Geriatric Horse
Chaired by Debra Archer

08.30–08.55
The geriatric equine population: Demographics, health and disease
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The definition of a geriatric horse has changed dramatically over recent decades, and is still unclear. The age at which a horse is classified as geriatric can be defined in different ways, including chronological age (referring to the number of years since birth) and physiological age (comparing how well the animal is functioning relative to a younger animal). This differs between horses and depends on their use, genetic and environmental factors and the decline in function can be confounded by poor management. Demographic age relates to the survivorship of the population. The age at which an animal is defined as old is where there is <75% survival of the population, and the age at which there is <25% survival can be classed as very old. Ponies and donkeys become overrepresented within the very old category.

There are few data available about numbers of older equines in the UK. In a demographic study of the equine population in the north of Britain (Mellor et al. 1999), the population appeared stable until horses reach age 15 years, after which there is a steady decline in numbers until there are very few horses aged >35 years. At age 15 years, there is approximately 70% survivorship and by 20 years there appears to be <50% survivorship, indicating that in the UK, age >15 years could be considered old. The proportion of our equine population aged ≥15 years appears to be growing and more recent estimates suggested that 28% of the UK equine population were ≥15 years old (Hotchkiss et al. 2007). The age distribution of the animals enrolled in our current research study (Ireland et al. 2009) is similar to that previously described for the UK equine population and agrees with the general impression of the equine veterinary profession that the population of geriatric horses is increasing. In the current study, 16% were aged 15–19 years, 11% aged 20–30 years and 2% were over aged >30 years. In the USA, data from the National Animal Health Monitoring System (Anon 2005) showed 7.6% of the equine population to be aged ≥20 years and only 0.7% aged ≥30 years.

As well as improvements in veterinary care, increased longevity of horses may be due to improved husbandry with greater owner awareness of advancements in nutrition, farrier care and routine management. However, there is some evidence that reduced frequency of routine care measures such as vaccination, farrier care and anthelmintic administration may occur in older horses (Mellor et al. 2001). In many cases it can be difficult to distinguish between benign signs of ageing, physiological changes that predispose to disease and the clinical signs of diseases that are associated with old age. It is possible that owners of geriatric equines may mistakenly regard changes in their animals as benign signs of ageing rather than clinical signs of disease, and therefore may not seek appropriate veterinary attention. For example, it is possible that owners interpret reduced mobility in geriatric equines as benign ‘stiffness’ associated with ageing; therefore chronic lameness may be under-recognised. In a study investigating owner perceptions of health problems in geriatric horses in Australia (McGowan et al. 2006), 35% of owners reported stiffness of muscles and joints and 28% reported lameness as clinical signs. However, only 9% of horses were described as lame when owners were asked to report disease.

There are numerous conditions that anecdotally appear to have an increased prevalence in older horses or where research has identified advancing age as a risk factor associated with that disease. In a US referral hospital population (Brosnahan and Paradis 2003a), in horses and ponies aged 20 years or over, the most common health problem was colic (39%), followed by musculoskeletal conditions (24%) and respiratory diseases (16%). Dental disease was recorded in 8% of the study population and the most common specific diagnoses were pituitary dysfunction (10%), strangulating lipoma (7%), lamineitis (6%), RAO (6%), large colon impaction (5.5%) and gastric ulcers (5.5%). Owner reported data obtained via surveys in the US (Brosnahan and Paradis 2003b) showed horses and ponies aged ≥20 years were more likely to have a history of colic, dental disease, tumours, lameness and pituitary disease.

However, very few studies have investigated the prevalence of diseases and causes of mortality within the UK geriatric population. Description of management practices and routine healthcare in ageing horses and ponies, prevalence of disease and identification of risk factors will aid improvements in veterinary care, owner education and welfare of the geriatric equine.

References
Cardiopulmonary disease in the geriatric horse

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Introduction

Cardiovascular pathology is relatively common in the older horse yet heart failure accounted for only 8% of deaths in a group of elderly horses. Respiratory disorders are an even more common cause for owners of older horses to seek veterinary advice, yet, they account for even fewer deaths (Stevens et al. 2009).

Cardiac disease

Valvular heart disease is the most common form of cardiac pathology in the older horse. The aortic valve is the most common site for valvular pathology, particularly in the middle-aged and older horse (Else and Holmes 1972). Degenerative lesions consisting of nodular or, less commonly, generalised fibrous thickenings are seen most often on the left coronary cusp although any or all of the 3 cusps may be affected. Mitral insufficiency is the second commonest site for valvular pathology but it is the most likely form of insufficiency to lead to congestive heart failure or sudden death due to pulmonary artery rupture (Reef et al. 1998). Cardiac failure is a disorder of the entire circulation that develops once the compensatory haemodynamic and neurohormonal mechanisms become unbalanced and start to produce adverse effects. Both the sympathetic nervous system and the renin-angiotensin-aldosterone system (RAAS) have central roles in this process.

Aortic regurgitation (AR) is the commonest cause of heart murmurs in the older horse. Horses aged >16 years are significantly more likely to have this murmur than those <16 and geldings of light riding breeds are most at risk within the UK population. The murmur of AR is typically pan, holo or early diastolic, decrescendo and has its point of maximal intensity over the aortic valve in the left fifth intercostal space and radiates variable distances ventrally towards the heart base. It may be blowing or musical in quality, and in some horses it has a bizarre ‘creaking’ quality, which may be due to vibrations of cardiac structures such as the mitral valve and the ventricular septum rather than turbulent blood flow. The best clinical guide to severity of regurgitation is the quality of the arterial pulses, rather than the grade of the murmurs. Horses with moderate AR have reduced diastolic pressure. With severe AR leading to left ventricular volume overload, the systolic and pulse pressures increase, so that the pulses become increasingly hyperkinetic. In middle-aged horses, slowly progressive AR is well-tolerated and many horses perform satisfactorily for many years with this disease. Aged horses should be investigated if they are to continue to be used for riding.

Echocardiography is used to identify valvular pathology, regurgitation and degree of left ventricular volume overload (Reef and Spencer 1987; Stadler et al. 1995). Horses with mild to moderate AR, which is slowly progressive and is not associated with ventricular arrhythmias, can be used successfully as riding horses for several years after the diagnosis is made. A poorer prognosis should be given with acute onset, severe AI and severe, advanced degenerative disease, particularly if the degree of left ventricular dilatation has caused dilatation of the mitral valve annulus and mitral insufficiency or if ventricular arrhythmias are present.

Murmurs of mitral regurgitation (MR) are present in around 3% of the general horse population (Patteson and Cripps 1994). Older horses are at increased risk of developing mitral insufficiency rather than those aged <16 years. This is the most frequent form of valvular regurgitation that is associated with signs of exercise intolerance and heart failure. Horses with MR may develop atrial fibrillation and with severe mitral insufficiency, there is also a high incidence of ventricular arrhythmias. The murmur of MR is holo or pan-systolic, typically band-shaped and is loudest over the left fifth intercostal space, radiating caudo-dorsally. The grade of the murmur does not necessarily relate to the severity of the disease, and it may reflect the direction of the regurgitant jet, frequently being louder if the jet is orientated towards the chest wall. A good prognosis can be offered if the regurgitant jet is small, there are no valvular structural changes and no cardiac enlargement. Pulmonary artery dilation is a poor prognostic sign since it may precede rupture (Reef et al. 1998). Flow mapping can underestimate the severity of mitral regurgitation, because it is difficult to align the ultrasound beam parallel to the direction of regurgitant flow. Therefore, care must be taken if a small jet is detected in a horse with other signs of severe mitral insufficiency such as left atrial enlargement or left ventricular volume overload. Equally, the importance of mitral insufficiency in horses with large regurgitant jets and minimal atrial enlargement should not be underestimated since this may indicate the recent onset of a progressive lesion.

In the geriatric patient, tricuspid insufficiency most often occurs secondary to right-sided dysfunction in the horse in which the primary pathology lies on the left-side of the heart and therefore, right-sided systolic murmurs generally are accompanied by louder murmurs on the left. Aorto-cardiac fistulae cause a low-pitched systolic or continuous murmur loudest over the right heart base. This is particularly common in older males and is usually accompanied by a clinical history of acute onset distress and ventricular tachycardia. The diagnosis is confirmed on echocardiography (Marr et al. 1998).

Respiratory disease

Recurrent airway obstruction (RAO) is the most common form of respiratory disease in elderly patients and this condition tends to become more severe with advancing age such that management measures which had previously been effective in controlling clinical signs are no longer effective. Over a prolonged period, RAO can also lead to structural changes in the pulmonary vasculature such as bronchiectasis (Lavoie et al. 2004) or, very occasionally lead to cor pulmonale and heart failure (Sage et al. 2006). Thoracic radiography and echocardiography respectively are the most effective means of identifying these complications. Thoracic neoplasia is more likely to be seen in older horses than young animals but remains an uncommon diagnosis. While it is also important to bear in mind that horses with pituitary pars intermedia dysfunction may be immunosuppressed leading to pulmonary abscesses or bronchopneumonia.

References

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NOTES
Endocrine disorders in the geriatric horse

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Equine Cushing’s syndrome (ECS)

ECS or pituitary pars intermedia dysfunction (PPID) is the most important endocrine disorder in aged and geriatric horses. ECS has been clearly linked to the ageing process both in studies on its pathogenesis and also, more recently, epidemiological research investigating diseases of aged horses.

ECS results from a loss of dopaminergic inhibition of the pars intermedia of the pituitary gland. The suggested pathophysiological mechanism leading to ECS is oxidative stress and neurodegeneration in the dopaminergic neurons of the hypothalamus causing a decrease in dopamine production. The result is a loss of negative control of pars intermedia endocrine function and the overproduction of proopiomelanocortin (POMC) derived peptides produced by the pars intermedia melanotrope cells including adrenocorticotropic (ACTH), alpha melanocyte stimulating hormone (α-MSH), beta endorphin (β-endorphin) and corticotrophin-like intermediate peptide (CLIP). McFarlane (2007) suggests that the dopaminergic neurodegenerative process leading to ECS is associated with ageing, a finding supported by epidemiological research.

ECS is a common disorder of aged horses. The disease is rarely reported in horses less than 15 years of age and the median age of most studies has been around 20 years. Recent epidemiological research based in Australia has shown the prevalence of ECS in aged horses >15 years to be 15% based on elevations of both ACTH and alpha MSH (McGowan et al. 2007) and supports the high prevalence of this disorder in aged horses. Interestingly, in this study and in a previous study performed in the USA (Brosnahan and Paradis 2003), there was a markedly lower reported prevalence from owner based questionnaires than on clinical examination findings and/or results of endocrine testing. This discrepancy may indicate the potential for under-recognition by owners of clinical signs of ECS as a disease.

Signs

The clinical signs of ECS have been well documented. The most commonly reported signs of ECS are hirsutism (present as excessive hair length and/or delayed coat shedding), depression or lethargy, weight loss and increased muscle catabolism resulting in a wasted epaxial musculature and a pendulous abdomen, redistribution of body fat resulting in bulging supraorbital fat, polyuria and polydipsia, chronic infections and laminitis.

Despite the relatively low proportion of ACTH amongst POMC peptides released from the abnormal pars intermedia, many of the clinical signs are attributed to hyperadrenocorticism. These include recurrent or chronic laminitis, most likely via the induction of insulin resistance, weight redistribution, polyuria/polydipsia and susceptibility to infections.

Diagnosis

The low dose dexamethasone suppression test was originally shown to have excellent sensitivity and specificity in the diagnosis of ECS. However, these results were not consistently repeated in other reports and recent work has shown that the test is affected by season (Donaldson et al. 2005). Despite little supporting data, there have also been concerns about the use of dexamethasone in laminitic horses.

Basal plasma ACTH concentration has been reported to have very good sensitivity and specificity. Research on basal plasma - MSH concentrations indicated some advantages over basal plasma ACTH concentrations due to the absence of diurnal variation and lack of involvement in the hypothalamic-pituitary-adrenal axis. However, both of these peptides have been shown to be affected by season. Recent research has compared basal plasma ACTH and alpha MSH with each other and with clinical signs of ECS and found neither test to have an advantage over the other and both were sensitive and specific for the diagnosis of ECS (McGowan and McGowan 2008). ACTH and alpha MSH both had an exponential distribution amongst the horses studied, with increases correlated with advancing clinical signs.

Treatment

Treatment of ECS involves either dopamine agonists, reducing the effects of loss of dopamine centrally, or cortisol inhibitors reducing some of the clinical effects of ECS, peripherally.

Pergolide, a dopamine agonist, is most commonly used at a dose from 0.002–0.01 mg/kg bwt/day. Treatment should be initiated at the low end of the dose range and gradually increased if required based on clinical and endocrinological response.

Trilostane, a competitive inhibitor of 3β-hydroxysteroid dehydrogenase, has been used at a dose rate of 1 mg/kg bwt s.i.d. to b.i.d. to control clinical signs of ECS.

Monitoring

Monitoring of clinical signs, basal ACTH concentration and fasting insulin will provide the best means of monitoring affected horses.

Equine metabolic syndrome

The development of insulin resistance has been associated with increasing age in research in man, and the same applies to horses. Recent epidemiological research has shown age to be a risk factor for hyperinsulinaemia - see laminitis session.

References


Ocular disorders in the geriatric horse

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Little is known about senile ophthalmic changes in equine animals, although certain human ophthalmic pathology becomes more common with increasing age, including vitreous degeneration (liquefaction), asteroid hyalosis, synchysis scintillans, senile retinal hyperpigmentation and chorioretinal degeneration (cobblestone degeneration) (Naumann and Apple 1986). In horses and ponies aged >15 years, over 80% of animals have eye lesions, although these lesions are not all age related (Chandler et al. 2009). However, there are several equine ocular conditions that are reportedly more common with advancing age and these include: senile retinopathy (Barnett 1971), proliferative optic neuropathy (Rebhun 1983; Matthews et al. 1990), and vitreal degeneration (Gellat 2000).

In a study on the health of horses in the UK, only 1% of horse owners reported that their animals suffered from ocular disorders (Mellor et al. 2001). This may indicate that elderly animals are coping well with poor sight. The fact that so many elderly animals have ophthalmic lesions may suggest that the lesions, and the potential visual disturbance, are not significant to the survival of ageing domesticated horses. In wild horses, there are a number of limiting factors to longevity, and these include dental disease, but it would not be unreasonable to assume that deterioration in sight may also be a limiting factor.

There are no published data on the prevalence of ocular pathology in younger horses, so it is difficult to compare the prevalence in geriatric equine animals with the remainder of the equine population. Comparing lesions in old and young animals gives a cross-sectional indication of ageing changes within the eye but this method does not provide a direct measurement of senescence in individuals, since differences between age groups may be due to age-cohort effects. However, to qualify whether or not the lesions are true ageing changes it would be necessary to examine the same individual repeatedly, as it becomes older. These types of longitudinal studies where the animals are drawn from a similar birth cohort are time-consuming and uncommon.

This presentation will highlight some data on the prevalence of ocular disease in geriatric horses and provide guidance on how to diagnose these lesions.

References
Neoplasia in the geriatric horse

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Neoplasia is the process of the formation of tumours characterised by the presence of new and uncontrolled cellular growth. The risk of developing neoplasia increases with age in all species. Reasons include greater exposure to potential carcinogens, greater chances of genetic mutations during cell division, and diminished capacity to repair damaged DNA. Although age can be considered to be a risk factor for the development of neoplasia, the disease can also be seen in young animals. Depending on the definition of ‘geriatric’, very few neoplasms of horses are confined to the geriatric horse - pituitary adenomas, thyroid adenomas and mesenteric lipomas are examples of tumours that occur most commonly in old horses. Most other tumours occur with equal frequency in young and middle-aged as well as older horses.

Common equine neoplasms include sarcoid, melanoma, squamous cell carcinoma, lipoma, lymphoma, haemangiosarcoma, mast cell tumour, granulosa-thecal cell tumour and carcinoma/adenocarcinoma of various origins. Most published information regarding neoplasia in horses is derived from case reports and case series. A search of the published veterinary literature over the past 10 years revealed no specific surveys of neoplasia in geriatric horses. Information about the prevalence of different tumours, their biological behaviour and treatment options is vitally important for clinicians in dealing with increasing numbers of older/geriatric horses. The location and nature of tumour development have a profound effect on the clinical signs, which subsequently affect the ease and speed of diagnosis. In many cases of malignant neoplasia in horses, diagnosis will only be achieved late in the course of the disease, by which time no practical or effective treatment options exist. Owner education and routine screening (e.g. examination of the external genitalia of older male horses for the presence of lesions indicative of squamous cell carcinoma) may be beneficial in allowing earlier detection of neoplasia and thus more effective treatment.

NOTES
Dental disease and management in the geriatric equid

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Introduction
The onset of age related dental disease in equids can be influenced by breed, management (especially feeding) and work of the animal. Horses older than 15 years have been shown to have a higher prevalence of dental disease (Wafa 1988; Kirkland et al. 1994), whereas donkeys start to develop serious dental disorders from age 16–20 years (du Toit et al. 2009). Therefore preventative dental management of older equids should be implemented by age 15 years, or sooner if there are pre-existing dental disorders.

Up to 24% of horses with dental disease have been shown to exhibit no clinical signs (Uhlinger 1987), but milder cases may show vague clinical signs such as ‘bitting’ problems and abnormal head carriage when ridden. More severe painless cases may quid, chew slowly and make ‘slurping noises’ when eating. In severe cases, weight loss may be seen as a result of insufficient food intake and inefficient digestion.

Dental pathology
Equid teeth continually erupt at about the same rate as they wear on the occlusal surface and exposure of enamel ridges on the occlusal surface is essential for efficient mastication and preventing excessive tooth wear. As equid teeth are tapered from the occlusal to the apical region, there is a decrease in the occlusal surface area as teeth wear down in older animals. Infundibulae which contribute to exposed occlusal enamel in incisors and maxillary cheek teeth have a finite length and when they wear out, the teeth wear faster and typically develop senile excavation (‘cupped out’). Furthermore, peripheral enamel infolding decreases apically in all teeth, and eventually wears out fully resulting in very little enamel occlusal exposure in older teeth termed ‘smooth mouth’ (Dixon 2002). All these factors contribute to an age related decrease in masticatory efficiency in equids.

Dental disorders observed in geriatric patients are similar to those observed in younger animals, although often at a more advanced stage of the disease. Older animals also tend to have multiple dental disorders as there are associations between many disorders with one predisposing to another e.g. displaced tooth leading to diastema formation (du Toit et al. 2009). Furthermore, the lack of reserve crown results in destabilisation loosening and eventually loss of diseased teeth. ‘Senile diastema’ are also common in aged equids secondary to the tapering of cheek teeth apically. A study in geriatric donkeys (median age 31 years) showed a dental disease prevalence of 93%, including 85% diastema, 56% missing teeth, 43% displaced teeth and 34% worn teeth (du Toit et al. 2008). Other disorders such as periodontal disease, wear abnormalities, overgrowths, step mouth and wave mouth are also seen with increasing prevalence in older equids (du Toit et al. 2008).

Recently, a serious incisor disease of older equids has been recognised that results in initial cemental destruction and then deeper lysis, with later gross cemental hyperplasia of the teeth. This disease initially manifests as mild gingivitis with radiographic lytic changes and possible gingival draining tracts with later gross thickening of incisors. This disease has similarities to feline tooth resorption and has been termed equine odontoclastic tooth resorption and hypercementosis (EOTRH) (Staszyk et al. 2008).

Management
Inefficient grinding of food with resultant decreased digestibility of protein and fibre in geriatric equids (Ralston et al. 1989), requires the feeding of specialised diets. The feeding of finely chopped or pelleted diets with a high (12–14%) protein content is also beneficial (Pugh 2007). However, the presence of other concurrent diseases such as renal or liver disease needs to be taken into consideration. The addition of rice-bran or vegetable oil will increase the energy content. If there is severe ‘smooth mouth’ or loss of many teeth soaking of pelleted diets to a gruel will aid sufficient feed intake.

Treatments of specific dental disorders are similar to younger equids, but are limited by the presence of decreased reserve crown. Treatment is aimed at preserving as much functional occlusal surface and ensuring oral comfort. Removal of sharp points and overgrowths to minimise soft tissue lesions, and extraction of obviously loose or severely displaced teeth will provide some relief. Treatment of senile diastemata is limited and often aimed at treatment of associated periodontal pockets with flushing and impression material which may allow healing of the periodontium (Klugh 2005). Management of dental disease in geriatric equids require regular dental treatments, specific diet formulation and owner education to be successful.

References


Colic in the geriatric horse

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Colic incidence and epidemiology

Older horses have not been shown to be at any greater risk of colic compared to other age groups and the incidence of colic in horses ≥20 years of age was reported to be 4.2 colic events/100 horse years in one study conducted in the USA. In common with other age groups, colic was one of the most common causes of death being second only to ‘old age’ in geriatric horses (Anon 1998). Several studies have shown that older horses, and particularly geldings, are at greater risk of developing intestinal strangulation due to pedunculated lipomas. This knowledge should alert the clinician to this possibility in older horses exhibiting clinical signs consistent with a strangulating lesion of the small intestine. In addition there is a higher prevalence of dental pathology in older horses placing them at greater risk of developing colonic obstructions.

Evaluation and medical treatment

The diagnostic work-up and treatment of colic in geriatric horses is broadly similar to the approach in younger horses. There are anecdotal suggestions that geriatric horses may exhibit pain to a lesser degree as is seen in human geriatric patients (Lohmann and Cohen 2006) but evaluation of the geriatric colic patient should always be based on parameters including heart rate, findings on rectal examination, presence of nasogastric reflux, packed cell volume and total protein, peritoneal fluid evaluation and response to analgesia. Nonresponse to analgesia and progressive deterioration of clinical parameters are always indicators of the potential need for surgery or euthanasia. Evidence of concurrent weight loss should be noted and investigated further to rule in/out severe dental pathology or the possibility of something more sinister e.g. abdominal neoplasia. When treating geriatric horses with impactions, evaluation of the teeth should also be performed to identify and treat any dental pathology. Parasites also should not be forgotten as a potential cause of colic and faecal worm egg counts and tapeworm ELISAs should be performed in horses with a poor worming history.

Surgical treatment of colic

Colic surgery in the equine geriatric patient has become more common over the last 10–15 years, reflecting the bond that some horse owners have with their older horse/pony, treating them as pets/members of the family. As a result, some owners have become increasingly willing to pursue further investigations and treatment, including surgery for colic, in the geriatric horse. The decision to undertake colic surgery in the geriatric horse should be based on a number of factors including any concurrent diseases e.g. severe laminitis or osteoarthritis and after advising the owner of the likely chances of survival following surgery so that owners can make an informed decision. In a study by Southwood et al. (2008) there was no significant difference in survival or complication rates between geriatric and control horses with colic. Geriatric horses (defined as those age ≥16 years) with surgical lesions were significantly more likely to have a strangulating lesion compared to nongeriatric horses. Overall short-term survival for geriatric horses with colic in their study was 63% compared to 72% for nongeriatric horses. There was no significant difference between short-term survival in geriatric horses that had undergone surgery for colic (60% survival) compared to the nongeriatric group (61% survival). This is consistent with the findings of Proudman et al. (2002) who found no evidence that older age was associated with reduced post operative survival. More recently, long-term survival of horses with large colon lesions was found to reduce with increasing age (Proudman et al. 2005a) but there was no association between long-term survival and increasing age in horses with small intestinal lesions (Proudman et al. 2005b). The take-home message is that provided horses are referred early, geriatric horses with most surgical lesions stand as good a chance of survival as nongeriatric horses. It is important to note that some insurance companies will not cover horses for colic surgery beyond a certain age (20 years in many cases). In addition some companies do offer additional policies that owners can take out to cover geriatric horses for colic surgery up to age 25 years.

Prevention of colic in the geriatric horse

A number of factors that place horses at increased risk of colic are well recognised including dental disease and parasites (Archer and Proudman 2006). Owners should be aware of the importance of:

- Good dental care throughout a horse’s life with more frequent (6 monthly) dental checks and necessary treatment in geriatric horses.
- Dietary modification if severe dental pathology is present (many companies offer specialised products for geriatric horses).
- Parasite prophylaxis; older horses still get parasites and this may be even more relevant if they are immunocompromised
- Provision of plentiful, clean water (particularly if they have PU/PD).
- Avoid sudden changes in feeding, stabilising and turnout.

References

Optimal nutrition of the geriatric horse

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Introduction
As a horse ages, the body undergoes changes with respect to degenerative disease, failing nutrition, alterations in gut absorption and clinical disease.

It is important to differentiate between the healthy older horse and the older horse with a clinical problem where feeding should be tailored to the disease process. Technically speaking we should refer to a healthy older horse as simply ‘aged’ whilst ‘geriatrics’ ought to refer to the study of clinical diseases associated with old age.

Maximising intake
One of the greatest challenges is maintaining adequate body condition in the older horse. Once clinical disease such as liver dysfunction is ruled out one should aim to maximise feed intake.

In a group situation the older horse may be a slow eater due to poor dentition and be pushed away from extra feed by other animals as a result. A horse at the top of the pecking order in a group frequently falls down that order as they age and intake may again suffer. A simple corral will ensure individual feeding and ample time to eat.

Osteoarthritis of the carpal joints, cervical spine and temporomandibular joint can make lowering of the head to graze uncomfortable and presents a challenge when pulling hay from a net. Simple solutions such as a raised feeding manger, loose hay and provision of a flat field can make a profound difference. Providing equine company, warming food and using products with a strong aroma may also increase intake.

Dividing the daily ration into as many feeds as possible, ideally 4 or 5, maximises intake by not over-facing the horse and ensuring the food is always fresh and aromatic. This is essential when the food is soaked and has increased in volume.

Many senior feeds are today formulated with levels of protein often found in youngstock products. Crude protein levels of 12–16% are thought to help maintain bodyweight and muscle mass and can be very useful in cases of Cushing’s disease. The inclusion of heat extruded or ground grains provide easy to digest starches for the horse with poor dentition and readily available energy is often supplied in the form of increased fat levels (4–7%).

Using a weigh tape once weekly is vital to spot chronic weight loss which may go unnoticed in a horse rugged overwinter and seldom worked.

Joint supplements
Many supplements are designed specifically for the older horse. Numerous products are available that claim to support and slow the progression of osteoarthritis. Glucosamine and chondroitin sulphate ‘nutraceuticals’ show a synergistic effect to slow cartilage destruction using in vitro studies. The oral bioavailability of these chondro-protective agents is controversial however as the horse would appear to require higher dosing than that needed in humans and dogs. The quality and purity of individual products is also highly variable and not all formulations carry clinical trials. In advanced cases of osteoarthritis where there is significant loss of cartilage and exposure of sub-chondral bone the use of nutraceuticals may make little impact on the condition.

Vitamin C, zinc, manganese and a combination of avocado and soybean extracts have been demonstrated in studies to mitigate the progression of osteoarthritis and may prove useful.

Antioxidants
Antioxidants are an important talking point in all species. In humans free radicals and reactive oxygen species play a role not only in the ageing process but also in the development of chronic disease such as cancer, asthma and arthritis. The supplementation of Vitamins C, A and E, lipoid acid and trace minerals such as selenium, zinc and manganese can provide additional antioxidants.

Provision of adequate vitamin C and lipoid acid is especially important in Cushing disease cases where the ability to synthesise these endogenously is reduced. These horses also have an impaired immune system that benefits from antioxidant support. Similar supplements have also been show to reduce the impact of recurrent airway obstruction, improve antibody response to vaccination and help in chronic infections such as skin disease.

Further reading


