

Equine Behavior and Nutrition: Is There a Link?

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Feeding Behavior and Management Challenges

Mature horses at pasture will spend 10-17 hours per day grazing. Feral horses demonstrate preferences for variety, and these preferences are also observed in domestic horses. Horses are highly selective grazers which in pasture feeding situations can lead to disappearance of the preferred species and also to the formation of lawn and rough areas in the pasture. The horse has a relatively small stomach which continuously secretes gastric acid. Therefore, the horse's digestive system is designed to process smaller, more frequent meals throughout the day. Consumption of forage helps form a protective mat between the upper and lower portions of the stomach and increases the amount of time the horse spends chewing, which consequently increases the amount of buffering saliva produced, all factors which are protective against irritation and ulceration. Modern management practices, such as confining horses to stalls for extended periods of time, feeding them a few large meals per day, and feeding high concentrate: low forage diets can lead to physical problems (e.g. gastric ulcers and/or colic) as well as behavioral problems (e.g. aberrant and/or abnormal behaviors).

Dietary Carbohydrate and Behavior

Anecdotal evidence suggests a link between excitable behavior in horses and high energy diets, for example many owners report that feeding a diet high in energy results in a "hot" horse. Research designed to investigate the relationship between dietary carbohydrate and excitable behavior in horses is limited and can be challenging to conduct. However, some studies have demonstrated that adding fat to the diet may have a calming effect indicating that excitability may be more strongly related to the source of energy rather than the amount of energy in the diet. Replacement of some of the carbohydrates with fiber and fat as an energy source in the diet may be beneficial in minimizing glycemic and insulinemic fluctuations and in modulating stress responses and reactivity.

Calmative Supplements and Behavior

The number of commercial supplements marketed as calming agents for horses has increased substantially during the past decade. These supplements usually contain amino acids (e.g. tryptophan), B-vitamins, various minerals, and herbal ingredients. Owners typically administer these products to horses prior to a stressful procedure or event. Unfortunately, there is little scientific evidence to support the effectiveness of these products and some may contain ingredients that are not permitted in competition.

Abnormal Behaviors: Evidence for a Nutritional Link?

A lack of fiber in the diet has been associated with wood and tail chewing in horses and associations between diet and feeding practices and stereotypic behaviors have also been studied. There is some evidence implicating gastrointestinal irritation in the performance of cribbing behavior, specifically, cribbing horses have been shown to have a more acidic stomach environment both pre and post feeding compared to non-cribbing horses. Supplementation of the diet with an antacid product has

been shown to reduce the frequency and/or duration of cribbing behavior. Risk factors for developing stereotypic behavior include little turn-out/limited grazing and high concentrate, low forage diets, although other environmental factors as well as genetics may contribute to the development of stereotypic behavior in horses.

Foraging Enrichment

Providing foraging enrichment, particularly for the stabled horse, can result in prolonged roughage intake and is likely to promote good welfare by combining digestive benefits with provision of more natural foraging behavior. Foraging enrichment can be introduced through provision of a feed-dispensing foraging device, by offering multiple rather than single types of forages, and/or by using slow feeders or hay nets.

Summary

We have evidence for a relationship between nutrition, feeding management, and behavior in horses, but further research is needed. Specifically, a better understanding of the effects of nutrition on reactivity, learning ability and trainability in horses would be extremely beneficial. Additional studies to investigate the association between digestive function and the development of stereotypic behaviors, such as cribbing, are also warranted. Current recommendations are to feed diets and to implement feeding management practices that promote normal digestive function and more effectively mimic natural foraging behavior. Reducing sugar and starch in the diet (by shifting to feeds with higher fat and fiber), maximizing forage in the diet, and offering smaller, more frequent meals throughout the day may lead to positive improvements in horse behavior and well-being.

References and Further Reading

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