



U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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Research Update: Glycemic Response

For horses diagnosed with Equine Metabolic Syndrome, obesity, laminitis and/or insulin resistance, the need for dietary management of nonstructural carbohydrate intake is necessary. One management tool horse owners can use is regulating the glycemic response in diseased horses, which is the effect food has on blood glucose levels after a meal. Past research has shown that soaking hay for 30 to 60 minutes reduces non-structural carbohydrate levels; however, researchers have yet to explore if hay soaking has an effect on glycemic response. Recently, researchers at Middle Tennessee State University examined how soaked hay versus non-soaked hay affected the glycemic response in horses.

Two different hay types were evaluated both as soaked hay and non-soaked hay; prairie grass and alfalfa. Wet hays were soaked in cold water for 60 minutes and 12 healthy horses (average of 17 years and 1,207 pounds) were fed the hays. Blood samples were taken immediately at the time of feeding and every 30 minutes for 2 hours, and every

60 minutes up to 5 hours.

Researchers found that horses had a higher glycemic response to alfalfa hay compared to prairie grass hay. However, there was no difference in the glycemic response to non-soaked or soaked hay of either type. Over time, plasma glucose levels were higher in horses fed alfalfa versus grass hay.

Researchers concluded that although the type of hay fed influenced the glycemic response, no difference in physiological glycemic response was observed in healthy horses fed non-soaked or soaked hay. Additional research is needed to determine if soaking hay has physiological merit in horses diagnosed with Equine Metabolic Syndrome, obesity, laminitis and/or insulin resistance.

For more information on this study, click [here](#).

For more information on hay soaking, click [here](#).

Summarized by: Devan Catalano, BS, University of Minnesota.

Ask the Expert: Dog Lyme Vaccine for Horses

Question: Is the University of Minnesota recommending the dog Lyme vaccine for use in horses that live in areas where Lyme disease has been prevalent?

Response: There is currently no licensed vaccine for Lyme disease in horses and the use of the dog product is considered to be "off-label" in horses. Lyme disease is a complicated and controversial disease in all species (including humans), largely due to the difficulty in making an accurate diagnosis. There has been a small amount of

research performed on Lyme disease in horses and one or two studies have been performed looking at the use of the vaccine in horses. However, at this point in time there is not enough information to know whether or not the vaccine is effective in horses. The decision on whether or not to use any vaccine depends on the perceived risk, which is a decision best made between a horse owner and their equine veterinarian.

By: Anna Firshman, DVM, University of Minnesota

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Upcoming Events

Equine Pasture

Management Program

One farm visit and a customized pasture and grazing management plan. April 1 through August 1. \$650 per farm. To register: <https://www.regonline.com/EquinePastureManag2016>

Equine Castration Clinic

Saturday, May 14 2016
Jordan, MN
Appointments required
612-625-6776

Minnesota Nutrition Conference

September 21-22, 2016
Prior Lake, MN
For more information, visit the [website](#).

Visit our [Facebook page](#) for "Ask the Expert Monday", "Tip of the Week Wednesday", "Friday Funny" and special events.

Check out our latest horse-related videos on our [YouTube Channel!](#)

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Six Ways to Slow Horse Feed Intake

By: Krishona Martinson, PhD, Univ. of Minn.

There has been a recent trend to manage horses in a more “natural” manner, especially when it comes to feeding. Extending the length of time horses spend foraging has been linked to improvements in horse health and wellbeing, including reductions in unwanted behaviors, ulcers, choke and insulin and glucose responses after a meal. Slowing feed intake is also important for horses on restricted diets, those who are meal fed a few times each day, and horses who tend to aggressively and quickly feed. Many horse owners can slow equine feed intake rates by simply altering how they deliver feed to their horse.

1. Slow-feed Hay Nets.

Researchers from the University of Minnesota recently evaluated different hay nets to determine the effect on horse intake rates. Horses were fed hay (1% bodyweight twice daily) off the boxstall floor (control), or from one of three hay nets, including a large net (6 inch openings), medium net (1.75 inches) and small net (1.0 inch; Figure 1). The study revealed that horses feeding from the medium net took just over 5 hours to consume the hay meal, while horses eating from the small nets took 6.5 hours to consume the meal. Both the control and large net resulted in consumption times of 3.2 and 3.4 hours, respectively. If small or medium hay nets (Hay Chix hay nets) were used for twice daily feedings, the anticipated amount of time horses would spend foraging would be 10 to 13 hours each day, more closely mimicking a horse's natural grazing behavior.

2. Grazing Muzzles. Recent research has shown that grazing muzzles can help slow horse intake of both pasture and grain.

Researchers from the University of Minnesota determined the use of a grazing muzzle (Weaver) reduced a horse's pasture intake by approximately 30%. Researchers from Illinois recently evaluated two grazing muzzles (Tough 1 Nylon and Easy Breathe) when horses were fed grain and determined that the use of a grazing muzzle slowed grain intake but tended to spill more grain. However, horses were able to acclimate to the grazing muzzle and increased their intake rate over time.

Figure 1. Hay nets.



3. Specialized Grain Feeders.

Researchers from Texas A&M University tested a newly designed feed bucket (Pre-Vent Feeder) and determined that the bucket slowed grain consumption and reduced grain spillage. Horses spent 21 to 60 additional minutes eating grain from the feeder compared to a bucket or tub. However, most horses could not fully consume all grain from the feeder resulting in the need for frequent washing. In a separate study, researchers from North Carolina State University developed a waffle structure that was inserted into a feed bucket. They concluded the waffle insert increased grain consumption time by nearly 50% compared to a bucket without the waffle insert.

4. Obstacles. Researchers from North Carolina State University tested grain feeding time using a bucket with four movable bocce-style balls (4 inch diameter) placed in it and found the balls were

effective at extending (by 4 minutes) and maintaining the time it took horses to consume feed after multiple days of use. Additionally, the researchers found that the balls produced the lowest glucose and insulin responses compared to other feeding methods tested.

5. Forage Quality. The fiber content in hays can be used to slow horse consumption. Neutral detergent fiber (NDF) is a measurement of insoluble fiber and provides the plant with structural rigidity. The higher the NDF, the less a horse will consume. NDF levels between 40 and 50% are considered ideal and promote hay intake, while NDF levels above 65% tend to result in a reduction in intake by most horses. Hays high in NDF tend to be classified as “busy hay” and are especially useful when managing aggressive and quick eaters or horses on a restricted diet. However, only a small proportion of a horse's diet should be comprised of “busy hay” high in NDF.

6. Feeding Order. Many people believe that feeding hay before grain slows feed intake. Research by Purina Animal Nutrition confirmed this belief and determined that horses consumed grain slower when hay was fed 20 minutes before the grain meal. When hay was fed before grain, grain consumption was 0.3 pounds per minute compared to 0.4 pounds per minute when hay and grain were fed simultaneously.

Slow-feed hay nets, grazing muzzles, specialized grain feeders, obstacles, forages high in NDF and feeding order are all effective management strategies for slowing horse feed intake and represent simple and affordable management options horse owners can implement.