Nutritional Management of the Older Horse

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KEYWORDS

• Horse • Aged • Geriatric • Nutrition • PPID • Obesity • Weight loss

KEY POINTS

- Health in old age is promoted by good health throughout life.
- Older horses that remain in good health but are losing body condition may benefit from "senior" diets—but rule out other causes of weight loss first.
- Obesity is common in older horses.
- The imposition of corrective management is important.
- Nutritional provision for older, failing animals should be regularly reappraised to compensate for advancing feeding and digestive dysfunction.

INTRODUCTION

Recent years have evidenced a shift in the demographics of horse and pony ownership, away from primary working roles and toward companion animal status. In the United Kingdom, leisure animals now account for approximately 60% of the national equine herd, and similar trends are reported for other industrialized nations.[1] This leisure classification encompasses a broad spectrum of animals, ranging from pets and companions, to those participating at relatively high levels of nonprofessional competitive events. Leisure animals now dominate the equine sector, whereas relatively few are maintained primarily for the economic benefit of the owner, but all clearly occupy important societal roles. It is likely that this shift in equine ownership is permanent and set to increase, both numerically and geographically.

Accessibility to horse ownership has greatly expanded to include a welcome involvement of many people new to animal management. This change in ownership has been accompanied by a decrease in individual animal workloads, improved veterinary support, and increased emotional and economic investments in individual animal care. Not surprisingly, these changes have promoted longevity among horses and

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ponies, with older animals being maintained beyond their functionally useful lifespans.[2,3]

However, not all of the welfare implications associated with these changes have been beneficial. A lessening of economic constraints and performance expectations has served to uncouple animal management from traditional wisdoms in agriculture and nutrition. The number and variety of concentrate feedstuffs targeted specifically at the aged horse, combined with uncertainty about exactly when age-related dietary changes should be introduced, have created a great deal of confusion among horse owners, managers, and veterinarians alike.[4] Education in the management of this emotionally important, aged animal cohort has failed to keep pace with the needs of this new ownership demographic.

AGE-RELATED CHANGES THAT IMPACT ON FEEDING AND DIGESTIVE FUNCTION

"Old age rarely comes alone." The spectrum and rate of onset of age-related impairments in function are largely dictated by the cumulative effects of genetic and epigenetic endowments, environmental, health, work, and lifestyle–related factors acquired across the lifetime of the animal.[5] Aging in otherwise healthy horses, as in other mammals, will inexorably lead to the eventual presentation of senescent changes. These changes include sarcopenia, the loss of body mass (BM), and the onset of organ dysfunction with progressive attrition of the dental, neural, immunologic, and other systems.[5] For the horse, the age-related onset of progressive pituitary pars intermedia dysfunction (PPID) might be considered an individually variable accelerant of the aging process, which further compromises body function.[6]

Body Composition and Aging

Skeletal muscle can account for 40% of BM and 60% of maintenance energy requirements in healthy animals.[7] In man, changes in body composition with aging favor fat accumulation in adipose tissues and muscle at the expense of lean muscle mass.[5] Lehnhard and coworkers[8] compared the body composition of aged (>20 years) and young (4–8 years) Standardbred mares to suggest similar trends in horses. Data in this study used the formula presented by Kane and colleagues[9] to estimate body fat and, by extrapolation, fat-free mass, based on measures of rump fat depth. Although the accuracy of this method has since been questioned, empirical observations of geriatric horses and ponies would support this finding.[10]

The regional distribution of superficially palpable adipose tissues throughout the body is significantly altered with advanced age and more markedly with overlying PPID.[11] However, a questionnaire study (73% response rate) of owners who owned at least one horse over the age of 20 years indicated that most old (68%, 111/165) and young (64%, 34/52) horses were considered to be in moderate or good body condition score (BCS = 2–3/5) by their owners.[12] Although there is a general expectation that older horses tend to thinness, only 4% (7/165) of these older animals were reported as being in poor or very poor (BCS = 0–1/5) body condition. Conversely, 28% (47/165) of the aged horses were considered fat or very fat (BCS = 4–5/5), a prevalence of obesity statistically indistinguishable from the younger animal cohort (34%, 18/52).[12] That horses 15 years of age or older were just as likely to be reported by their owners as overweight/obese (10.5%) as underweight (8%) was confirmed in a study of UK pleasure horses.[13]

Thermoregulation may become less efficient in older horses, as a consequence of reduced BM, adipose tissue redistribution, and alterations in fluid compartmentalization.[14] Less efficient thermoregulation suggests that precautions are needed to avoid