



U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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Equine Joint Infections

Septic arthritis, or joint infection, can be devastating to soundness, athletic careers, and even life for affected animals if treatment is delayed or inappropriate.

In foals, bacteria from a distant site invade the bloodstream and cause an infection of the joint. The umbilicus is commonly blamed, but the gut and lungs can be equally responsible. Foals may also have diarrhea, pneumonia, or failure of passive transfer (when foals have not consumed a sufficient amount of high quality colostrum). In studies of foals with septic joints, 50% to 88% were identified with partial or complete failure of passive transfer.

In older horses, joint infections are usually caused by trauma. Wounds over joints (areas that bend) are the most common cause of infected joints. Joint infections can also occur during diagnosis or treatment of joint problems (such as joint injections or surgeries). Some medications have been associated with a higher risk of joint infection due to changes in the normal joint defenses. Tendon sheath and bursa infections are very similar to joint infections in causes, treatment and prognosis.

Lameness from a joint infection takes approximately 8 to 24 hours to develop. It appears after sufficient bacteria have started growing in the joint. The joint reacts to the bacteria with swelling due to increased fluid (effusion) and pain. In some joints, swelling may not be easy to detect due to overlying tissues. Fever may

When to Start Grazing

It is tempting to turn horses out early into pastures after a long winter. However, horses should not be allowed to graze until the grasses reach 6-8". Do not rely on a calendar date, but use the pasture grass height as the indicator.

By: Rolf Modesto, DVM, Univ. of Penn.

be noticed after the infection is established in adults. Foals are more sensitive, and usually run a fever even before any signs of lameness or joint swelling.

Diagnosis of joint infections can be challenging, especially in foals and horses with open lacerations. When joint fluid drains out through an open laceration, the horse is rarely lame and may not have swollen joints. Foals can have multiple and deep joints infected. Due to the difference in their immune response, the development of clinical signs may be delayed in foals.

Joint infection is usually confirmed by obtaining joint fluid for analysis. A sample of joint fluid is taken and then submitted for culture. If the joint is open, fluid may not be obtainable. These joints have to be checked with other methods including fluid injection, ultrasound and radiographs (x-rays). Foals are also evaluated for signs of sepsis using blood work and a complete physical examination.

Radiographs are used to monitor for signs of deeper infection and arthritis. Radiographs may be taken initially to obtain a baseline view, and then repeated later to determine what changes are occurring due to the infection. It can take weeks to months for these changes to appear. Next month, treatment and prognosis of joint infections will be discussed. *Dr. Modesto was previously with the University of Minnesota.*

By: Krishona Martinson, PhD, Univ. of MN

Waiting to graze ensures the health of both the horse and the pasture. Begin grazing slowly, in 15 minute increments, working your way up to a full day (if necessary). Remove the horses from the pasture when the grasses are 3-4".

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Upcoming Events

"Lunch and Learn Webinar"

Wednesday, July 15th
Noon

Manure Management
and Composting
by Betsy Wieland

To join, go to:

<https://umconnect.umn.edu/horsewebinars/>

*Next webinar scheduled for
October 21st at Noon*

Fall Regional Horse Owner Programs

Saturday, October 3rd
9:30 am to 12:30 pm
U of M Equine Center
St. Paul, MN

*Program will focus on
Equine Metabolic Syndrome
and Genetics.*

Saturday, October 24th
Red Horse Ranch Arena
Fergus Falls, MN
1:00 pm to 4:00 pm
*Online registration and
agendas available in August.*

2009 Factsheets Available Online

Equine Law
by Katy Bloomquist

*Horse Manure
Management and
Composting*
by Betsy Wieland



Using Hay in Equine Diets

By: Bridgett McIntosh, PhD, University of Tennessee

Horses are non-ruminant herbivores designed to utilize forages as the primary component of their diet. They have a non-compartmentalized simple stomach and an enlarged hindgut that accommodates fiber digestion. When fresh forages are unavailable, or when horses are confined to stalls or dry lots, conserved forages (hay) may be fed to meet their nutritional needs. Equine nutritional needs are based on requirements for digestible energy, and the six major classes of nutrients; carbohydrates, fats, proteins, minerals, vitamins, and water.

Nutrient requirements for horses depend on their physiological status (age, metabolism, weight) and their level of production (maintenance, growth, exercise, reproduction, and lactation). Selecting hay and incorporating it into the ration should be done with the individual horse's needs in mind. Most classes of horses can meet all or a large majority of their nutritional needs from good quality hay alone. However, hay alone may not meet the nutrient requirements of horses with increased needs required for growth, reproduction, and exercise.

Horses require 2 to 3% of their body weight in feed (includes hay and grain) each day. At least half of their daily feed intake should be in the form of roughage such as fresh forage or hay to optimize digestive health. The amount and type of hay a horse needs ultimately depends on the individual horse's nutrient requirements and the quality of the hay. Hay quality should be determined by laboratory analysis. Following are three examples of how to correctly incorporate forage into your horse's diet.

Example 1: Adult Idle Horse (not working, not reproducing)

The nutrient requirements of idle adult horses can be met by good

quality grass hay alone. Following is an example of a feeding program including hay requirements for an adult idle horse.

- Horse Weight: 1,000 pounds
- Required Daily Feed Intake: 2%
- Total Intake Per Day: 20 pounds
- % of Hay in Daily Ration: 100
- % of Concentrate in Daily Ration: 0
- Amount of Hay: 20 pounds (daily)
- Amount of Concentrate: 0 pounds

Hay should be analyzed for nutrient content to identify any deficiencies. For example, many hays are low in some vitamins and minerals, and supplementation is often necessary. Most commercial feed companies offer a vitamin and mineral supplement that is low in digestible energy and complements the nutrient content of forages. These supplemental concentrates are typically fed at a rate of 1 pound per day for idle adult horses.

Example 2: Working Horse: Moderate Exercise

The nutrient requirements of working horses are determined by the intensity and duration of exercise. Exercise increases the nutrient requirements of horses, and hay alone may not be sufficient to meet their needs. To meet the increased requirements of working horses, cereal grain based concentrates are often included in the daily ration. Following is an example of a feeding program including hay requirements to meet the needs of a horse in moderate exercise. Moderate exercise is classified as 3 to 5 hours per week.

- Horse Weight: 1,000 pounds
- Required Daily Feed Intake: 2%
- Total Intake Per Day: 20 pounds
- % of Hay in Daily Ration: 75
- % of Concentrate in Ration: 25
- Amount of Hay: 15 pounds (daily)
- Amount of Concentrate: 5 lbs

Grass hay alone may not be sufficient to meet the needs of working horses. Alfalfa hay is typically higher in digestible energy and

nutrients, and may be sufficient in meeting the needs of working horses, particularly those in light or moderate work. Heavy and very heavy exercise will require an increased percentage of concentrates in their diet, but forage or hay should make up at least 50% of the daily ration.

Example 3: Growing Horses: 12 months of age

The energy and nutrient requirements for growing horses are greatly influenced by their age and rate of growth. For young horses in training (18 to 24 months of age), intensity of exercise also affects nutritional needs. The following example outlines a suggested feeding program and hay requirements for a 12 month old horse at a 1 pound average rate of daily gain.

- Horse Weight: 700 pounds
- Average Daily Gain: 1 pound
- Required Daily Feed Intake: 2%
- Total Intake Per Day: 14 pounds
- % of Hay in Ration: 75
- % of Concentrate in Ration: 25
- Amount of Hay: 10.5 lbs (daily)
- Concentrate: 3.5 lbs (daily)

Good quality grass hay, alfalfa, and grass/alfalfa mixed hays can be used in feeding programs for young growing horses. If feeding a substantial amount of alfalfa, ensure the Ca:P ratio of the diet is approximately 3:1 and never inverted. Young horses with increased nutrient requirements (from training or exercise) will require an increased in concentrates, but forage should make up at least 50% of the diet.

Good quality hay provides ample nutrients to meet the needs of most horses. Regardless of the class of horse, forages should make up at least 50% of the daily ration. Optimizing forages in your horse's diet will result in a healthier horse and can also result in significant financial savings. More information can be found in the 2007 National Research Council's *Nutrient Requirements of the Horse*.

A special thank you to Dr. McIntosh for sharing her expertise and article.