



THE UNIVERSITY
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CENTRE FOR COMPANION ANIMAL HEALTH
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CATS
Dosing protocol for cats on lente or NPH insulin

Table 1: Parameters for changing insulin dosage and frequency based on blood glucose measurements when using **lente (Caninsulin/Vetsulin; Schering Plough-Intervet)** or NPH in diabetic cats. Insulin dosage adjustments are based on monitoring blood glucose concentration every two weeks with serial measurements every 2 hours over 12 hours. The protocol was tested in more than 25 diabetic cats in a research setting using lente. *G. J. Martin and J. S. Rand Control of diabetes mellitus in cats with porcine insulin zinc suspension Vet Rec. 2007;161(3):88-93*

NB. Lente is the 3rd insulin of choice and NPH the 4th of choice insulin for control of diabetes mellitus in cats, behind glargine or detemir (1st choice) and PZI (2nd choice), Lente and NPH result in lower remission rates compared to longer acting insulins. *Marshall R & Rand J. Treatment With Insulin Glargine Results In Higher Remission Rates Than Lente Or Protamine Zinc Insulins In Newly Diagnosed Diabetic Cats. (Abstract) J Vet Intern Med 2005; 19 (3):425*

Lente insulin is only recommended as a first choice of insulin in countries where an insulin registered for veterinary use is required to be used initially, and PZI is not registered for veterinary use. If remission has not occurred in 6-8 weeks after initiation of lente therapy, the insulin should be changed to glargine or detemir. Remission rates decrease with time after diagnosis, so early control of blood glucose concentrations is imperative for maximizing the probability of remission. NPH insulin is only recommended when no other long-acting insulin is available.

NB. The blood glucose values were based on using a portable glucose meter calibrated for human use which measured glucose concentration in whole blood.

Blood glucose concentrations measured using a whole blood glucose meter calibrated for human blood may measure 30-40% lower at the low end of the range than glucose concentrations measured using a serum chemistry analyser or a plasma-equivalent meters calibrated for feline use (AlphaTRAK Abbott). When using these latter methods for measuring blood glucose concentrations, target glucose concentrations at the lower limit of the range should be adjusted accordingly by adding approximately 30 mg/dL (1.7 mmol/L) to the value listed in the protocol below. For example, a target value of > 54 mg/dL (3mmol/L) becomes > 84 mg/dL (4.7 mmo/L) when using a serum chemistry analyser or a meter calibrated for feline use.

Adapted from: Rand JS, Marshall R: Diabetes mellitus in cats. Vet Clin North Am Small Anim Pract 35[1]:211, 2005.



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Blood Glucose Variable	Recommendation
Use an initial dose 0.5 U/kg of lean body weight BID if blood glucose is > 360 mg/dL (> 20 mmol/L) and 0.25 U/Kg BID if glucose < 360 mg/dL (> 20 mmol/L); do not increase in first week, but decrease if necessary	
If pre-insulin blood glucose concentration is <210mg/dL (< 12mmol/L)	With-hold insulin and check for diabetic remission provided cat treated for a minimum of 2 weeks; otherwise reduce dose
If pre-insulin blood glucose concentration is 211-250mg/dL (13 - 16mmol/L)	Total dose should be no more than 1U/cat bid
If nadir blood glucose concentration is < 54mg/dL (<3mmol/L)	Dose should be reduced by 50 %
If nadir blood glucose concentration is 54-90mg/dL (3 – 5mmol/L)	Dose should be reduced by 1U if poor control of clinical signs of diabetes; dose should remain the same if exemplary control of clinical signs
If nadir blood glucose concentration is 91-180mg/dL(6 – 9mmol/L)	Dose should remain the same
If nadir blood glucose concentration is >180mg/dL(> 10mmol/L)	Dose should be increased by 1U
If nadir blood glucose concentration occurs within 3 hours of insulin administration, or blood glucose returns to baseline within 8 hours	Change to longer acting insulin (ie. Glargine, detemir or PZI)
If the nadir blood glucose concentration occurs at 8 hours or later	Once daily administration may be used, although twice daily administration at a reduced dose is preferred