

Increasing Equine Longevity

By Dr. Bill Vandergrift

Increasing the viable life span of our horses is more important to us today than it was 25 - 30 years ago. This shift in attitude results from economic concerns in addition to closer emotional attachments and concerns for our equine partners. For example, with proper care and management some stallions remain productive into their upper 20's while others have to be retired at much younger ages due to structural insufficiencies. Even after retirement, there are multiple things that can be done to ensure that horses remain comfortable and healthy during their last years on earth.

As horses age they commonly develop special dietary needs associated with behavior, dentition, glandular function, digestion and/or musculo-skeletal conditions. Many older horses have a calmer disposition simply because they have been exposed to more things and have grown used to dealing with daily variations in their immediate surroundings and activities. However, many older horses are not as quick to adapt to major changes in their environment or physical surroundings and suffer a loss of appetite and/or condition when exposed to such changes. When mixed with other horses, senior horses often have difficulty competing with younger and more agile horses for available forage and feed. These basic factors must be taken into consideration if the health and condition of senior horses is to be optimized.

The horse is a herd animal and a very social being. Regardless of age or condition, horses will usually thrive better when appropriate equine company is provided. Matching older horses up with horses of similar temperament allows them the emotional security of the herd and contributes to their overall well being. Group numbers should be kept small however, in order to reduce competition for available forage and water.

Conformational and metabolic faults all too often cause the early demise of many horses; the loss of Secretariat to laminitis for example. Conformational faults, primarily those associated with the horse's lower limbs often place excess strain on the horse's ligaments, tendons and joints. The long-term affect of this strain can be osteoarthritis or other bone anomalies that can be severe enough to end an active career or create a condition of great discomfort and lameness. Proper trimming and an appropriate selection of equine careers based on conformation and temperament early on and continuing throughout the horse's life can go a long way to extending the individual horse's productive life and lessening discomfort during the final retirement years. The proper use of nutraceutical components known to support healthy joints such as glucosamine, chondroitin, hyaluronic acid, MSM and others have provided substantial benefit to many horses exhibiting joint pain. Which one individual product or combination of products that will provide the greatest benefit can differ substantially from horse to horse and sometimes a certain amount of trial and error is required to find the best mix for your individual horse. This is due to the fact that while these compounds are all reported to support joint health, they all have a different mode of action. Depending upon the specific problem your individual

horse has one compound or combination of compounds will usually work better for one horse compared to another.

The most common metabolic defect that can be life threatening is obesity. Metabolic syndrome anomalies such as Cushing's syndrome, hypothyroidism and insulin resistance exhibit themselves once a horse gets a bit older. Many mature horses with metabolic issues develop a metabolism that allows them to seemingly exist on air and water. Many horses that easily become fat are overfed protein and/or energy and underfed minerals and vitamins predisposing them to laminitis and other structural problems. It is imperative that "easy keepers" receive an adequate intake of minerals and vitamins in order to guard against structural disorders. The use of organic zinc, copper, manganese, selenium and chromium is especially effective at helping these horses maintain normal protein and energy metabolism and to provide the constituents needed to maintain structural integrity. Recommended nutrient intakes of senior horses of average size are listed in table 1. One of the worst things you can do to a mature horse that tends towards obesity is to over feed grain (starch) and protein. Over feeding grain has a much greater effect on metabolic hormone production, secretion and activity than any other dietary constituent. Excessive protein intakes have been shown to reduce thyroid activity exacerbating the tendency towards obesity. Excessive grain intakes can actually impair energy metabolism and predispose the horse to laminitis. Mature horses that easily maintain condition and/or trend towards obesity should be fed a minimal amount of grain, if any. The diet should be forage based and properly fortified or supplemented with minerals and vitamins. If additional energy is required, fat sources should be used in combination with forage and a minimum amount of grain to supply the extra energy needed to maintain a moderate body condition score. Adequate chromium intake will help normalize insulin activity and thereby reduce complications associated with obesity. Triple Crown has developed several products that are suited for horses that are easy keepers or horses exhibiting metabolic syndrome; these include: Triple Crown Senior, Triple Crown Lite, Triple Crown Lo Starch and Triple Crown Safe Starch Forage.

Older horses and horses that may be slightly debilitated are more susceptible to mycotoxin and bacterial ingestion than horses with stronger immune systems. Long-term exposure to mycotoxins can cause liver damage in young viable horses. In a horse with compromised liver function due to age, mycotoxin ingestion can accelerate liver failure and thereby impair normal metabolism. The result is a weakened and debilitated horse. Mycotoxin ingestion can also trigger colic in a normal healthy horse; in older horses, it can be deadly. Given the fact that low levels of mycotoxins are commonly found in hay and grain mixtures for horses, the addition of recently developed mycotoxin binders to your horse's diet to prevent metabolic and intestinal damage from mycotoxins is prudent. Triple Crown includes mycotoxin binders in all of its products.

Disease causing bacteria such as E. Coli and Salmonella are everywhere. Ingestion of high doses of these bacteria will make a strong horse sick; it can be fatal to an older horse. Similar to preventative measures taken for human health, mannanoligosaccharides (MOS) can now be used to improve equine health. MOS has the ability to bind many of the common disease causing bacteria to itself thereby preventing infection in the horse. Once

bound to MOS, the MOS-bacteria combination is excreted in the horse's feces where it will do no harm. The addition of MOS to all equine diets is beneficial, however, it is especially useful in older horses and horses that tend to have sensitive digestive systems as a means of reducing the incidence and/or severity of colic. In addition to its bacterial binding properties, MOS has also been shown to positively stimulate the immune system. Ensuring that nutrients responsible for optimal immune system function such as vitamin E and zinc are supplied in adequate quantities is also critical for longevity.

Poor dentition is a common cause of poor condition in senior horses. Loss of teeth, damaged or worn teeth and severe tooth angle either singularly or combined make it difficult for horses to adequately chew and grind forage and feed. Some older horses have such great difficulty with dentition that they cannot chew hay adequately enough to facilitate swallowing it without choking. These horses must be fed an alternative forage source that is easily swallowed, yet provides the fiber and "bulk factor" so important for intestinal function and health. Shredded beet pulp is a favorite forage substitute for this purpose. In addition to poor tooth condition, many older horses lose the sensitivity in their lips making it more difficult for them to pick up food or to selectively graze when out on pasture. This results in slow intake and/or reduced intake and a subsequent reduction in body condition. Reduced salivation also makes it more difficult to chew and swallow various foodstuffs. Therefore, providing a diet that is easy to ingest and swallow such as one of the many shredded beet pulp based feeds (Triple Crown Senior, Triple Crown Complete) or chopped forage products (Triple Crown Safe Starch Forage) will help older horses obtain their required "bulk factor" and nutrients in sufficient quantities.

Intestinal damage due to parasite infestation combined with reduced absorptive capacity due to age make it difficult for older horses to assimilate critical nutrients. Increasing the dietary density of nutrients in order to supply the recommended intakes listed in table 1 helps geriatric horses utilize adequate levels of nutrients even though total feed intake levels and absorption may be reduced. Including digestive and fermentation aids such as yeast cultures, probiotics and enzymes assists the older horse in improving his/her ability to metabolize the correct amount of nutrients needed to maintain health.

Hair, skin and hoof quality often suffers in older horses due to a combination of reduced ability to assimilate and metabolize nutrients and glandular dysfunction. Pituitary, thyroid, and adrenal problems are common in geriatric horses. Unfortunately, there is often little that can be done nutritionally to counteract these problems, however, the feeding of omega-3 fatty acids and in particular the omega-3's found in fish oil (DHA and EPA) have shown some promise in regard to normalizing immune function and hormonal activities.

Following a few basic guidelines may help increase your horse's chances of maintaining a healthy appearance and living a comfortable and longer life:

1. Increase mineral and vitamin levels in total diet
2. Ensure mineral and vitamin ratios are within acceptable ranges

3. Increasing anti-oxidant activity with adequate levels of vitamin E, vitamin C, Vitamin A, organic zinc and organic selenium
4. Include a source of omega-3-fatty acids (fish oil, linseed oil) for prostaglandin modulation
5. Provide adequate protein levels, but avoid excessive protein intakes
6. Avoid high starch (grain) intakes
7. Provide easily ingestible and highly digestible fiber source

In summary, the key to developing feeding and management programs for geriatric horses is to consider their reduced ability to acquire, chew, swallow, absorb and metabolize nutrients. The inclusion of digestive and fermentation aids and organic minerals has proven highly effective in maintaining good health. Incorporation of some of the "high tech" additives such as joint health nutraceuticals, MOS and mycotoxin binders can provide significant improvement in individual horses. The form of the diet must be easy for the horse to ingest and digest. Basic daily care of the geriatric horse must also be considered since they tend to require more grooming and maintenance than younger and stronger horses.

Table 1. Recommended Daily Mineral and Vitamin Intakes for Senior Horses¹.

Nutrient	Unit	Amount
Calcium	Gms	50
Phosphorus	Gms	28
Iron	Mgs	500
Zinc	Mgs	600
Manganese	Mgs	550
Copper	Mgs	175
Iodine	Mgs	1.5
Selenium	Mgs	2.0
Chromium	Mgs	3.0
Vitamin A	IU's	30,000
Vitamin D	IU's	2,500
Vitamin E	Mgs	2,500

¹EquiVision, Inc. Revised 1/08