

Feeding the Geriatric Horse

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1. Introduction

With an aging population of horses, the equine clinician has the opportunity to include more geriatric medicine into their practice. Horses could be expected to live well into their 30s or beyond, depending on many factors, including the level of health care. Probably the single most important aspect of geriatric care is proper nutrition. This short article will serve to highlight some of the salient points concerning the care of geriatric horses.

2. General Aspects of Feeding and Care

A horse greater than 20 yr of age should be considered a geriatric animal.^{1,2} Obviously a health care program designed for the horse should take into account the potential for long term survival, i.e, if they are kept fairly disease-free while young and into middle age, they will probably have a better chance of living a longer, healthier life. Although all manner of ill health and disease may exist, the practice of geriatric equine medicine, in most instances, should emphasize¹ body weight-body condition score changes,² dentistry,³ disease resistance and recovery, and⁴ arthritic condition. Whenever presented with the geriatric horse, a complete physical examination including a thorough oral examination, should be performed. Blood should be collected for a complete blood count and serum biochemistry panel on the initial visit in order to help

identify medical or metabolic conditions that may exist. Ralston et al.³ compared blood parameters between a group of geriatric (20 yr of age) and young horses (<5 yr of age) and found only elevated median corpuscular volume and decreased plasma ascorbic acid concentrations. This decrease in plasma ascorbic acid concentration may be associated with the increase incidence of pituitary adenomas in geriatric horses. The raised levels of cortisol in these animals could result in gluconogenesis with a depression of ascorbate production. As horses age, attention should be placed on maintenance of body condition, in the 4–5–6 range (1–10 scale).

Many geriatric patients can be safely fed a maintenance ration designed for all horses without modification, if they are able to maintain a good body condition. Chronic parasitism can potentially affect long-term digestive ability,⁴ therefore strict attention to parasite prevention is paramount for a long, healthy life. Protein, fiber, and phosphorus digestion and absorption may be reduced in geriatric horses, whereas calcium digestion probably does not change with age.^{5,6} Ralston et al.⁵ suggested that these changes in digestion of geriatrics were similar to horses that had left colon resection. In cases of body condition loss and no other existing disease, the horse should be fed a very palatable, easily masticated and digested, dust-free diet that has a

NOTES

IN DEPTH: CURRENT CONCEPTS IN EQUINE NUTRITION

slightly higher protein content (12–16%), maintenance levels of calcium (<1%), and slightly elevated P content (0.4–0.65%), maintaining a Ca:P ratio of close to 1.5:1. The supplementation of soybean meal is an excellent choice for providing a good quality protein. The addition of some yeast cultures may improve nitrogen retention and predigestion or extruded feeds may aid in feed digestibility.^{1,2}

Ralston and Breuer⁷ demonstrated improved weight gain, body condition scores, and plasma total protein for geriatrics fed a pelleted/extruded feed, as compared to those fed commercially prepared sweet feed. In that study, the extruded feed groups appeared to have better hair coats and were more physically active.⁷ Adding fat (1–2 cups/horse/d) to the diet of these thin, yet normal animals, will aid in maintaining body condition. Diets with low fiber or highly digestible fiber may also be of value. Older horses may have reduced esophageal functions and salivary production.⁷ As choke appears more common in aged horses who do not salivate or chew well, pelleted feeds may need to be avoided, unless pre-soaked in water.

3. Feeding for Specific Problems

An annual, or preferably bi-annual, oral examination should be performed on all geriatric horses. Older horses may be afflicted with a variety of forms of dental disease. Just as other parts of the body wear out, so do the teeth.⁸ Geriatric horses tend to have a lowered fiber digestibility, may be prone to choke, and appear to have a higher incidence of colic caused by impactions. In an Auburn study of referral colics, impactions comprised 88% of the older horse colics versus 29% of colics from horses of all ages.⁹ Long incisors, or broken, missing, misshaped, sharp points, and/or malaligned teeth are common findings on oral examination in older horses.⁸

With severe dental disease, the ability to masticate long-stem hay or whole grains may be depressed. If dental disease is the only apparent problem, pelleting (if moistened or wet to a thick soup consistency), grinding, and/or extruding all may help ingestion and digestion of feedstuffs.

Auburn workers⁹ reported relatively high short-term survival rates of medically treated colics (94%), and surgical colics which were recovered from anesthesia (76%). The Auburn study reported that of 104 referral colic cases in horses above 17 yr old, grazing difficulty, lipomas, and dental disease were the major predisposing causes. Cohen¹⁰ suggested that some of the factors predisposing to colic were being stalled >50% of the time, recent (<2 wk) changes in housing, and being fed water from a bucket; while access to a pond, access to pasture, or feeding extruded feeds all decrease the incidence of colic. One should be cognizant of these factors and feed geriatrics accordingly. When possible, dental corrections should be made, but care is taken to avoid over-correction. The addition of 1–2 cups of

vegetable oil daily will greatly improve maintenance of optimum body condition in most cases of thin geriatrics with uncomplicated dental disease. Obviously, whenever adding an energy rich substance such as vegetable oil, the addition should be made slowly over a 2–3-wk period. Feeding smaller, more frequent meals, increasing water accessibility, and reducing starch (corn) intake may all improve digestion and reduce the incidence of GI disease.^{1,2,4}

Colorado workers⁹ reported more severe clinical signs of equine viral arteritis in aged versus young animals kept in similar conditions, possibly due to a depressed immune system. The addition of Vitamin C (10 g, b.i.d.) may increase antibody response in geriatric horses.² Ralston^{2,4} reported a higher incidence of renal calculi in aged mares and geldings fed alfalfa hay. In cases of geriatric horses with renal disease, beet pulp, legume hay, should be avoided. Grass hay with a protein content of 8–10%, vegetable oils (1–2 cups/d) if the animal is a low body condition score, and supplemented B-vitamins (Brewer's yeast) may all be beneficial. Two to four ounces of brewer's yeast, which is rich in B vitamins, may also be of value in renal or hepatic disease. In the case of hepatic disease, both high-fat and high-protein diets should be avoided.

Geriatric horses with pituitary tumors may have a reduced insulin response.⁶ Many of these animals may be found to have hyperglycemia on a routine blood panel. Colorado³ workers did report a very high incidence of either pituitary or thyroid adenomas, 10 of 13 horses. Ralston et al.⁴ suggested that these tumors may produce metabolic changes which may alter mineral (particularly phosphorus) balance. In cases of pituitary adenomas and concurrent glucose intolerance, sweet feeds (> 3% molasses) should be avoided.² If liver function in these horses appears to be normal based on serum chemistries, the addition of 1–2 cups of vegetable oil added over 2–3-wk period may help maintain body condition.

Arthritic conditions may cause chronic pain, resulting in a decreased ability to eat, walk, and enjoy retirement. The clinician should be cognizant of these problems and take steps to relieve suffering through the use of nonsteroidal anti-inflammatory drugs, chondroitin sulfate, and possibly non traditional therapies (i.e., acupuncture). With chronic founder (which may occur associated with pituitary adenomas), starch intake should be curtailed, and both feed and fiber intake increased. Proper mineral intake should be addressed in order to maintain adequate calcium and phosphorus intake. In cases of chronic obstructive pulmonary disease, dusty hay should be eliminated from the diet. If geriatrics are fed with younger, more aggressive horses, care should be taken to insure they have access to adequate nutrients (fed separately). Geriatric horses should be offered safe, hazard free shelter.

IN DEPTH: CURRENT CONCEPTS IN EQUINE NUTRITION

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