



Canine, Feline, and Equine Metabolic Function Tests

Canine: Vitamin B12 / Folate / TLI

Measurements of vitamin B12 (cobalamine) and folate in serum are useful for diagnosing and characterizing some malabsorptive disorders of the small intestine of dogs. Concentrations of folate in serum depend on absorptive function of the proximal small intestine (jejunum), whereas, concentrations of vitamin B12 reflect absorptive function of the distal small intestine (ileum). Therefore, diffuse intestinal malabsorptive disorders lead to reduced serum B12 and folate concentrations. Diseases of the ileum are characterized by reduced B12 concentrations and diseases of the jejunum are characterized by reduced serum folate concentrations. Elevated folate and reduced B12 concentrations may indicate bacterial overgrowth in the proximal small intestine because certain bacteria synthesize folate and bind B12 making it unavailable for absorption. This pattern (high folate; low B12) also occurs in some dogs with exocrine pancreatic insufficiency. The exocrine pancreas secretes trypsinogen and other zymogens into the small intestine. Because trypsinogen is produced only by the pancreas, a low serum concentration of trypsinogen (i.e., trypsin-like immunoreactivity) is diagnostic for exocrine pancreatic insufficiency (EPI). Elevated TLI concentrations are consistent with acute pancreatitis, renal disease, or malnutrition.



Feline: Vitamin B12 / Folate

Measurements of vitamin B12 (cobalamine) and folate in serum are useful for diagnosing and characterizing some malabsorptive disorders of the small intestine. Concentrations of folate in serum depend on absorptive function of the proximal small intestine (jejunum), whereas, concentrations of vitamin B12 reflect absorptive function of the distal small intestine (ileum). Cats with malabsorption or maldigestion often have subnormal vitamin B12 levels. Cats being supplemented with Vitamin B12 for deficiencies should have levels assessed regularly as the vitamin B12 half life is less than 3 weeks in cats.



Equine: Folate

Measurement of folate in serum is useful in determining a deficiency of this vitamin. The long-term use of trimethoprim/sulfa (e.g. Tribissen) and other related antibiotics required for treatment of chronic disorders, such as equine protozoal myelitis (EPM), has been implicated in decreased serum folate concentrations. Folate is an important mediator of normal hematopoiesis and a sustained deficiency of folate can result in megaloblastic anemia. Similarly, foals of mares treated with potentiated sulfas should be monitored closely for folate deficiency, as this class of antibiotics is transferred across the placenta and in the mare's milk.



Guidelines for Sample Collection and Processing:

1. A fasted blood sample is recommended.
2. Collect blood into a plain red-top collection tube.
3. Allow the blood adequate time to clot at room temperature prior to centrifugation to ensure sufficient yield and avoid fibrin formation. The specimen should be refrigerated if time before centrifugation will be greater than two hours.
4. After centrifugation, transfer the serum into a vial suitable for shipping or frozen storage. Frozen sample storage is recommended especially if the time before shipping will be 12 hours or more.
5. Ship 1 to 1.5 mL of preferably frozen serum sample (0.5 mL for each test) with cold packs. A frozen sample is not necessary, but optimally the sample should arrive chilled.
6. Avoid excessive exposure of samples to direct sunlight because both vitamin B12 and folate are light sensitive. Also avoid hemolysis because erythrocytes contain high amounts of folate.
7. EDTA plasma is unacceptable for testing.

Note: Do not use SST tubes with separator gels and/or clot activators due to assay interference in some instances.