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Bile Acid Testing: Optimal Conditions

1. For best test utility you need paired samples around a meal.

- a. collect a sample of blood before the meal
- b. collect a sample of blood 2-hours after the meal

2. It is NOT necessary to fast a dog 12-hours before collecting the pre-meal or pre-prandial sample.

3. Blood Collected into **lithium heparin vacutainers**.

It is important to treat blood gently as hemolysis (rupture of red blood cells releasing hemoglobin that colors the plasma red) complicates testing. Red color competes with the blue dye color in the assay that measures the concentration of bile acids. Lipemic blood (fatty blood) after the meal increases red blood cell fragility.

- a. *Collect blood into syringe using a butterfly set up.*
- b. *Remove needle from syringe and remove the top of the vacutainer tube*
- c. *Gently put the blood (roll down side of the glass) into the vacutainer*
- d. *Replace the rubber top on the vacutainer, making sure it seals tightly*
- e. *Centrifuge the sample to separate plasma from red blood cells*
- f. *Put plasma in separate tube before mailing*
- g. *DO NOT USE separator tubes as these are inconsistent in their ability to keep red blood cells and plasma separate*
- h. *Bile Acid cannot be measured in EDTA blood, so do not collect into purple top tubes*
- i. *Volume of blood necessary for bile acid determination: at least ½ m; (.5 ml) of **PLASMA**, that means 1 to 1.5 ml blood*

4. Use the quantitative method of bile acid determination, rather than tests that signify only whether values are "high" or above the normal range.

5. Disregard the normal fasting ranges provided by laboratories: This value is not useful and will only confuse you. Approximately 15% to 20% of dogs have a higher fasting than post-prandial (after meal) bile acid value due to individual differences in the rate of stomach emptying and intestinal motility.

6. Based on extensive work in our laboratory, dogs having a plasma or serum bile acid concentrations

>25 uMol/L are abnormal at either the fasting (pre-meal) or 2-hour post meal sampling interval. While many labs have subsequently determined what they believe are normal ranges, the >25 uMol/L value was determined using data derived from a spectrum of dogs with liver biopsies (so we know who is abnormal and who is normal) rather than just a range of bile acid values from many animals where the status of the liver has not been determined histologically (by biopsy).

Additional Information;

*It is no longer recommended to fast a dog for 12 hours before first collection or meal. The same size and type of meal that the dog normally eats is what should be used for the meal.

*Test puppies at 16 weeks and again at 6 months. Dogs > 4 years of age can have other liver problems that will affect the Bile Acid test.

*If the dog is stuffed or if the dog is frightened the test result can possibly be skewed.

*The draw can be done one day pre feeding, then the dog can be taken home and fed and another draw done 2 hours post-feeding. It is not imperative it be done the same day.