



U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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Research Update: Behavior During Feeding

The competition for environmental resources in horse herds can result in agonistic behaviors (behaviors associated with conflict) with the dominant animal usually winning. These behaviors may result in increased stress, lower growth, and even lower survival. There is also disagreement on the most appropriate height of feed troughs for horses. Some claim that the trough must be positioned above the height of the horse's chest allowing for the correct angulation of the horse's neck. In contrast, some suggest the use of troughs at ground level allow greater elongation of the neck and back of the animal and to emulate a "natural" grazing position. Researchers from Brazil recently evaluated whether the distance, proportion and height of feeding troughs affect agonistic behaviors in group fed horses.

Researchers simultaneously varied three independent factors: the distance between the feeding troughs (5 feet or 33 feet) the proportion of troughs (1 trough per horse or 1.5 troughs per horse) and the height of feed troughs (ground level or 2.3 feet from the ground). Eight adult

geldings were used and agonistic behaviors (bite, kick, rush and pinned back ears) were recorded for 30 minutes while horses were feeding.

Pinned back ears was the most frequently observed agonistic behavior. Initially, a distance of 33 feet between troughs, ground level feeding and 1.5 troughs per horse reduced pinned back ears. However, as the horses established a hierarchy, only distance between troughs reduced pinned back ears. When it came to kicking behavior a distance of 33 feet and a trough height of 2.3 feet reduced this behavior.

Researchers concluded that both the distance between feeding troughs and height affected agonistic behaviors in group fed horses. Researcher recommend that feed troughs should be spaced at least 33 feet apart to reduce agonistic behavior, regardless of the social hierarchy of the herd.

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

Summarized by: Krishona Martinson, PhD, University of Minnesota.

Ask the Expert: Carcass Burial in Minnesota

Question: What legal options are available for burial of a euthanized horse in MN and why?

Response: The legal options for disposing of horse carcasses in MN include burial, composting, incineration, and rendering. The State of MN regulates these options and involves the Departments of Agriculture, Natural Resources, the Pollution Control Agency, and the Board of Animal Health (MBAH).

Carcasses must be buried 5 feet above the season-high water table and not in soils that are within 10 feet of bedrock. If

your burial site meets these requirements, then burial of a chemically euthanized horse is a legal option. These regulations are in place to prevent contamination of groundwater and to prevent exposure of the carcass to other wildlife. In some areas of the state it is not possible to meet this criteria. Therefore, in these areas, burial of any equine carcass is not a legal option.

For more information on carcass disposal in MN, visit the [MBAH website](#).
By: Krishona Martinson, PhD, Univ. of MN.

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Upcoming Events

Lunch and Learn Webinar

March 15, 2016

Noon to 1:00 pm (Central)

"Methods for Controlling Feed Intake" presented by Krishona Martinson, PhD, University of Minnesota.

To join the free webinar, click [here](#).

Minnesota Nutrition Conference

September 21-22, 2016

Prior Lake, MN

For more information, visit the [website](#).

Visit (and share) our

[Webinar Library](#) for recorded lectures on over 20 horse-related topics.

Visit our [Facebook page](#) for "Research Update 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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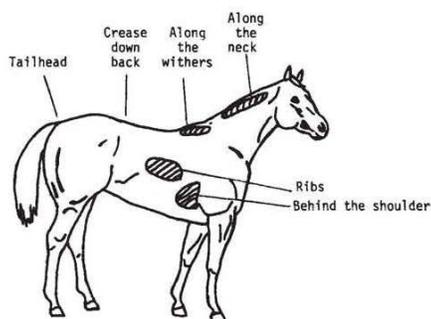


Four Methods to Determine if Your Horse is Overweight

Studies conducted by numerous researchers have all shown the same thing: the number of horses that are overweight are on the rise. A horse that is overweight has a much higher risk of developing laminitis, insulin resistance and other metabolic disorders. There are a number of tools that horse owners can use to help determine if their horse is overweight.

1. Body Condition Score: Researchers from Texas developed the body condition scoring system in 1983, which is an evaluation of subcutaneous fat (palpable, under the skin) over six points on the horse; the neck, withers, behind the shoulder, along the back, rib area and the tailhead (Figure 1). Horses are body condition scored on a range of 1 (poor) to 9 (extremely fat). The ideal BCS for most breeds and disciplines is a 5, but ranges from 4 to 6. *Horses with a body condition score of 7 or above are considered overweight.*

Figure 1. Diagram of areas to palpate when determining body condition scores (from Henneke et al., 1983).

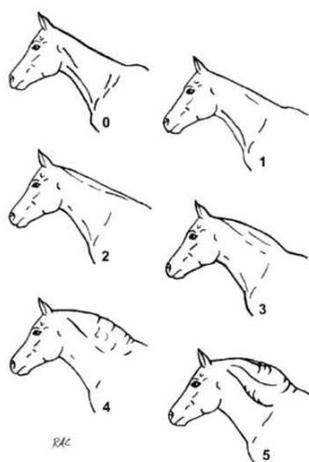


2. Girth:Height Ratio: The girth to height ratio has been shown to be useful in estimating overall adiposity and is well correlated to body condition score. To calculate, simply divide the girth measurement by the height measurement. Both measurements

should be taken at the top of the withers. *A horse would be considered overweight if the Girth:Height ratio is equal to or greater than 1.26. A pony would be considered overweight if the Girth:Height ratio is equal to or greater than 1.33.*

3. Cresty Neck Score: Similar to the body condition scoring system, the cresty neck score is an evaluation of the amount of fat in the neck region. Research has shown that horses with cresty necks may be more prone to metabolic disorders. The cresty neck score ranges from 0 to 5 (Figure 2). 0 indicates no visible appearance of a crest, whereas a score of 5 indicates a crest so large that it droops to one side. Owners should aim to keep their horses at a cresty neck score of 2 or lower. *A score of 3 or greater would be considered a cresty neck and a horse that is likely overweight and prone to metabolic disorders.*

Figure 2. Cresty neck scoring system (from Carter et al., 2009).



4. Ideal Bodyweight Equations: There are several equations that owners can use to estimate horse bodyweight without a scale. This is important and helps when determining doses of medications and dewormer, but what should a

horse weigh? Researchers at the University of Minnesota have recently developed ideal bodyweight estimation equations to help owners assess if their horse is either under- or overweight. By using the equations below, or by entering measurements in the Healthy Horse app (available for both [Apple](#) and [Droid](#) devices), horse owners can calculate their horse's ideal bodyweight based on breed type, height at the top of the withers and body length measured from the point of shoulder to a line perpendicular to the point of the buttock (do not wrap the tape measure around the buttock). *Ideal bodyweight can then be compared to actual (or estimated) bodyweight and a nutrition program can be tailored to achieve bodyweight maintenance, loss or gain.*

Arabians, Stock Horses and Ponies

Ideal bodyweight (lbs) = [(15.58 x height in inches) + (23.52 x body length in inches) - X]. X = 1,344 (Arabians), 1,269 (stock horses), or 1,333 (ponies)

Draft Horses and Warmbloods

Ideal bodyweight (lbs) = [(27.55 x height in inches) + (25.98 x body length in inches) - X]. X = 2,092 (draft horses) or 2,235 (warmbloods)

In conclusion, body condition score, girth to height ratio, cresty neck score and ideal bodyweight equations can all be used to help horse owners determine if their horse is overweight or obese. If more than one of these methods indicates an equine is overweight, the owner should work with an equine nutritionist and veterinarian to devise a bodyweight loss program.

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