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## Diabetes Mellitus

### What is Diabetes Mellitus?

Diabetes mellitus (DM) is an inability of the body to produce the hormone insulin (type 1) or respond to it (type 2). This results in a high blood sugar level. Insulin is needed to allow the cells to absorb and use glucose so without it the glucose is present but not used.

When the cells are deprived of glucose they are not able to function properly. This is particularly problematic for the brain as it relies almost exclusively on glucose for all its function. The high levels of blood glucose cause organ damage and cataracts. Dogs usually present with type I DM and cats with type 2.

### What are the signs of Diabetes Mellitus?

- • Weight loss
- • Drinking more
- • Urinating more
- • Eating more
- • If left untreated the vomiting, collapse and coma – this is likely to represent a condition known as diabetic ketoacidosis which is life-threatening.

### How is it diagnosed?

RVC Veterinary Practices Ltd. Trading as Acorn House Veterinary Hospital  
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**RVC**  
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Practices



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The clinical history will make your vet suspicious of diabetes but a definitive diagnosis requires a blood test. A high blood sugar can be caused by stress (especially in cats) so a blood test for fructosamine will be taken which measures the average blood sugar over 2-3 weeks. The results for this are available the next day. A high fructosamine is consistent with diabetes. This blood test is also used for monitoring the response to insulin.

Glucose in the urine is another indicator of diabetes (although there are other rare causes of this).

### Treating Diabetes Mellitus

Diabetes is treated with insulin injections under the skin every 12 hours. Caninsulin is used for dogs and cats. Recently a new cat insulin called Prozinc has been licensed. If your cat is already on caninsulin and is stable there is no reason to change. Any new diabetic cats will be put onto prozinc as the duration of action is optimised for cats. A low carbohydrate diet is also recommended for cats.

Your vet will spend time teaching you how to inject insulin and make sure that you are confident administering the injection and drawing up the correct dose. They will teach you how to gently mix the insulin, remove any air bubbles in the syringe and how to dispose of the syringes correctly. They will advise you on correct storage of insulin and the importance of routine. The injections must be given at the same time each day, you will need to make sure your pet is fed the same type and amount of food each day, does the same amount of exercise (dogs) and is not given any



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treats. This is vital to help stabilise your pet. They will provide you with a monitoring chart so you can record your pets eating, drinking and dose of insulin.

In some diabetic cats it is possible that if they stabilise rapidly on insulin they may make a full recovery and no longer require injections. To avoid the diabetes recurring it is important that they are not allowed to become overweight as obesity interferes with the action of insulin.

In cats with some residual insulin production it may be possible to use an oral medication to sensitise them to their existing insulin, however the success rate with this is low and there can be long term complications with these drugs, the vet will discuss this with you.

If a female dog has not been spayed this will be advised as the levels of progesterone when she is in season stop insulin from working properly. Some medications such as steroids also cause insulin resistance, it is best to stop any medications which cause insulin resistance, in some cases this is not possible so the lowest possible dose is used.

## Monitoring

When your pet initially starts treatment they will be kept in the hospital to make sure that their blood sugar does not drop too low. Your pet will be started on a low dose to try and avoid this complication but some animals are more sensitive to insulin than others. Over the first few months of treatment you will have regular check ups and blood tests to try and work out the correct



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dose of insulin. Some pets will stabilise very quickly but unfortunately in some cases it can take a while to work out the correct dose and many other things such as concurrent illness can affect how effective the insulin injections are.

It is important that dose adjustments are not done too quickly and that the insulin is given time to work. You may also be given urine test sticks to monitor the amount of glucose in the urine at home and to check that no ketones are present in the urine (this indicates severe metabolic stress and will require inpatient treatment). Some owners are willing to learn to check blood sugar levels with a home testing kit, and this will much reduce the need to bring your pet to the surgery for blood tests, allowing accurate monitoring at home.

A well controlled diabetic will be a stable weight, drink and eat a normal amount and not urinate excessively.

### Complications of Treatment

The most serious complication of treatment is low blood sugar (hypoglycaemia). This may occur if your pet does not eat or if an overdose of insulin has been given. A pet with low blood sugar may show the following:

- Weakness or lethargy
- Shivering
- Muscle twitching



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- If left untreated it can progress to fits and unconsciousness.

Low blood sugar can be treated with a sugar solution on the gums. Food can be given if your pet is alert and able to swallow. Always contact us straight away

### Diabetic Ketoacidosis

This is a life-threatening condition which requires intensive care. This is more commonly seen in dogs. This requires fluid therapy to treat shock, an infusion of insulin into the vein to gradually bring down the high blood sugar and management of any organ damage and electrolyte abnormalities which often occur with this condition.

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