrenocorticism and acromegaly).

## Clinical Signs

Sometimes cats and dogs will show no obvious symptoms, but most commonly signs will include:

- Weight loss
- Increased appetite (polyphagia)
- Increased urination and/or drinking (polyuria/polydipsia)

Other signs seen include:

- Straining to pass urine/blood in urine, associated with bacterial urinary tract infection
- Enlargement of the liver (usually picked up by the vet on examination)
- Poor coat
- "Sunken hocks" – altered hind leg stance
- Vision problems – caused by high blood pressure, or cataracts

Sometimes animals will present in a diabetic crisis called ketoacidosis with signs such as vomiting, diarrhoea, complete loss of appetite, dehydration, collapse or coma.

## Diagnosis

Blood and urine tests are required to confirm a diagnosis of diabetes. Increased blood glucose levels and glucose in the urine are the main findings. It is usual to test for fructosamine levels in addition to the glucose – an elevated result indicates that there has been a significantly high blood glucose for a period of two to three weeks (occasionally cats will show a stress-associated hyperglycaemia and glycosuria, but fructosamine levels will be normal).

## Treatment

Initial management will involve addressing any predisposing factors, such as treating obesity or withdrawing drug therapy.

**Insulin** is given by once or twice daily injection under the skin of the scruff of your pet. Although this may be quite a daunting thought to begin with, after a full demonstration session with your vet or nurse, owners usually become experts in a short space of time, and the injections just become part of the daily routine.

**Dietary management** is very important in management of diabetes. A diet with low carbohydrate and high protein levels may help reduce the dose of insulin required, and occasionally diabetic cats may be managed with diet alone. It is important not to feed titbits, and sometimes a feeding regime may be necessary.

## Monitoring

Initial stabilisation of diabetes usually takes between a few weeks to months to find the correct insulin dose and daily routine for your pet. Clinical signs of the disease should improve after starting therapy and can be a basis for monitoring. Repeat urine and blood samples are also an important way of checking how well controlled the disease is in your pet. It may be necessary for your pet to stay in the hospital for the whole day in order to take several blood tests over a twelve-hour period. This will allow a "glucose curve" to be drawn, and when analysed along with fructosamine levels can help determine whether the insulin dose needs to be altered.

## Prognosis

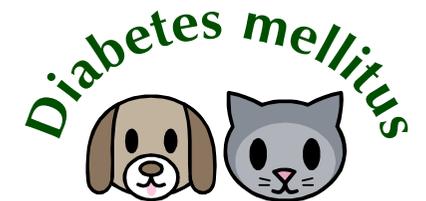
The long term outlook of pets with diabetes largely depends on their age, how easy it is to stabilise the condition, and whether there are any concurrent diseases. The average survival time for cats is one to two years (less in older cats), and probably similar in dogs, although lifespan can match non-diabetic dogs of the same age and breed.



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## Quick Reference Guide



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