**IODINE**

Symptoms of Deficiency

Slowed Skeletal growth
Rough hair coat
Delayed Shedding of Hair
Muscular Weakness
Hairless foals
Lethargy, dullness, and timid behavior
Still-Born foals

Treatment & Prevention:

For every 1000 pounds of horse, feed them 4-8% iodized salt. Though don’t give them to much, or Iodine toxicity can occur
Iodized Salt
Kelp

When Do Horses Need it Most?

Brood Mares

Sources
Equinews-http://www.equinews.com/article/iodine-deficiency-and-goiter-horses
Holistichorses-http://holistichorse.com/health-care/iodine-in-horses\_1/
Understandinghorse-http://www.understanding-horse-nutrition.com/iodine.html

**Calcium Deficiency**

**(Hypocalcemia/”Big Head”)**

**Symptoms:**

* Horse may colic
* Weakened bones more susceptible to fractures
* Painful movement/lameness
* Loss of teeth
* Arthritis

**When do horses need it most?**

 Calcium is needed most in young, growing horses, lactating mares, and horses performing hard work. This is because calcium is essential for strong bone growth and aides in muscle contraction.

**Treatment and Prevention:**

In order to prevent calcium deficiency, ensure that the horse is eating a balanced diet with plenty of calcium-containing forages (hay, beet pulp, etc.). To treat a calcium deficient horse, provide calcium supplements while having a vet keep track of calcium levels in horse (blood/urine tests). Let horse stay rested to avoid injury.

**Sources:**

<http://www.admani.com/horse/Equine>

http://www.understanding-horse-nutrition.com/calcium.html

Vitamin K deficiency

 Symptoms of deficiency: **blood clotting** or **bleeding**:**bleeding** within the digestive tract, **gum bleeding**, heavy **menstrual bleeding**, or **hemorrhaging**.

When do horses need it most? Vitamin K has one major, and very important, role in the horse's body. Through a complex process it helps with blood clotting. The Gla-proteins (which are part of that complex process) that are made from K are also important in bone metabolism and heart health.

Treatment and Prevention: Prevention of vitamin K deficiency bleeding (VKDB) with intramuscular vitamin K is of primary importance in the medical care of neonates. A single dose of intramuscular vitamin K after birth effectively prevents classic vitamin K deficiency bleeding

Sources: <http://www.understanding-horse-nutrition.com/vitamin-k.html>

<http://emedicine.medscape.com/article/974489-treatment>

**Vitamin B3 (Niacin) Deficiency**

**Symptoms:**

* Lesions on skin and digestive system
* Depression
* Indigestion

**When do Horses Need it Most?**

* In high stress situations
* During extreme exertion
* Very young horses with incomplete gut microflora populations
* Very old horses with diminished digestive efficacy

**Treatment and Prevention:**

* Make sure that your horses get enough vitamin B3 in their diet.
* B3 is widely available in your horse’s diet

 Vitamin E

symptoms//chronic liver disease, lack of coordination muscle movement, truncal & limb ataxia, loss of vibration and position sense.

Needed when? it helps protect damage done from free radicals, so you need it based on your age. You need a certain amount of mgs depicting your age.

treatment & prevention//oral or parenteral vitamin supplement

Sources(<http://emedicine.medscape.com/article/126187-treatment> )

VITAMIN D

**Symptoms of deficiency**: causes reduced appetite, slowed growth, physitis in growing horses, bone demineralization leading to stress fractures and bone deformities, and poor muscle contraction

**When do horses need it most?** When not living in southern usa or hot sunny area

**Treatment and prevention**: less blanket covering and more sunlight

**Sources**: [http://www.listentoyourhorse.com/your](http://www.listentoyourhorse.com/your-horse-needs-vitamin-d/)

[-horse-needs-vitamin-d/](http://www.listentoyourhorse.com/your-horse-needs-vitamin-d/), <http://www.horsechannel.com/horse-news/2012/05/08/vitamin-d-for-horses.aspx>

Magnesium

**Symptoms of Deficiency**- Agitation and Anxiety, Restless leg syndrome (RLS), Sleep disorders, Irritability, Nausea and vomiting, Abnormal heart rhythms, low blood pressure, Confusion.

**When do Horses Need Magnesium the most?**-Magnesium supplementation has been shown to improve performance and allow human athletes to reach exhaustion later in their exercise routine. It increases oxygen delivery to muscle tissue; it promotes muscle strength, endurance and relaxation.

**Treatment and Prevention**- shots and magnesium supplements

**Sources**- <http://www.understanding-horse-nutrition.com/magnesium.html> http://www.thehorse.com/articles/31995/common-nutrient-deficiencies-in-horses

**Thiamin Deficiency**

**Symptoms:**

Loss of appetite

Anorexia

Bradycardia (a slow heartbeat)

Muscle twitching

Ataxia (severe lack of coordination)

**Needs**

B₁ requirement for horses depends on their workload

50 mg given intramuscularly for several days.

**Treatment & Prevention**

Intramuscular Injections

Vitamin B1 pellets

Removing the source of the thiaminase from the animal's diet

**Sources:**

horsejournals.com

Smartpakequine.com

poisonousplants.ansci.cornell.edu/

salt/sodium

Symptoms of deficiency: weakness, muscle cramps or spasms, fatigue or low energy, headache, nausea and vomiting, confusion, irritability

When do horses need it most: at least 10 grams of sodium per day

Treatment: involves intravenous fluid and electrolyte replacement, medication to manage the symptoms of hyponatremia, as well as any treatments for the underlying cause

Prevention: keeping water and electrolyte levels balance can help prevent low blood sodium

Sources: mayoclinic.org, equisearch.com

***Vitamin A Deficiency***

**Symptoms:**

Inadequate Intake or liver disorders, Not receiving commercial feeds or do not have access to green forage. Night blindness,

**When do horses need it most:**

It is very important in reproduction. Maintain Innate and Adaptive immune system response to infections. Regulates Gene expression.

**Treatment and Prevention:**

Plentiful food and food supply, gradually decrease caloric intake of horses that have become fat or obese. Fresh water at all times. A nutritionally complete diet for a horse will contain these ingredients: water, energy, fiber, protein, carbohydrates, fatty acids, minerals, and vitamins.

Zinc

Symptoms:

Growth and development problems, hair loss, diarrhea, impotence, and eye and skin conditions, and loss of appetite. Other symptoms may include weight loss, delayed wound healing,taste changes, and mental slowness.

When do horses need it most?

 Part of an enzyme it is responsible for insulin production, blood clotting, wound healing, and a whole host of other things.

Treatment & Prevention:

 Supplements,and to prevent is take the right nutritional vitamins.

Sources: goofle & http://articles.mercola.com

***Choline***

*Symptoms*

The most common signs of choline deficiency include poor growth, fatty liver, hemorrhagic tissue, and hypertension. In general, severity of clinical signs in animal species is influenced by other dietary factors, including methionine, vitamin B12, folacin, and dietary fat.

*When They Need It Most*

Choline is an important building block in creating the chemical that signals the muscles to fire more efficiently. So they need most all the time.

*Treatment*

* Drug therapy
* EMP Supplement

*Prevention*

bitter vegetables and the leaves of dandelions and a few fresh leaves can be offered a stabled horse from time to time. Otherwise let a few dandelions grow around the yard and the horse will chose them for itself.

*Sources*

<http://www.horsetalk.co.nz/2013/10/17/natural-sources-vitamin-minerals-horses/#ixzz4Pj3ENCXX>

<https://www.dsm.com/markets/anh/en_US/Compendium/companion_animals/choline.html>

Cobalt Deficiency

Symptoms

* There isn’t any obvious symptoms of cobalt deficiency in horses
* You just have to get your horse tested by a vet

When do Horses Need It Most?

* There has never been a reported cobalt deficiency in horses
* This is because cobalt is a slow absorber
* Horses don’t exactly have to have cobalt at a specific time
* Some race horses eat Vitamin B to help them on the track

Treatment and prevention

* There isn’t really a treatment
* You can inject the mineral into the blood stream
* Cobalt is in vitamin B so you can feed your horses a little vitamin B

Sources

* <http://www.thehorse.com/articles/10427/amazing-minerals>
* http://www.thehorse.com/articles/35452/cobalt-use-in-racehorses

IRON

Iron Deficiency is a common type of **anemia**— a condition in which blood lacks adequate healthy red blood cells. Red blood cells carry oxygen to the body's tissues.

Symptoms of lack of iron: Extreme fatigue, Pale skin, Weakness, Shortness of breath, Chest pain, Frequent infections, Headache, Dizziness or lightheadedness.

What it does for a horse: Transport oxygen throughout his blood, present in myoglobin, which helps get oxygen into your horse's muscles, 60-80% of the mineral in your horse's body is found in hemoglobin and myoglobin. Another 20% is stored in the liver, spleen, and other tissues, and the rest is distributed throughout the body in various places.

Treatment & Prevention: supplements of b12, Once the underlying disease has been treated and resolved, the horse’s red blood cells levels will return to normal on their own with no additional treatment necessary. It generally takes the equine body between 2-6 weeks to replenish red blood cells.

**Vitamin C**

**Symptoms of Deficiency**

You need vitamin C for the growth and repair of tissues in all parts of your body. It helps the body make collagen, an important protein used to make skin, cartilage, tendons, ligaments, and blood vessels. Vitamin C is needed for healing wounds, and for repairing and maintaining bones and teeth.

**When do horses need Vitamin C**

 Horses need vitamin C every day or they don't get the same energy they need to live off of. And for their the health too. And if they don't get the Vitamin they will have a hard time with their health.

**Treatment for Vitamin C**

 Vitamin C can cure cancer and diseases and it can help prevent it from happening too.

 Selenium Deficiency

Symptoms:

* Tying up
* Infections and wounds may take longer to heal
* Muscular cramping
* Muscle degeneration
* Myopathy (muscle disease)
* Impaired movement
* Difficulty suckling or swallowing
* Respiratory distress
* Impaired heart function

When?

Horses need selenium their whole lives.

Treatment

* Provide horse with a mineral block
* Provide concentrated feed