

# Internal Medicine

BY MULTIPLE AUTHORS

## Cushing's or Metabolic Syndrome?

Recognizing and treating the horse with endocrine disease was the focus of the lively discussion at the table topic "Cushing's or Metabolic Syndrome?" The session started off with definitions and clinical descriptions of the two endocrine diseases.

A horse with equine metabolic syndrome (EMS) is typically middle-aged with either generalized or regional adiposity (fat deposits). Regional adiposity might manifest as a cresty neck, a fat tailhead, or fat in the sheath region. Horses with EMS are easy keepers and, thus, they are referred to as "thrifty." In addition to having this body type, horses with EMS have insulin resistance and a propensity for laminitis.

The horse with Cushing's or pituitary pars intermedia dysfunction (PPID) is typically older than the horse with EMS; most affected animals are older than 15 years of age. Horses with PPID have abnormal hair coats and muscle wasting, particularly along the topline. The hair coat might be hirsute (long and curly), slow to shed, or shed incompletely. Many horses with PPID have regional fat deposits and laminitis, similar to horses with EMS, and

it is suspected that EMS over time leads to the horse developing PPID, although this has not been proven at this time.

If a horse that has had EMS for several years starts to develop muscle wasting and/or an abnormal hair coat, this suggests the horse is developing PPID.

Facilitators and attendees discussed the diagnosis of both conditions, and they emphasized that both conditions require the presence of clinical signs for accurate diagnosis. Equine metabolic syndrome is diagnosed by demonstrating insulin resistance in a horse with the thrifty phenotype (observable characteristics). Veterinarians can screen horses for insulin resistance by measuring glucose and insulin concentrations in the blood. Affected horses usually have high insulin concentrations, whereas their glucose concentrations are often within reference range. However, high glucose concentrations are occasionally detected, and this indicates a more serious condition that progresses to diabetes mellitus in some cases. More advanced testing might be required if the horse suffers from mild or early insulin resistance because serum insulin concentrations can

fall within reference range in these patients. The combined glucose-insulin test can be used in these cases to diagnose insulin resistance.

Pituitary pars intermedia dysfunction is best diagnosed with an overnight dexamethasone suppression test or by measuring plasma adrenocorticotropic (ACTH) concentration. False negative tests are common early in the disease, so retesting is recommended. In the fall a negative test is strong evidence that the horse does not have PPID.

Vets should encourage owners to manage EMS by inducing weight loss in obese horses, controlling dietary sugar intake, and increasing exercise. Horses with EMS can be treated with levothyroxine sodium to accelerate weight loss, but this treatment should not be used as a substitute for good management practices. Metformin treatment is an option for horses that remain insulin resistant in the face of appropriate management or in the short term while new practices are being established.

Treatment of PPID is best accomplished using pergolide mesylate. Ideally, the veterinarian repeats diagnostic testing to titrate the dose to the amount needed to normalize the results.

A question that has yet to be answered in a clinical research trial is whether it is beneficial to start horses on pergolide that have mild clinical signs, but are negative on diagnostic tests.

*This Table Topic was facilitated by Nicholas Frank, DVM, PhD, Dipl. ACVIM, of the University of Tennessee and University of Nottingham, and Dianne McFarlane, DVM, PhD, Dipl. ACVIM, ABVP, of Oklahoma State University. Frank authored the article.*

## Table Topic: The "Heavy" Horse

Approximately 40-50 people attended this discussion, which covered a number of areas, including the pathophysiology of recurrent airway obstruction (RAO, also called heaves) and its diagnosis, treatment, and prevention.

The causes of RAO are known to be inhaled allergens and irritants from the



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horse's diet and environment, especially mold spores from straw bedding and hay, but they can also include other materials, such as dust containing endotoxin and other irritant materials. In fact, it has recently been suggested that we should term this disease as "inflammergic" rather than allergic due to the variety of stimuli that can set off an attack.

Researchers have been working to understand the exact nature of the inflammatory response in RAO, and it appears that it does not fit well into the established paradigms of allergic and inflammatory responses. It falls somewhere in the middle, with characteristics of both an innate inflammatory response and an allergic response. Scientists hope this knowledge will help them design better treatments in the future.

A good bit of discussion revolved around the diagnosis of RAO, and facilitators and attendees acknowledged that this can range from the simple clinical recognition of an older horse with intermittent episodes of respiratory difficulties and the monitoring of the response to empiric treatment (relying on practical experience), to more detailed diagnostic work-ups. These detailed evaluations rely primarily on the assessment of lower respiratory inflammation using bronchoalveolar lavage (BAL). The facilitators encouraged attendees to consider adding this diagnostic tool to their practice, as it is simple to perform and safe, while providing critical information regarding the severity and character of lower respiratory inflammation. Monitoring of BAL results over time also is very useful in assessing the response to treatment.

Treatment of RAO ultimately hinges on dietary and environmental management. This typically consists of trying to lower the individual's exposure to inhaled irritant material, and it is mostly simply achieved by placing the horse on full-time pasture turnout and not feeding him hay.

The difficulty is that few owners/farms can achieve this type of management year-round, necessitating further management changes. If horses must be stabled, they (and the other horses in the barn) should be managed on low-dust bedding, such as quality shavings. Hay storage within the stable must be avoided, and the affected horse should be fed a hay-free diet. This most often consists of chopped forage and a complete feed pellet.

## “The causes of RAO are known to be inhaled allergens and irritants from the horse's diet and environment.”

DR. HAROLD C. MCKENZIE III

If the management is not optimal then pharmaceutical therapies will be required, with steroids representing the cornerstone of therapy. Corticosteroids are most safely administered by the inhaled route, but cost considerations often require that they be delivered systemically, as this is equally efficacious and far more economic. The most commonly used corticosteroid is dexamethasone, which is highly effective. This drug can be administered by injection or orally, although veterinarians must increase the dose by 30-60% when giving the drug orally, due to variable absorption. The goal with steroid therapy is to find the lowest effective dose, and with dexamethasone the dose can often be very small and given every other day. Bronchodilator therapies can be very helpful in the treatment of RAO, but they should not represent the primary therapy, and their use is best restricted to an as-needed basis and pre-exercise medication.

Preventing RAO requires that horses be managed in a low-dust environment for life in order to alleviate the stimulus for RAO to develop. Unfortunately, there is now evidence that there might be some genetic predisposition to RAO, meaning that some horses are more likely to develop this condition regardless of management.

*This table topic was facilitated by Harold C. McKenzie III, DVM, MS, Dipl. ACVIM, assistant professor of equine medicine, Marion duPont Scott Equine Medical Center, Leesburg, Va. He also wrote this report.*

### Compounding Table Topic

At the Compounding Table Topic facilitators made handouts available, including the FDA's Compliance Policy Guide (CPG); the Animal Medicinal Drug Use Clarification Act of 1994 (AMDUCA), the AAEP Position Statement/Guidelines for Use of Compounded Products, and a couple of recent articles on the topic of compounding.

Discussions were lively and, at times, spirited, but for the most part they were productive.

Comments and discussions surrounded current compounding guidelines and

AMDUCA. It was obvious to the facilitators that there is still a great need for AAEP membership education on this subject.

The issue of FDA-approved products versus compounded products was discussed. A number of participants expressed their views—both pro and con—with respect to compounded products, approved products, and the use of bulk drugs for compounding.

Attendees also discussed the issue of reporting adverse drug events for both FDA-approved products and compounded products.

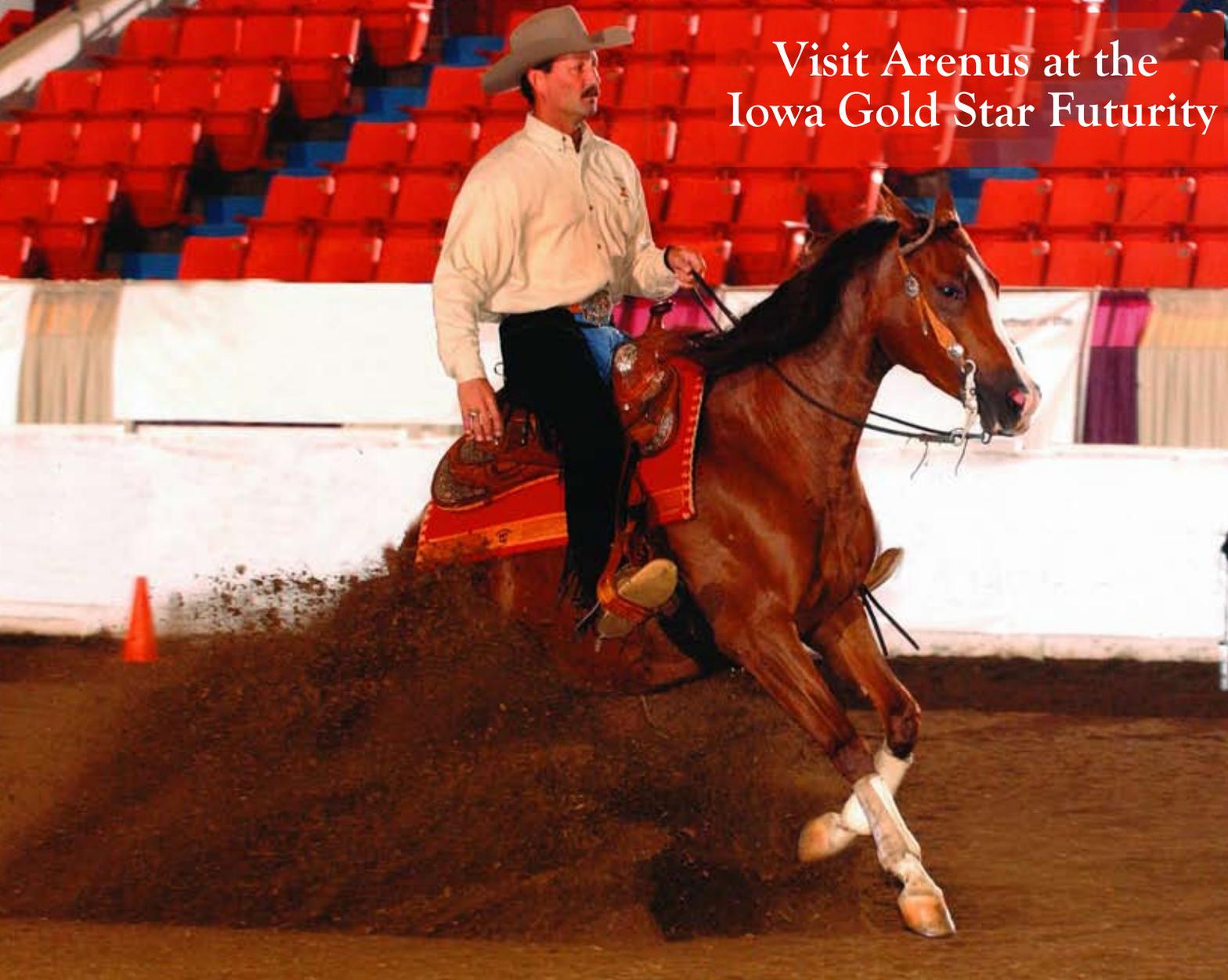
Someone made a point that in another Table Topic section, instructions for "recipes" were being provided for compounded products when FDA-approved products were available for the indication described. Facilitators and attendees noted this is not acceptable and should be discouraged.

A summary of the take-home messages and action plan includes:

- 1) Education of equine veterinarians on this subject must continue;
- 2) Education at the horse owner level should also be encouraged;
- 3) Create some type of PLIT (Professional Liability Insurance Trust) "guidelines" for veterinarians using compounded products;
- 4) Develop a "checklist" for veterinarians regarding when it is appropriate to use a compounded product;
- 5) Compile a list of questions for veterinarians to ask pharmacists when they are considering using a compounded product or selecting a compounding pharmacy;
- 6) Make the FDA "green book" available to the AAEP membership through an electronic Web site link;
- 7) Have the AAEP review and, if needed, update "consensus" or position statements on the use of compounded products.

*This Table Topic was facilitated by Eleanor Green, DVM, Dipl. AVCIM, ABVP, of the University of Florida's College of Veterinary Medicine (who will soon be installed as the dean of Texas A&M's College of Veterinary Medicine & Biomedical Sciences), and Kenton Morgan, DVM, of Bayer Animal Health. Morgan wrote this article. ♣*

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