Vcheck Equine T4

Quantitative marker of Equine Total Thyroxine

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What is Thyroxine (T4)?

Thyroxine (T4) is a hormone produced by the thyroid gland in horses, playing a role in regulating metabolism and energy balance. It is involved in various physiological processes, including growth, development, and thermoregulation. The measurement of thyroxine levels can provide insights into thyroid function and overall metabolic health in horses. Abnormal T4 levels may indicate thyroid dysfunction or other health conditions.

Hypothyroidism Signs

Neonatal Foals

- Profound Weakness: Extreme lethargy at birth with abnormally low body temperature (hypothermia).
- Feeding Issues: Absent or abnormal sucking reflex.
- Musculoskeletal Defects: Flexural deformities, ruptured tendons, and incomplete formation of knee (carpal) and hock (tarsal) bones.

Growing & Adult Horses

- Stunted Growth: Failure to reach normal height, delayed closure of growth plates, and late eruption of incisor teeth.
- Metabolic Decline: Severe lethargy, cold intolerance, and hypothermia.
- Physical Changes: Rough, dull coats and unexplained swelling in the hind limbs.

What does a Thyroxine level tells us?

Progesterone plays a crucial role in the maintenance of pregnancy until 120 days of gestation when the placenta becomes the main source [2,3]. In addition, measuring progesterone helps find out mare's reproductive cycle and plan most effectively.

Neonatal Foals

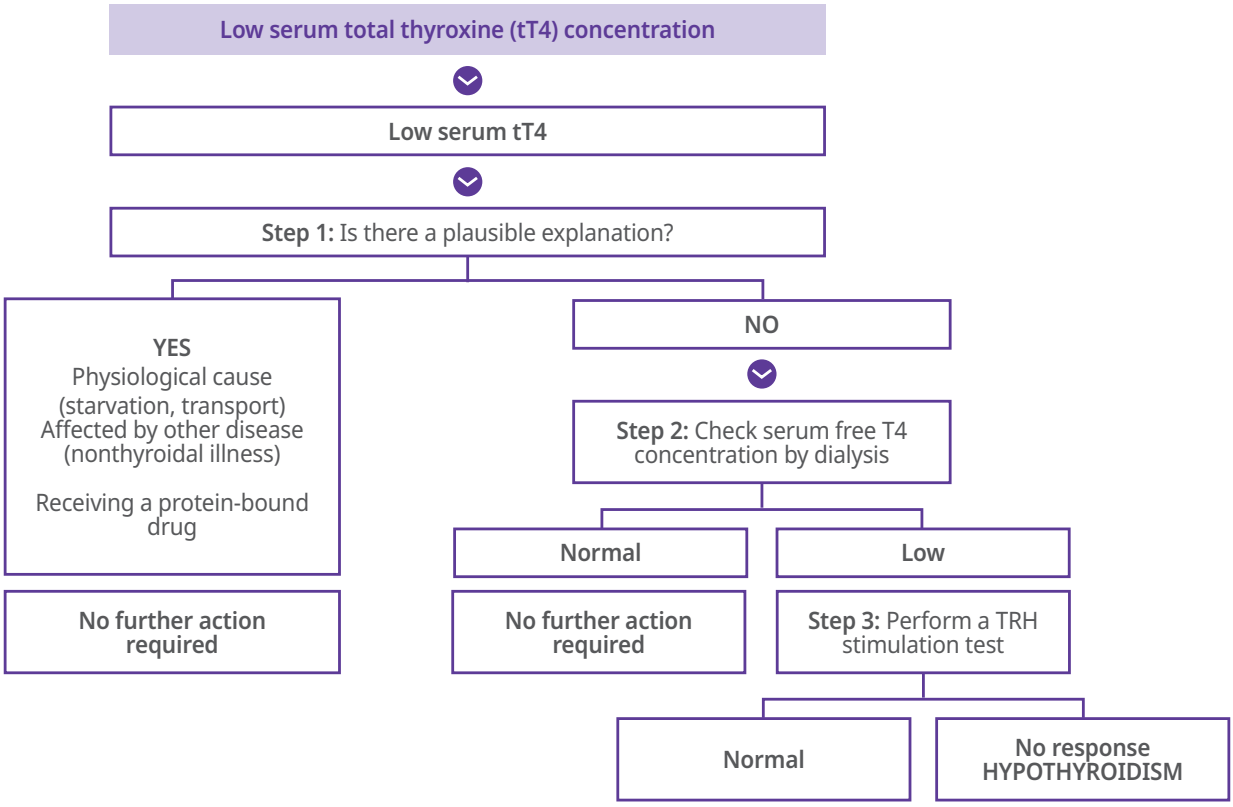
- Nutritional Imbalances: Excessive or insufficient iodine, and low selenium intake.
- Maternal Health: Reflects the mare's iodine intake during gestation.
- Toxic Exposure: Ingestion of goitrogenic plants or excess nitrates that inhibit thyroid hormone synthesis.

Growing & Adult Horses

- Endocrine Disorders: Points to conditions like Equine Metabolic Syndrome (EMS) or PPID (Equine Cushing's).
- Systemic Illnesses: Indicates nonthyroidal illnesses (Euthyroid sick syndrome).
- External Influences: Reflects effects from fasting or specific medications (e.g., corticosteroids, phenylbutazone, estrogen) that alter hormone binding.

Clinical Application

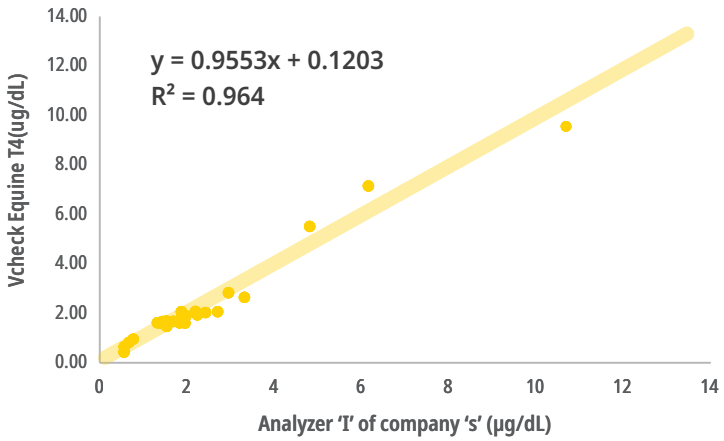
Diagnosis of hypothyroidism and treatment monitoring



Performance

Vcheck Equine T4 has a strong correlation (R2=0.964, y=0.9553x + 0.1203) with the reference method (Immulite 2000), which has been used in reference laboratories.

Correlation with Immulite 2000 of Siemens (n=61)



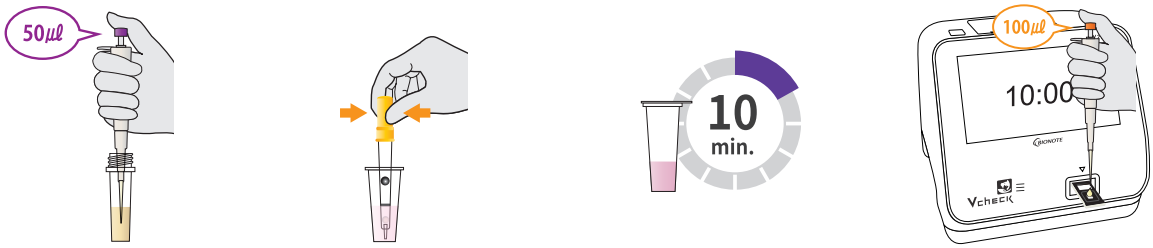
Vcheck Equine T4

Specifications

- Species : Horse
- Sample : Serum, Plasma (Heparin, EDTA) 50 µg
- Testing time : 20 minutes
- Measurement Range : 0.5~8 µg/dL
- Storage Condition : 2-8 °C

Test procedure

1. Draw **50 µl** of serum / plasma and add it into an assay diluent tube
2. Mix over 8 times using a disposable tablet pipette until the tablet is completely dissolved
3. Wait 10 minutes for incubation
4. Add **100 µl** of mixture in the sample hole of the test device



Reference Ranges

< 1.0 µg/dL (< 12.87 nmol/L)	1.0 ~ 3.8 µg/dL (12.87 - 48.90 nmol/L)	>3.8 µg/dL (>48.90 nmol/L)
Low	Normal	High

* 1 µg/dL is equal to 12.87 nmol/L.

Ordering Information

Product No.	Product Name	Storage Temperature	Packing Unit
VCF151DD	Vcheck Equine T4	2~8°C	10 Tests/Kit

References: 1. Breuhaus, BA. Disorders of the equine thyroid gland. Vet Clin North Am Equine Pract. 2011. **2.** Peterson, ME. Hypothyroidism in Animals. Merck Veterinary Manual. Accessed 05/15/23. **3.** Schott, Hal. Thyroid Disease in Horses: Fact or Fiction?. Department of Large Animal Clinical Sciences, Michigan State University. Accessed 05/15/23. **4.** Frank N. et al. Equine thyroid dysfunction. Vet Clin North Am Equine Pract. 2002. **5.** Irvine CH. Hypothyroidism in the foal. Equine Vet J. 1984. **6.** Mooney, C. et al. Equine hypothyroidism: the difficulties of diagnosis. Equine Veterinary Education. 1995. **7.** Koikkalainen, K., et al. Congenital hypothyroidism and dysmaturity syndrome in foals: First reported cases in Europe. Equine Veterinary Education. 2014. **8.** Messer IV. Et al. Evidence-based literature pertaining to thyroid dysfunction and Cushing's syndrome in the horse. Veterinary Clinics of North America: Equine Practice. 2007. **9.** Breuhaus, BA. Review of thyroid function and dysfunction in adult horses. Proceedings of the 50th Annual Convention of the American Association of Equine Practitioners. 2004. **10.** Swerczek, T. et al. Effects of nitrate and pathogenic nanoparticles on reproductive losses, congenital hypothyroidism and musculoskeletal abnormalities in mares and other livestock: new hypotheses. Animal and Veterinary Sciences. 2019.

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