

# Taking Care of the Horse in the Golden Years

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One hundred years ago when horses were used for transportation, work and farming very few lived to the golden years. In fact, the younger the horse was started into work the quicker he wore out. The horse was considered to be in his prime between five and ten years of age back then, and anything older was an old horse. During those times, if a horse had not been started too young, had not been overworked, and had good health care and proper nutrition throughout its life, it might have lived to be a “very old” horse of 25 to 30 years of age. Although the natural lifespan of the horse has not changed, horses are living longer and many survive easily to 25 years of age or older. In fact, 17% of the horses in the U.S. are estimated to be over 20 years of age. What may have been an old worn-out horse 100 years ago may just be coming into its prime today. Many performance horses are just getting settled into their work by the time they are in their teens.

What has changed in the last 100 years? First, the workload has significantly decreased for most horses as today's horses are primarily used for pleasure or competition instead of hard work. Lighter workloads do not put as much wear and tear on the skeletal and muscular systems, and the body has more time to recoup from stressful times. Second,

knowledge of equine nutrition has improved. Many of the individual nutrients required by domestic animals have been discovered within the last 75 years and are commonly provided by fortified commercial feeds. Lastly, parasite control programs for the horse have improved enormously.

At what age is a horse considered geriatric? It depends on the individual because some horses age more gracefully than others. A general rule is that a horse 18 to 20 years of age is entering the golden years. Some horses remain in excellent body condition and health until the moment they die, while others deteriorate quickly or slowly over time. Because of the physiological changes normally associated with aging, geriatrics may require special adaptations in health care, environment and diet.

## Changes Occurring with Aging

Four factors negatively affect the ability of senior horses to stay healthy and maintain proper body condition: decreased nutrient absorption, poor teeth, environmental and herd stress and disease.

## Decreased Nutrient Absorption

Because of consistent, effective deworming programs, horses have a better chance of surviving to an older age. Intestinal worms can scar and cause chronic mucosal damage of the intestines, which affects nutrient absorption. The presence of worms also causes a decrease in nutrient absorption because the parasites compete for nutrients. The deworming program of the geriatric horse needs to be vigorous, and routine deworming should be an integral part of a health care program.

Besides parasite damage, there are other factors responsible for decreased nutrient absorption by the digestive tract. The effectiveness of the intestinal lining decreases with age which makes it difficult for nutrients to pass the mucosal surface in order to reach the bloodstream. Research has documented a decreased absorption of phosphorus, vitamins and protein in the aged equine. Production of the enzyme necessary for starch

*Nineteen-year-old Thoroughbred mare Irish Gold came out of retirement to be a companion for Julie Bishop.*



Photo by Catherine Bishop



Photo by Jim Dixon

*Peavines Golden Stepper, 19, carries his owner Robin Stanback on a victory pass.*

digestion may decrease, allowing too much starch to enter the hindgut. Microbial fermentation of starch will make the hindgut more acidic, which can make a horse more susceptible to laminitis and colic. Another factor affecting availability of nutrients is the particle size of the foodstuff when it reaches the intestinal tract. If the teeth fail to masticate a food sufficiently, the size of the food particle will be too large for the digestive enzymes and microbes to effectively digest it. The net result is more food passing through the digestive tract undigested. The decreased efficiency of the digestive tract due to aging cannot be stopped but dietary adjustments can be made for this problem. Offering more of the nutrient in highly available forms and in small particles are ways to improve the overall digestion and health of the horse.

Protein digestion appears to be a particular problem in the geriatric horse, particularly in those with parasitic damage in the digestive tract. Muscle tissue wasting is a common occurrence in the aging horse. If the body does not have enough protein in the diet, it will start to break down its own muscle tissue to provide protein for important body functions. With a decreased ability to absorb protein in the digestive tract, the feed offered to the geriatric should be higher in protein than what would be given to a normal maintenance horse, usually around 14% protein.

Not all protein sources are created equal, so the quality of the protein offered is also important. Soybean meal is an excellent protein source for aged horses because of its high quality amino acid composition.

## Dental Problems

Time takes its toll on the teeth of the aging equine. Problems that occur with normal wear and tear are tooth loss and deterioration of the biting surface. During normal tooth growth, the biting surface wears down and the tooth continually erupts from the jaw bone; the result is shorter roots over time. The root of the tooth of an older horse can get short enough that the tooth can become easily dislodged from its place. Because of this, care should be taken not to float teeth too aggressively in an older horse. Inevitably, some teeth will fall out or have to be pulled out because of decay or infection. Also, without careful attention to the molar surface throughout the years, some irregularities can become severe enough to interfere with proper chewing. The biting surface can become wavy, especially if there is tooth loss on one part of the mouth but not on the opposing surface. In other cases, horses that lose incisors will have trouble tearing the grass blade away from the root, so pasture may be too difficult for a horse with this problem to eat. Pasture, on the other hand, is fine for older horses with molar problems because grass is fairly easy on the digestive tract even if it is not masticated well. Hooks and sharp points on the edges of the teeth can irritate the cheek wall making mouths sore. Older horses tend to be less tolerant of pain so things like aching teeth may bother them more than a younger horse. Dental exams twice a year are appropriate for the senior horse.

Tooth problems may be the reason that older horses tend to be more susceptible to choke. A horse can choke on any kind of feed if it does not take the time or does not have the ability to chew the food properly before swallowing. To further aggravate the problem, some older horses chew less because of dental problems, and the amount of saliva produced is relative to the amount of chewing. With decreased saliva production, there is less lubricant to aid the passage of feed to the stomach. The result of either problem is choke which can resolve itself fairly rapidly or can become a grave problem. Making sure an older horse has food prepared appropriately for the state of its dentition will result in less stressful mealtimes.

## Environmental and Herd Stress

Older horses do not handle changes in environment well. Relocating an older horse from one farm to another or even from one pasture to the next can be very stressful, espe-

cially if it means a change of pasturemates. Many do not adjust to a new group of pasturemates quickly and may experience detrimental weight loss during the adjustment period. Older horses tend to fall to the bottom of the pecking order and may fight for food when an aggressive horse pushes them away. If hay or grain is group fed, careful observation of how well an older horse is getting to the feed may prevent a problem of detrimental weight loss before it happens.

Environmental temperature changes get harder to tolerate as a horse ages, particularly cold weather. Some of the sensitivity to cold may be from the reduction of fat cover on the body which normally acts as insulation. Another factor may be changes in hormone production, which regulates the body's ability to adjust to external heat and cold. Fiber digestion in the hindgut produces heat which will help horses stay warm in the winter. If there is a reduction in the intake of fiber, there will also be a reduction of internal heat produced. Adequate shelter from the elements would be advisable for the geriatric.

During cold weather, a horse will often limit the amount of water it drinks since intake of cold water lowers internal temperature, resulting in cold stress. It is not uncommon for these horses to colic due to self-induced dehydration and subsequent impaction. Careful observance of water intake can help to avoid disastrous consequences. Feeding meals soaked in warm water and/or adding salt to the meal might entice a finicky horse to increase water intake.

Pain can make a horse so miserable it may lose the desire to eat. The principal cause of pain in the older horse is arthritis. The best thing to do for an arthritic horse is to allow it to exercise at will. Joints become stiff when a horse is kept in a stall for any length of time, and it is twice as painful to start moving again when turned out. It is advisable to keep older horses out all the time, provided there is adequate shelter such as a run-in shed. Other ways to make the geriatric more comfortable would be giving some type of joint supplement and/or some mild painkillers. Attention to proper trimming or shoeing may help avoid unnecessary stresses on joints.

## **Disease in the Older Horse**

Age-related disorders and diseases can make life more challenging for the geriatric horse. Chronic weight loss not related to previously discussed problems can be the result of medical conditions like chronic infection, adrenal gland atrophy, liver failure or kidney dysfunction. Other problems commonly experienced by seniors are anemia, lowered disease resistance and allergic respiratory problems. Tumors such as melanomas are frequently observed on the skin, particularly on gray horses. Tumors may also be found in the thyroid or pituitary glands which can cause hair coats

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to become long and rough. These symptoms are also indicative of Cushing's syndrome. Horses with adrenal atrophy or even adrenal exhaustion after a harsh winter will drink excessively and will not maintain weight easily. Treatment may involve corticosteroid administration. A blood count and chemistry can determine if a horse has anemia, chronic infection, or kidney or liver problems. Anemia can be treated with B vitamin administration; chronic infection and lowered disease resistance may respond to vitamin C supplementation. Besides weight loss, signs of kidney or liver failure are poor appetite, lethargy and frequent urination. Diets of horses with liver failure should be low in protein and should not contain added fat. Dietary changes for kidney problems would be decreased calcium; therefore alfalfa should be avoided. An abnormally high incidence of renal calculi has been seen in aged horses fed straight alfalfa. Respiratory disease can be treated by minimizing exposure to the assailants of the lungs. Keeping the diet dust and mold free by soaking or wetting all feedstuffs before feeding and using bedding with minimal dust will reduce respiratory stress.

## **Nutrition of the Senior Horse**

Roughage is a vital part of the equine diet, and without proper amounts, problems can occur in the digestive tract. Dental problems or anorexia can make intake of sufficient forage challenging. Older horses appear to do better on fresh green grass even if they have lost some molars because grass is easily chewed and digested. The cycle of many older horses is to pick up weight during the spring, summer and fall when the grass is growing and lose weight in the winter when the grass is dormant. Problems tend to happen when an older horse is asked to get its roughage from hay only. When the teeth are not in good condition, an older horse may not be able to properly grind a forage to be adequately digested for energy and other nutrients.

Signs that eating hay may be a problem in a horse are low intakes of hay or rolling and wadding of hay in the mouth. If this is the case, there are now alternative fiber sources for the horse available on the market. Hay cubes



*Spots, a 37-year-old Appaloosa gelding, is still being ridden by his owners Dean and Nancy Koontz.*

are available in grass/alfalfa mixes, whole corn plant/alfalfa mixes and straight alfalfa. Forage is chopped and then compressed into a cube, so some of the work of mastication is already done for the horse. If hay cubes are still too hard for the geriatric, then covering them with water will soften the cubes. Chopped and bagged forages are made from hay that has been cut in 1/2 to 1 inch pieces and are available in grass/alfalfa mixes or straight alfalfa. Chopped forages tend to be very dusty, so dampening them before serving may be helpful, particularly for horses with respiratory problems. Hay pellets bring the particle size down to the next level, so they are even more easily digested. Beet pulp is another fiber source that can be soaked, making it easily chewable.

Most of the senior feeds on the market have some type of forage included, whether it is alfalfa meal, soy hulls, beet pulp, or a combination of these ingredients. The feeding rates of these feeds generally are higher than normal concentrates because they replace a portion of the forage in the diet as well as the grain portion.

A well-formulated senior horse feed should contain pelleted grains which have been extruded or processed into other highly digestible forms such as steam rolled or flaked. Concentrates should have a fiber percentage higher than 12% and a protein percentage between 12 and 16% from a high quality protein source like soybean meal. There may be added fat (4 to 6%) to increase the energy value of the feed. Most can be fed without any other for-

age, but it is not ideal unless the horse absolutely cannot chew anything else. This may also be important for horses with respiratory problems that should be fed feed dampened or made into a slurry. It should be highly palatable to tease the appetite of even the pickiest of seniors. Added yeast in a feed may improve fiber and phosphorus digestion. The vitamin and mineral fortification should be higher than a maintenance horse feed because of the decrease in digestive efficiency. With the increased intakes, feeding smaller, more frequent meals may be desirable so as

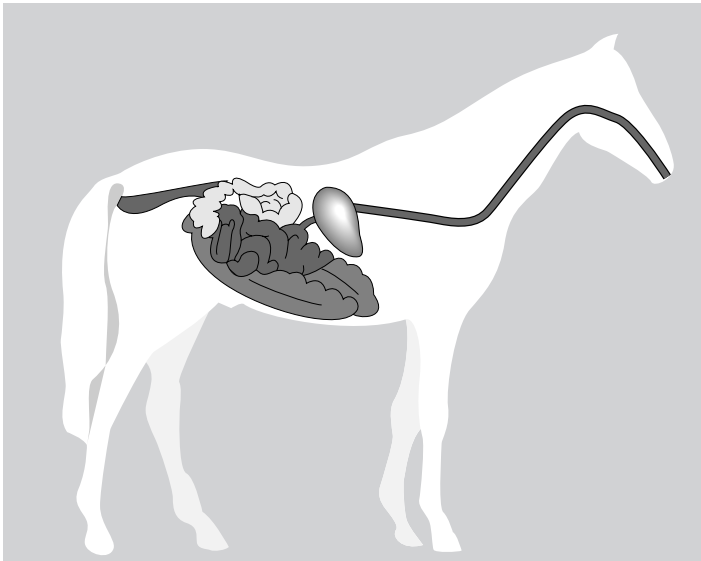
*Karen Pagan introduces her three-year-old daughter Elizabeth to the pleasure of riding aboard The Shoe, a 23-year-old gelding.*



not to overload the stomach. It can also be beneficial to break meals up into three or four offerings per day. To promote gastrointestinal health of the older horse, use of probiotics or digestive aids (yeasts, bacteria and enzymes) may be beneficial.

### **Supplements for the Geriatric**

When the intake of feed is limited by mechanical problems such as dental or appetite-related issues, a more concentrated feed could be advantageous. Increasing the amount of fat in the diet of the senior may be beneficial because fat is a concentrated source of energy. Liver function should be assessed before initiating a high fat diet. Because all fat travels through the liver immediately after



### Deworming throughout the century

**B**ecause of advances in veterinary medicine in the last century, the true extent of destruction by worms is now well understood. Parasites can cause irreparable damage to the digestive tract if left unchecked. The severity of this problem has not always been taken seriously. In 1894, Sir Fitzwygram wrote about worms in his book *Horses and Stables*, "Their presence does not seem usually to act injuriously on the health of the horse, though occasionally the stomach is eroded by them. ... if we have patience, nature will quietly expel them without our aid." If only that were the truth! Internal parasites are ticking time bombs for horses. The dewormers available to us today excel in effectiveness and are unsurpassed by anything previously used. For example, despite Sir Fitzwygram's belief that worms were not responsible for grave consequences, he did give a treatment in case a horse was suffering more than usual from worms: 2 oz of turpentine in 1 pint of linseed oil with 1/2 oz of tincture of opium " to prevent griping." Other treatments for parasites in the last century consisted of things like blue flag root, poplar bark, iron sulfate mixed with gentian root and arsenic, injections of tobacco smoke, salad oil and vinegar, and sweet milk with molasses. Dr. H.L. Barnum tells us in the *Farmer's Farrier* (1831) that "keeping wood ashes in the bottom of manger" and "salt the horse at least every 3rd day" will help to prevent worm infestations. Obviously, deworming has improved tremendously throughout the years and is now recognized as an integral part of routine care of the horse which is helping our seniors live longer, healthier lives.

**Unlike wheat bran, rice bran has 20% fat and highly digestible fiber making it an excellent addition to the diet of the senior horse.**

absorption, it can be particularly hard on a diseased liver. If there is no problem with the liver, then there should be no reason for a senior not to be able to benefit from added fat in the diet. Fat can be fed in the form of oils, such as corn, soybean, canola, linseed, or wheatgerm, or as a powdered animal fat product. Of particular interest as a fat and fiber source is rice bran. Unlike wheat bran, rice bran has 20% fat and highly digestible fiber making it an excellent addition to the diet of the senior horse. It also contains the antioxidant gamma-oryzanol. One rice bran product, Equi-Jewel, has the added advantage of having a carefully balanced calcium to phosphorus ratio that is essential for absorption and use of these minerals.

Some of the research done on older horses has found vitamin C blood levels are lower than in younger horses. Whether this means that geriatrics are deficient in vitamin C is not yet known. Supplemental vitamin C (20 g/day) improved the antibody reaction to vaccines in geriatric horses. The vitamin C supply for the horse is normally produced in the liver from glucose. Lower blood levels may be the result of decreased production of the enzyme that aids in the conversion of glucose to vitamin C. Regardless of why, geriatrics with chronic infections or with decreased immunity may benefit from supplemental vitamin C. Because supplemental vitamin C is not absorbed well by the intestines of the horse, over 5 grams of vitamin C per day has to be fed in order to make an impact on the blood vitamin C levels.

### Conclusion

As we become more aware of the problems facing geriatric horses, they have a much better chance at surviving into their golden years than they would have had 100 years ago. Strong emotional ties can motivate many owners to be observant of their beloved beasts and to take the extra steps it requires to maintain them in health and comfort. Changes in routine care, environment and dietary management of the geriatric horse can help to achieve this goal. ☺

*(Editor's note. This article was written by Dr. Crandell in the memory of her family's beloved Valient who lived a rich and rewarding 38 years.)*