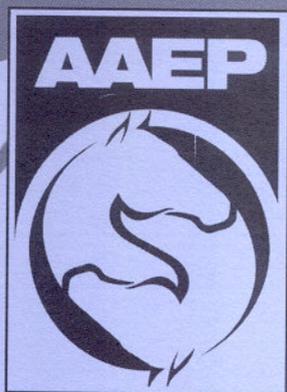


AAEP



CARE GUIDELINES FOR EQUINE RESCUE AND RETIREMENT FACILITIES

American Association of Equine Practitioners
RESOURCE LIBRARY

AAEP CARE GUIDELINES FOR EQUINE RESCUE AND RETIREMENT FACILITIES

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INTRODUCTION

In order to provide guidance to non-veterinarians at equine rescue and retirement facilities regarding the care of a horse throughout its life, the AAEP has developed the following care guidelines. Rescue and retirement facilities play a vital role in providing lifelong care and/or finding new owners for horses that may be considered “unwanted” or have been subjected to neglect or abuse. The AAEP recognizes and commends the important services these facilities provide to the horses and individuals who benefit from their work.

While many principles of basic horse care and management apply to all horses, regardless of their situation, those horses entering rescue or retirement facilities may arrive with unique health challenges. For this reason, employees and volunteers should be experienced in basic horse care and understand the health conditions that require medical attention from a veterinarian.

Equine veterinarians play an important role in the care of the animals at rescue and retirement facilities and can offer valuable advice on many aspects of horse care. It is important that facilities establish a good relationship with an equine veterinarian.

The guidelines presented in this manual are for informational use only and are not considered to be legally binding. Because appropriate horse care practices vary due to climate, region, use and many other factors, the guidelines are intentionally broad.

I. BASIC HEALTH MANAGEMENT

Caring for New Arrivals

Every horse entering a rescue/retirement facility should receive a complete physical examination upon its arrival. A health record must be established for each horse, clearly identifying the horse by name and/or number, age, gender and description. All treatments and medication given should also be recorded in the horse's health record. When horses require medication, it must be administered as directed by the veterinarian.

Horses may be susceptible to transportation stress and disease following transport to a rescue/retirement facility. On arrival, new horses should be isolated to prevent the possible spread of disease. Handlers should carefully monitor recently transported horses for several days after long-distance transport. The temperature of these horses should be recorded daily for several days, and if not normal, the temperature should be recorded at least twice daily, i.e. morning and evening. If a horse's temperature exceeds the normal range, a veterinarian should be consulted.

Monitoring Your Horses

Frequent observation of the horses in a rescue/retirement facility is paramount to ensure they are healthy. Horses should be observed routinely, at least once every 24 hours, paying particular attention during high-risk periods (e.g., inclement weather, foaling, introduction of new animals).

The table below provides vital signs for an adult 1,200-pound (545 kg) horse at rest at 60°F. These criteria will vary according to age, physical fitness and environmental conditions. Younger horses tend to be at the higher end of the range.

VITAL SIGNS FOR A 1,200 LB (545 KG) HORSE AT REST AT 60°F.

<u>Vital Sign</u>	<u>Normal Range</u>	<u>Average</u>
Rectal Temperature	99.5-101.3 F (37.5-38.5 C)	100 F (38.0 C)
Pulse	28-45 beats/minute	36 beats/minute
Respiration Rate	10-14 breaths/minute	12/breaths/minute

Preventive Health Care is a Necessity

In consultation with a veterinarian, rescue/retirement facilities should develop a sound health care program, appropriate to the facilities and environment. Increased horse population density requires greater attention to disease prevention.

Parasite Control

A parasite control program must be established in consultation with a veterinarian. In terms of management priorities, establishing an effective parasite control program is probably second only to supplying the horses with clean, plentiful water and high-quality feed.¹ An effective program will include the administration of dewormers as well as manure and pasture management.

Vaccination

Administering the appropriate vaccinations is the best weapon against common infectious diseases of the horse. The specific immunizations needed by a particular group of horses depends upon several factors, including environment, age, breed, sex, use, exposure risk, geographic location and general management.² A veterinarian must be consulted to determine the most effective vaccination program for your facility's horses.

Dental Care

A veterinarian must examine horses' teeth at least annually. Uneven wear and abnormalities should not be allowed to interfere with normal eating habits. Dental care will depend on age, nutrition and environment. Dental care must be performed by a veterinarian or under veterinary supervision.

Be Prepared for an Emergency

Caregivers at rescue/retirement facilities must know how to recognize serious problems, respond promptly and take appropriate action while awaiting the arrival of the veterinarian. Your veterinarian's number should be kept by each phone, including how the practitioner can be reached after hours. Consult with your regular veterinarian regarding a back-up or referring veterinarian's number in case you cannot reach your regular veterinarian quickly enough.

All rescue/retirement facilities should prepare a first aid kit and store it in a clean, dry and readily accessible place. While a first aid kit can be simple or elaborate, the following items are essential:³

- Cotton roll*
- Contact bandage*
- Cling wrap*

¹ AAEP/Bayer Corporation Animal Health client education brochure, Internal Parasites: Strategies for Effective Parasite Control, 2002.

² AAEP/Bayer Corporation Animal Health client education brochure, Immunizations: Protect Your Horse Against Infectious Disease, 2004.

³ AAEP/Bayer Corporation Animal Health client education brochure, Emergency Care: Guidelines to Follow During Equine Emergencies, 2002.

- Gauze pads, assorted sizes*
- Gauze wrap*
- Adhesive wrap and adhesive tape
- Leg wraps
- Sharp scissors
- Hemostats
- Steel cup or container
- Rectal thermometer with string and clip attached
- Surgical scrub and antiseptic solution
- Latex gloves
- Flashlight and spare batteries
- Permanent marker pen
- Pliers (to pull nails)
- 6" diameter PVC tubing, cut in half the long way (like a gutter) into lengths of 1 ½ to 2 feet for emergency splinting

*Materials should be sterile

Special Considerations

The AAEP encourages the castration of all stallions entering a rescue/retirement facility. Castration and other surgical procedures must be conducted by licensed veterinarians using accepted surgical techniques in accordance with state and federal veterinary acts and regulations.

Distressed horses should be dealt with humanely, effectively and promptly to prevent suffering. Sick or injured horses must receive veterinary attention as indicated. Horses unable to rise need veterinary attention. Veterinary consultation must be sought prior to any attempt to move a downed horse.

Evidence of a reportable disease for your area, such as West Nile virus, vesicular stomatitis or rabies, must immediately be brought to the attention of a veterinarian. Any disease that appears to spread from a horse to a human should be reported. Signs that should be discussed with your veterinarian include but are not limited to: severe, unexplained, persistent or recurrent fevers; unexplained weight loss or progressive weakness; thick vaginal discharge; abortion of unknown cause; neurological signs, e.g. uncoordination, erratic behavior, abnormal postures or hypersensitivity; severe difficulty breathing, spasmodic coughing or frothy nasal discharge; soft swelling of the face or neck; and blisters or open sores on the lips, mouth, genitalia or above the hooves.

Dead horses must be removed and disposed of in an appropriate manner, as required by municipal, state or federal regulations.

II. NUTRITION

The following are basic guidelines for feeding and watering horses at rescue/retirement facilities. Formulating a diet for a horse can be a complicated process that should take into account the horse's current state of health, geographic location, medical history, exercise/use and individual metabolism. Special recommendations for feeding a starved horse are found at the end of this chapter. A veterinarian or equine nutritionist should be consulted to ensure current feeding programs are meeting each animal's needs.

General Feed Requirements

Horses should receive a daily diet that is adequate for maintaining health and function and be fed on a regular daily schedule. In its natural state, the horse eats a variety of forages (mainly grasses) to meet its nutritional needs. Due to the small size of its stomach, the horse will normally consume its daily intake over 16 to 20 hours.

Horses should be fed a forage-based diet with grain supplementation if needed. At rescue/retirement facilities, fresh forage (pasture) can seasonally provide most of the horse's needs. Provided the stocking rate is correct, most horses can meet their energy, protein and mineral demands from an adequate supply of good-quality pasture. If possible, unless otherwise directed by a veterinarian, horses should have daily access to pasture. When pasture is limited, however, the diet should be supplemented with hay. However, certain minerals and trace minerals may be lacking.

When horses are fed high-grain (high-energy) diets, attention should be paid to avoid nutrition-related health problems, such as grain overload, laminitis, founder or obesity. Abrupt changes in diet should be avoided. To avoid major health problems, any changes in the type and quantity of feed should be introduced gradually over a period of several days. All feed components used in the diet should be free of spoilage, toxic insects or contaminants, dust and molds. Horses should also have access to free-choice salt and appropriate minerals.

When horses are fed in groups, adequate manger space or feeding points should be available to minimize competition for feed. All horses should have simultaneous access to feeders so that all can eat at one time. Horses that "bully" others and prevent these horses from eating must be separated to allow the less dominant horse or horses to receive adequate feed.

All feeds and supplements should be properly labeled to avoid misuse. Feeds designed for other species, particularly medicated feeds and those containing urea, are not to be used for horses. Feed troughs and buckets should be cleaned regularly.

Supplementary Feeds

Cereal grains such as oats, corn and barley should generally be added to the diet to meet extra energy needs, such as those associated with exercise, late pregnancy, lactation, growth and sometimes maintaining proper weight, convalescence or recovery from surgery. Cereal grains should always be measured by weight rather than volume when feeding, as there are marked differences in densities, not only among types of grains, but also within different consignments of the same grain.

Oats tend to be safer to feed due to high fiber content. Crimping is considered by many to aid digestion, but the storage of crimped oats reduces their nutritional value and should be avoided. Corn and barley have a higher energy value than oats. Because of their high-energy content, they can cause laminitis and/or colic if introduced to the diet too quickly. Barley's energy value lies between that of corn and oats. Its hard husk needs to be crushed or cracked to aid digestion.

Soybean meals are often included in conditioning rations for young and growing horses and increase the protein content of the ration. They should be fed in small amounts and introduced gradually. Linseed meal is not an appropriate protein supplement for growing horses because it is low in the amino acid lysine that is essential for normal development.

Many brands of blended horse feeds are on the market. When the manufacturer's feeding recommendations are followed (this information should be printed on the label, along with an analysis of ingredients), they provide a simple method of supplementation. Where small numbers of horses have similar supplementary feeding needs, premixed balanced feeds can save the facility work and ensure continuity of diet. When feeding commercially blended feeds, care should be taken to ensure the horse has access to its minimum daily forage (fiber) requirement of 0.5 to 1 pound dry matter/100 pounds bodyweight.

Horse feeds are generally low in sodium. When horses are working and sweating, salt (sodium chloride) and possibly other electrolytes may need to be supplemented. Hand-fed horses should have salt supplemented daily. Advice on mineral deficiencies peculiar to any grazing area should be sought from a veterinarian or local extension nutritionist.

Calculating Horse Bodyweight

Before accurate feed calculations can be made, the bodyweight of the horse should be estimated. Bodyweight assessment is also required when medicines, including dewormers, are administered.

The most accurate method of determining bodyweight is the use of electronic scales.

When using scales, weighing the animal just before feeding and watering will help avoid variations caused by different gut-fill levels and will make the results of successive weighings more meaningful.

Weight tapes also can be useful in estimating a horse's body weight. For those without scales, the Henneke Body Scoring System can help the average horseman, with practice, to establish and track changes in a horse's body condition. See the appendix for this scoring system.

Determining Feed Requirements for Each Horse

The amount of feed required by a horse is made up of two factors:

- Maintenance needs
- Activity needs (which include rate of work, growth, lactation and pregnancy)

Both requirements should be satisfied to maintain body condition and weight. Every horse should be offered daily a sufficient and appropriate ration of feed to maintain its body condition at between 4 and 6 points on the Henneke condition score chart.

Maintenance Needs

Maintenance feed is the amount required to maintain the horse at rest. "At rest" means that the work required of the horse is no greater in physical activity than that expected of a healthy horse grazing freely in a paddock. Maintenance can be expressed as an idle, mature horse that maintains its normal weight. This usually includes horses being rested from their usual work, most horses at rescue/retirement facilities, learners' horses that rarely get into a canter and pleasure horses ridden carefully at a relaxing pace for no more than one hour per day.

The average horse consumes approximately 2% of its bodyweight daily, as dry matter of a palatable feed, to meet daily maintenance requirements. Regular condition scoring or weighing will help establish any individual variation required from the 2% bodyweight guideline.

Individual horses have varying digestive capabilities that affect maintenance requirements. Periods of extremely cold weather may also increase maintenance needs by up to 30%. Temperament should also be taken into account, as nervous or highly-strung horses require more energy than do quiet horses of the same bodyweight.

The following table will help calculate the necessary daily ration based on level of activity.

Expected Total Ration Consumption by Horses⁴

Class	Total Consumption, % of body weight
Maintenance	1.5 - 2.0
Late gestation	1.5 - 2.0
Lactation	2.0 - 3.0
Working	1.5 - 3.0
Weanlings	2.0 - 3.0
Yearling	2.0 - 3.0
Two-year-old	1.8 - 2.5

Adapted from NRC, 1989.

Nutrition of the Pregnant Mare

The non-working pregnant dry mare does not require an increase in feed above maintenance during the first eight months of pregnancy. During the last three months of pregnancy, the extra energy requirement, due to fetal growth and an increase in the mare's weight, is about 0.5% of bodyweight, as dry matter, so the total dry matter feed requirement becomes approximately 2.2% of bodyweight.

It has been estimated that a normal mare will produce milk equivalent to 3% of bodyweight in early lactation and 2% in late lactation. The milk production of pony mares is estimated at 4% in early lactation and 3% in late lactation. For example, this means an 1,100-pound mare (500kg) should produce 4 gallons (15 liters) of milk per day in the first three months and 2 ½ gallons (10 liters) per day in the last three months prior to weaning.

In dry matter intake, the lactating mare's activity needs are between 1 and 1.5% bodyweight above maintenance.

Nutrition of Growing Horses

Growing horses need feeding above maintenance to supply the "building blocks" for growth. The feed required varies with the expected mature weight, growth rates, age and exercise. Young horses have a higher protein requirement than do mature horses. Their feed should contain 13 to 15% protein as weanlings. Yearlings and two-year-olds require less. Young horses need approximately 3% of their bodyweight as dry matter intake, depending on diet ingredients.

⁴ American Youth Horse Council, Horse Industry Handbook: A Guide to Equine Care and Management, 1993, p. 790.

Special Needs of Aged, Sick and Injured Horses

When horses show abnormal loss of bodyweight, despite being fed a diet that provides maintenance and extra energy requirements, a veterinarian's advice should be obtained and followed. A veterinarian or equine nutritionist's advice may also be required to work out special feed requirements for sick and injured horses.

Horses with abnormalities of the mouth may find normal grazing and chewing difficult and will have a greater reliance on supplementary feeds to maintain bodyweight. This problem is common in older horses. These horses should be examined by a veterinarian and corrective action taken if possible. (Refer to Chapter IV for special considerations for the geriatric horse.)

Overfeeding, Obesity and Laminitis (Founder)

Some equines, particularly ponies, are able to utilize energy in feeds very efficiently. Excessive energy intake is one of the causes of a common and crippling disease, laminitis. Laminitis affects the feet of horses and results from the disruption of blood flow to the sensitive and insensitive laminae, which secure the coffin bone to the hoof wall. Founder is a commonly used name for this condition. It is important to note, however, that other causal agents of laminitis include stress, a sudden increase in work, excessive concussion and abnormally high body temperature.

Horses should not be permitted to become overly fat. Horses and ponies known to be susceptible to laminitis should have restricted access to grains and spring and autumn pasture. Low-energy forages should be fed. Control of overweight horses using starvation diets is unacceptable. The horses should be supplied with a balanced reduction diet of food and water.

Water Requirements

A horse's daily water requirements may range from 5 to 20 gallons (20 to 70 liters), depending on air temperature, humidity, body weight, level of activity and health and physiological status (e.g., pregnant, lactating or growing). Every horse should have access to a sufficient amount of water to meet its individual maintenance and activity needs.

As a general guide, horses need ½ to 1 gallon (2 to 4 liters) of water per 2 pounds of dry matter intake. This requirement increases with air temperature; e.g., an increase in ambient temperature from 55°F to 77°F (13°C to 25°C) increases water required by 15 to 20%.

Water troughs and containers should be regularly cleaned to prevent algae buildup. They should be located where they are protected from electrical problems, fouling and freezing. Automatic watering systems should be checked daily to ensure they are dispensing water properly.

A rapid loss of water and essential electrolytes can result from severe diarrhea, bowel diseases and exercise. Fluid replacement should be administered by a veterinarian in order to overcome dehydration if necessary.

Refeeding the Starved Horse

Unfortunately, some horses that arrive at rescue/retirement facilities have been subjected to long-term neglect and suffer from starvation. Rehabilitating a starved horse presents many challenges for caregivers. In both horses and humans, the abrupt refeeding of a starved horse can cause dysfunction of the body's metabolic system, which can lead to failure of the heart and lungs and ultimately to death.⁵ A veterinarian is vital to the recovery of these animals and should be consulted as soon as a starved horse arrives at the facility.

What Happens during Starvation⁶

During the starvation process, the horse initially uses any fat and carbohydrate stores in his body to supply energy for metabolism. This is the normal process for any healthy horse: fat and carbohydrates are used for energy, exercise, brain function, circulation, etc., and are then replaced with nutrients from food. The cycle is constant and never-ending, even during sleep.

In a starved animal, once this source of fat and carbohydrate is gone, energy is derived from the breakdown of protein. While protein is a component of every tissue, there are no inert stores of it in the body such as there are for fat and carbohydrates. Consequently, the starved body uses protein not only from muscles, but also from vital tissues such as the heart and even gastrointestinal tissues – tissue that is necessary for life. The starved body cannot select which tissue protein will be metabolized for energy. As time goes by, the horse's survival is a precarious situation. When a horse loses more than 50% of its body weight, the prognosis for survival is extremely poor.

⁵ Reprinted by permission of the UC Davis School of Veterinary Medicine; this information originally appeared in *The Horse Report*, Volume 21, Number 3, July 2003, the newsletter of the Center for Equine Health. Copyright 2003, University of California Regents.

⁶ *Ibid.*

The Refeeding Problem

Refeeding starved animals, including humans, is not an easy process. In humans suffering from starvation caused by illnesses such as anorexia, cancer or gastrointestinal obstruction, patients can develop “refeeding” syndrome when they are given concentrated calories, and this in turn can lead to heart, respiratory and kidney failure, usually three to five days after the initial meal. This same syndrome has been reported in the literature for horses.

The Best Diet

A team of California researchers led by Dr. Carolyn Stull of the University of California-Davis Veterinary Medicine Extension studied the rehabilitation of chronically starved horses and developed guidelines extremely beneficial for use in rescue/retirement facilities.

Dr. Stull and her team showed through their research that the best approach for initial refeeding of the starved horse consists of frequent small amounts of high-quality alfalfa. This amount should be increased slowly at each meal and the number of feedings decreased gradually over ten days. After ten days to two weeks, horses can be fed as much as they will eat. The horse will show signs of increased energy after about two weeks. Ears, eyes and head movement will be the first noticeable movements. Some weight gain can be achieved in one month, but three to five months usually are needed to rehabilitate back to a normal weight. Veterinary care and nutritional advice should be sought as complications arise.

Refeeding Recommendations

Days 1-3

Feed one pound (approximately 1/6 flake) of leafy alfalfa every four hours (total of six pounds per day in six feedings). Contact a veterinarian to evaluate the medical status of the horse.

Days 4-10

Slowly increase the amount of alfalfa and decrease the number of feedings so that by day six, you are feeding just over four pounds of hay every eight hours (total of 13 pounds per day in three feedings.)

Day 10 – Several Months

Feed as much alfalfa as the horse will eat and decrease feeding to twice a day. Provide access to a salt block. Do not feed grain or supplemental material until the horse is well along in its recovery; early feeding of grain and supplemental material complicates the return of normal metabolic function and can result in death.

*Provide clean, fresh water at all times.

*Deworming and correction of dental problems are very beneficial to the horse’s recovery.

For complete information on Dr. Stull's research, please refer to the following studies:

- "Metabolic Responses of Chronically Starved Horses to Refeeding with Three Isoenergetic Diets," *Journal of the American Veterinary Medical Association*, 1998, Vol. 212, No. 5, p. 691-696.
- "Fat Supplementation to Alfalfa Diets for Refeeding the Starved Horse," *The Professional Animal Scientist*, 2003, 19:47-54.

III. BASIC HOOF CARE

The age-old saying “no foot, no horse” applies to every discipline in the horse industry and is equally important to the horse that enters a retirement/rescue facility. The foot is a common source of lameness; therefore, good, quality hoof care is imperative to the well being of a horse in these facilities. For the sake of the organization, discussion here applies specifically to horses in rescue/retirement facilities and should not be confused with any breed predilection or discipline.

Hoof Growth

As a general rule, adult horse hoof growth is approximately 3/8 of an inch (9 millimeters) per month, while hoof growth in a foal is approximately 5/8 of an inch (15 millimeters) per month. With that in mind, an adult horse should be trimmed (or shod) every six to eight weeks so as to maintain proper hoof-pastern axis and more importantly, proper hoof balance in accordance with the needs of the horse. Foals should be trimmed every four weeks.

Start with a Thorough Examination

Upon entering a facility, a complete physical examination should be performed on every horse. As part of the examination, the feet should be evaluated carefully to identify any hoof wall cracks, bruising, lacerations or any other pathology that needs the attention of the farrier or veterinarian. Any history of laminitis, navicular disease or any other disease entity should be addressed at this time to help facilitate proper shoeing for the horse.

Special Considerations

Horses entering retirement/rescue facilities come in all shapes and sizes and often require the involvement of the veterinarian and the farrier to address hoof concerns. For example, retired racehorses are often in aluminum shoes with toe grabs. It is thought best to remove these shoes, balance the foot according to conformation and leave the horse barefoot or apply flat steel shoes. These horses often have under-run or sheared heels and require several shoeings to achieve a proper hoof-pastern axis. Some other items to consider are:

1. *Hoof Wall Cracks/Quarter Cracks*: A farrier should evaluate and address the crack for infection, necrotic tissue and, most importantly, stability. Stability of a hoof wall crack is necessary for normal hoof growth.
2. *Navicular Disease*: Often seen in particular breeds and disciplines. If history exists or a diagnosis is made, veterinarian and farrier involvement is necessary to facilitate the shoeing needs of the horse.

3. *Laminitis - Chronic versus Acute:* Accurate diagnosis, which may require radiographs, is necessary to determine the shoeing needs of the horse. Proper shoeing, good management and nutrition all play a vital role in foot care relative to laminitis.
4. *Corrective Shoeing:* May sometimes be necessary depending upon injury and conformation. Often required with foals. Consultation with a farrier is recommended.
5. *Environment:* Hoof care is often dependent upon the environment in which the the horse lives. Moisture can be a problem and can lead to thrush and other problems. Cold weather slows hoof growth and must be considered when trimming is necessary. Shoeing considerations must be addressed and will be different for a frozen pasture versus a rocky pasture, for example.
6. *Management:* Good nutrition, shelter and dry bedding are all important in maintaining good, healthy feet. Some people advocate the use of feed additives for healthy hoof growth. Basic applied animal husbandry is paramount for normal feet and should never be omitted.

Rely on Qualified Caregivers

When a horse is to be shod, a qualified farrier who understands the goals of the facility should be involved. This will aid in minimizing any potential hoof problems, as well as correct any previous hoof problems. To find a certified farrier in your area, contact the American Farrier's Association at (859) 233-7411.

The horse should be shod or trimmed in accordance to its needs, which is dependent upon its housing, musculoskeletal problems, conformation and environment. Hind feet shoes are not recommended when horses are turned out in a group, so as to minimize injury to other individuals. However, there exist some musculoskeletal problems in hind feet that require shoeing.

There exist numerous other aspects of hoof care that have not been mentioned here. Management plays a critical role in the success of the retirement/rescue facility and more importantly, in the health of the horse. Good management should incorporate both the veterinarian and the farrier when addressing hoof care for the horse.

IV. CARING FOR THE GERIATRIC HORSE

The proportion of the equine population living into their 20s and 30s is growing. With proper care the lifespan of geriatric horses can be prolonged, as can their active, healthy status and quality of life. Rescue/retirement facilities should have knowledge of equine diseases and lamenesses common in geriatric horses and be able to identify early signs of disease, distress and injury in order to provide for the special needs of the older horses entrusted in their care.

It is imperative to recognize that caring for the geriatric equine is exacting and labor-intensive and may involve considerable expense. At times, difficult decisions concerning quality of life and euthanasia must be made (*see "Euthanasia," Chapter VII*).

Health and Disease in the Geriatric Horse

Older horses are more likely to experience colic, dental disease, tumors, lameness and pituitary disease than younger horses. Alterations in the older horse's digestive system may predispose it to colic; the most obvious would be dental problems. The wearing down of grinding surfaces, malocclusions and loss of teeth results in a decreased ability to crush whole grains and forage. This predisposes the animal to poor digestion and esophageal and intestinal obstructions. A thorough dental examination should be performed in the older horse at least once a year and, in some cases, every six months. Dental care alone cannot increase the grinding ability of the older horse.ⁱ

There is increased prevalence of laminitis in the older horse, and its association with Equine Cushing's Disease (ECD) places them at higher risk. Cushing's disease is hyperactivity of the adrenal cortex, representing the most common endocrine disorder of horses.ⁱⁱ

Musculoskeletal problems are common in the older horse and are an accumulation of past injuries and wear and tear. If we look at recommendations for older people, regular exercise and resistance training improve muscle tone and mobility. Conversely, confinement and lack of movement weaken muscles and bones. Even in the oldest group of horses, movement in a pasture is preferred to stall confinement.

Providing Proper Shelter

Standards described in Chapter VI, "Shelter, Stalls and Horse Facilities," should be applied to geriatric horses as necessary to accommodate older horses' decreased ability to regulate body temperature and increased susceptibility to extremes of heat and cold.

It is essential to protect older horses from heat and/or humidity by providing shade and ventilation. Pastures and paddocks should include natural shade or properly constructed, well-ventilated shelters. Stables may require fans. Body clipping may be necessary to promote dissipation of heat from the body.

It is also essential to protect older horses from extremes of cold through the appropriate combination of shelter, wind breaks and blanketing. Pastures and paddocks should include natural or constructed shelter to provide a dry environment and protection from winds. Soft footing and deep bedding (but not too deep, as it's harder to move around in) should be considered for older horses with arthritic conditions and other lameness.

A pasture environment is an excellent option for older horses, as turnout promotes beneficial activity. Consistent light exercise regimens are recommended and may improve range of motion and muscle strength. Pasture turnout is preferred over stall rest, because stall rest generally results in increased stiffness and pain. Stall rest should be used only during periods of acute pain or joint instability. Body weight should be reduced to normal or slightly lighter levels to minimize mechanical stress.ⁱⁱⁱ

Feed and Water

Standards described in Chapter II, "Nutrition," should be adapted to the special needs of geriatric horses. The body condition and/or actual body weight of older horses should be monitored carefully, because loss of condition is the most common problem in older horses. Weight loss can indicate abnormal and often treatable conditions, and lost weight is harder to regain in older horses than in younger horses.

Current recommendations of the National Research Council's *Nutrient Requirements of Horses* for mature adult horses are influenced by several circumstances of the aging horse, including slower metabolism, decreased digestive efficiency and decreased level of energy expenditure. Nutrient requirements of geriatric horses more closely approximate those of weanlings in terms of protein, calcium and phosphorous.

Protein requirements are higher in older horses than in younger adult horses, as the ability to digest crude protein is less in geriatric horses. Subsequently, it is suggested that geriatric horses are fed diets containing 14% to 16% crude protein. Loss of muscle mass is a common characteristic of geriatric horses. Although this has been attributed to decreased levels of activity, nutrition has also been implicated. Leucine, which may stimulate protein synthesis and is relatively high in alfalfa hay, may be useful in preventing loss of muscle mass in geriatric horses.^{iv}

Phosphorous absorption is also impaired in older horses, such that phosphorous requirements are higher. The ratio of calcium to phosphorous should remain 1:1 or slightly higher. The grain ration typically should be approximately 0.3% phosphorous and 0.3% calcium (not more than 1% calcium) on a dry matter basis.

Older horses are likely to need grain to meet their energy needs. If they are performing, older horses work harder than younger horses at the same level of exercise.^v Commercial rations designed for geriatric horses are available. Specialized feeds containing a highly digestible fiber and a form of fat for energy must be fed to accommodate older horses. Extruded grains or pellets are more digestible and more easily chewed.

Fat is an excellent source of calories for older horses and is well utilized with almost no increase of digestive upset compared to energy-dense rations containing primarily cereal grains. Commercial grain rations with fat added are available (5 to 8% crude fat content). Another way to increase fat is to add vegetable oil (up to 2 cups per day) or rice bran. If protein is insufficient in the diet, soybean meal is an excellent, high-quality protein source for older horses.

Older horses should receive high-quality roughage because of their decreased ability to digest fiber and to chew forage properly. Sweet, young grass is ideal. Another roughage alternative for older horses is beet pulp, because of its digestibility and calcium content. It can be soaked to make chewing easier.

Hay, when required, should be less mature and lacking in coarse stems, such as mixed hay with 60% legume content. All legume hay, such as straight alfalfa, is not ideal because the protein content may be too high and the phosphorous content is very low, although phosphorous could be supplemented. If chewing is impaired, chopped hay, hay cubes or roughage-containing pellets are alternatives. Soaking hay cubes and pellets in water will make them easier to chew, while decreasing the risk of choke (obstruction of the esophagus with impacted feed).

Feed supplements are desirable for some older horses. Electrolytes may be appropriate in the performing geriatric horse, as they sweat more at lesser intensity exercise.^{vi} A probiotic product may help digestion, because of the altered intestinal microbial content of older horses.

Water intake should be monitored in geriatric horses, especially because some of their more common medical conditions are accompanied by increased water intake and increased urine production. Older horses may be less inclined to drink excessively cold water, especially after the loss of a tooth, because cold water may cause discomfort. If the horse does not drink well, feeding water-soaked feeds (at least 2 gallons of water per feeding) will help increase fluid intake. Addition of 1 to 2 ounces of salt to the feed may also encourage increased water intake but should be done only if the horse has unlimited access to water.^{vii}

Special attention should be given to older horses pastured with other horses to avoid problems arising from age-associated decreasing aggressiveness. Access to feed should be ensured. Ideally, older horses should be pastured with their peers rather than with younger, more aggressive horses.

ⁱ Paradis MR: Demographics of Health and Disease in the Geriatric Horses. *Vet Clin Equine* 18 (2002) 391-401.

ⁱⁱ UC Davis Book of Horses. 1996, p. 449.

ⁱⁱⁱ Malone ED: Managing chronic arthritis. *Vet Clin Equine* 18 (2002) 411-437.

^{iv} Siciliano PD: Nutrition and Feeding of the Geriatric Horse. *Vet Clin Equine* 18 (2002) 491-508.

^v McKeever KH, Malinowski K: Exercise Capacity in Young and Old Mares. *AJVR* 58:1468-1472, 1997.

^{vi} McKeever KH: Exercise Physiology of the Older Horse. *Vet Clin Equine* 18 (2002) 469-490.

^{vii} Ralston SL: Management of Old Horses. Rutgers Cooperative Extension Bulletin FS715, <http://www.rce.rutgers.edu/pubs/pdfs/fs715.pdf>

V. SHELTERS, STALLS AND HORSE FACILITIES

The purpose of this section is to provide information on the basic principles of shelter for horses at retirement/rescue facilities. Many different types of housing and shelters are used at these facilities, and in this section it will be difficult to examine all possibilities. Many factors should be taken into account when designing shelters, including the diverse climatic and geographic conditions that can be found in the United States. Individuals requiring further information should refer to local sources, such as veterinarians and extension agencies.

Shelter

A shelter is a natural or man-made structure that provides relief to each individual animal from direct sunlight, wind, precipitation and other inclement weather. The design and use of shelters should promote the health, well-being and good performance of horses throughout all stages of their lives.

All constructed shelters should be structurally safe for horses and personnel. Shelters where horses are located should be constructed with no exposed surfaces or projections likely to cause injury. Shelter design should promote easy and safe handling of horses, as well as ease of cleaning and care. Horses should be provided with a clean area on which to lie.

Ceilings and support beams in horse-housing facilities should be high enough to permit the horse to stand naturally with a full range of motion in the head and neck without touching the ceiling. Floors in horse stables should be constructed and maintained to provide traction and drainage and prevent injury. Ventilation should be designed to provide adequate air circulation for enclosed shelters.

Electrical wiring and panels should not be accessible to horses and should be installed in accordance with applicable electrical codes. Lighting should be provided in a manner to permit effective observation of stabled horses. Alleyways and work areas should be uniformly illuminated. Natural lighting should be provided wherever possible.

Manure and disposed bedding should be handled and stored in a manner that has as little negative impact on the surrounding area and the environment as is reasonably possible.

Rescue/retirement facilities should have a designated area for quarantine or isolation purposes. This area should be separated from other holding areas.

Stalls

Stalls or portable corrals should be available to contain horses that may be sick or injured. The stalls should be of sufficient size for a horse to get up and down. Bedding should be provided and kept clean, with stalls being cleaned at least once every 24 hours. Good ventilation is very important.

VI. PASTURES, PADDOCKS AND FENCING

Pastures are an important aspect of rescue/retirement facilities. Pastures allow horses to have access to grass as needed. The number of horses intended to be pastured should determine the size and number of pastures and/or paddocks at a facility. Conversely, size and number of paddocks available will determine how many horses can be safely accommodated without compromising their physical and emotional health. Keep in mind safety and injury prevention while allowing plenty of exercise.

Stocking requirements of pastures will vary, depending on feed and quality of the pastures. But generally, one or two acres per horse are required. Horses have a natural herd instinct, and as such, will prefer to be with other horses. In addition, pasture containment with proper shelter will serve a facility better than stalls only.

Pastures and Range Management

Horses on pasture or range should have an adequate quantity and quality of feed and water. Properly maintained pastures may provide all or most of the nutrient requirements of grazing horses. Nutrient content of pastures should be closely monitored and supplemental feed provided when necessary. Salt and mineral supplements should be provided when necessary to supplement specific nutrient deficits in grasses and forage.

To prevent digestive and health problems, horses should be introduced to pasture gradually or cautiously, especially in heavy growing periods such as spring in some areas. Horses on pasture should be inspected regularly, paying close attention during high-risk periods (seasonal changes, introduction of new horses, foaling, etc.).

Application of fertilizers, pesticides, herbicides and manure to pastures should be planned and conducted to minimize risk to grazing horses and the environment. In addition, pastures and range land should be inspected regularly for poisonous plants.

Pasture and Paddock Fencing Safety

Pastures and paddocks should be properly fenced to safely confine horses. The suitability of type of fence varies according to the disposition of the horses, as well as stocking density and pasture/paddock size. Horses should be introduced to unfamiliar fenced areas during daylight hours and be monitored to reduce the risk of injury.

Fences and gates should be maintained in good repair to minimize the risk of horses gaining access to public roadways. Barbed wire and narrow gauge high

tensile wire, because of their cutting properties, can cause severe injury to horses. These materials are sometimes used for fencing extensive pasture areas, but should be avoided in closely confined paddocks or small pastures.

Pastures, paddocks and range should be free from equipment, machinery, debris and refuse that have the potential to cause serious injury to occupants.

Paddock and Small Pasture Management

Every property in which horses are kept should have a sufficient number of paddocks or pastures to permit separation of incompatible animals. The risk of injury increases when horses are overcrowded. Competition for food, water and space often leads to fighting and subsequent injury.

The number of horses and their grouping in each paddock or small pasture should be appropriate for their compatibility and for the ground conditions, taking into account the climatic conditions at the time.

Paddocks and small pastures should be cleaned regularly. Horses will not eat pasture grass or forage that is contaminated with manure. Without regular cleaning the effective grazing area is decreased.

Effective parasite control is more difficult in paddock or small pasture environments. Pasture rotation, manure removal and internal parasite control with effective deworming programs are a part of an integrated program of management. Sources such as your local veterinarian can help in the development of a specific program to fit individual conditions.

VII. Euthanasia

The term euthanasia is derived from the Greek terms *eu* meaning good and *thanatos* meaning death. A good death would be one that occurs with minimal pain and at the appropriate time in the horse's life to prevent unnecessary pain and suffering.

Justification for euthanization of a horse for humane reasons should be based on both medical considerations as well as current and future quality of life issues for the horse.

The following criteria (not all criteria need to be met for every case) should be considered in evaluating the necessity for euthanization of a horse¹:

- Is the horse's condition chronic, incurable and resulting in unnecessary pain and suffering?
- Does the horse's condition present a hopeless prognosis for life?
- Is the horse a hazard to itself, other horses or humans?
- Will the horse require continuous medication for the relief of pain and suffering for the remainder of its life?
- If the horse is suffering but treatable, is proper and recommended care of the horse within the means of the rescue/retirement facility, such that the health and safety of the other horses are not compromised?
- Is the horse constantly and in the foreseeable future unable to move unassisted, interact with other horses, or is exhibiting behaviors which may be considered essential for a decent quality of life?

Acceptable methods of euthanasia for horses include²:

- Overdose of a barbiturate anesthetic, given intravenously by a veterinarian or a euthanasia technician, trained, certified and experienced in the humane euthanasia of horses.

- Gunshot to the head of a calm, sedated or humanely restrained horse by a professional trained in this method.
- Penetrating captive bolt to the head of a calm, sedated or humanely restrained horse by a professional trained in this method.

¹ “The Veterinary Role in Equine Insurance,” AAEP 2000, pg. 6.

² Report of the AVMA Panel on Euthanasia, JAVMA 2001; 218: 669-695.

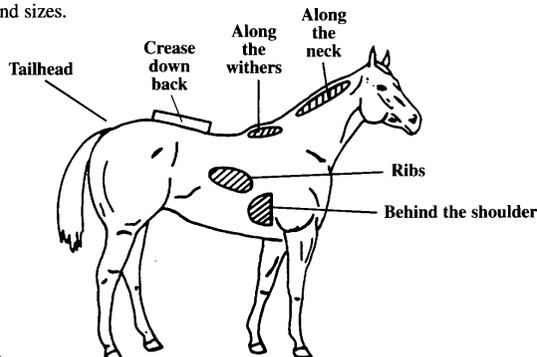
VIII: The Bottom Line – Protecting the Health and Welfare of the Horse

Ultimately, the best indicators of proper management of an equine rescue/retirement facility are the physical and emotional health of the horses and the overall improvement in horses previously suffering from disease, trauma or neglect. Unless there is a medical explanation, all horses should regain and maintain an acceptable state of health and well-being with proper care.

Allowing rescued horses to deteriorate due to inadequate care, resources or space is no favor to them and can progress to the point of cruelty. Those who take in every animal, regardless of their ability to provide care or refusal to recognize when an animal is suffering, are hoarders, not rescuers. All rescue and retirement organizations should periodically reevaluate their principles, practices, capabilities and goals with the help of objective, knowledgeable outsiders, such as their equine veterinarian.

Body Condition Scorecard

This numerical condition scoring system provides a consistent measure of the degree of body fat in horses of various breeds and sizes.



Condition Score

- | Condition Score | Descriptions |
|-----------------|--|
| 1. | Poor: Animal extremely emaciated. Spinous processes, ribs, tailhead and hooks and pins projecting prominently. Bone structure of withers, shoulders and neck easily noticeable. No fatty tissues can be felt. |
| 2. | Very thin: Animal emaciated. Slight fat covering over base of spinous processes, transverse processes of lumbar vertebrae feel rounded. Spinous processes, ribs, tailhead and hooks and pins prominent. Withers, shoulders and neck structures faintly discernible. |
| 3. | Thin: Fat build-up about halfway on spinous processes, transverse processes cannot be felt. Slight fat cover over ribs. Spinous processes and ribs easily discernible. Tailhead prominent, but individual vertebrae cannot be visually identified. Hook bones appear rounded, but easily discernible. Pin bones not distinguishable. Withers, shoulders and neck accentuated. |
| 4. | Moderately thin: Negative crease along back. Faint outline of ribs discernible. Tailhead prominence depends on conformation, fat can be felt around it. Hook bones not discernible. Withers, shoulders and neck not obviously thin. |
| 5. | Moderate: Back level. Ribs cannot be visually distinguished but can be easily felt. Fat around tailhead beginning to feel spongy. Withers appear rounded over spinous processes. Shoulders and neck blend smoothly into body. |
| 6. | Moderate to fleshy: May have a slight crease down back. Fat over ribs feels spongy. Fat around tailhead feels soft. Fat beginning to be deposited along the sides of the withers, behind the shoulders and along the sides of the neck. |
| 7. | Fleshy: May have crease down back. Individual ribs can be felt, but noticeable filling between ribs with fat. Fat around tailhead is soft. Fat deposited along withers, behind shoulders and along the neck. |
| 8. | Fat: Crease down back. Difficult to feel ribs. Fat around tailhead very soft. Area along withers filled with fat. Area behind shoulder filled in flush. Noticeable thickening of neck. Fat deposited along inner buttocks. |
| 9. | Extremely fat: Obvious crease down back. Patch fat appearing over ribs. Bulging fat around tailhead, along withers, behind shoulders and along neck. Fat along inner buttocks may rub together. Flank filled in flush. |

Recommendations for Assigning Scores

Scoring is based on visual appraisal and handling (particularly in scoring horses with long hair) of horses. Conformation differences between breeds or types do not affect scoring when all criteria are applied. Muscle tone should not be confused with fatness. Scores can be assigned in half-point increments.

Henneke et al Texas A&M 1983

Veterinary Checklist for Rescue/Retirement Facilities

(Adapted from the Thoroughbred Adoption and Retirement Association's (TARA)
"Vet Check for Thoroughbred Adoption & Retirement Sites.")

Note: This checklist is provided as a sample for use by a veterinarian when evaluating the facilities available at an individual rescue or retirement.

Scoring System for Checklist:

Excellent – 5

Good – 4

Adequate – 3

Fair – 2

Inadequate – 1

Add specific comments as needed.

Name of Facility: _____

Address: _____

Primary Contact: _____

Telephone: _____ **Fax:** _____

I. Horses

Number at facility: _____ Maximum capacity: _____

Overall appearance and health: _____

II. Preventative Care and Basic Health Management

___ Parasite Control Program _____

___ Vaccination Program _____

___ Dental Care _____

___ Emergency First Aid Kit _____

___ Health Records System _____

___ Injury Protocol _____

III. Feed Program

___ Hay _____

___ Pasture _____

___ Grain _____

___ Supplements _____

___ Storage of Hay, Grain & Supplements _____

___ Free Access to Hay _____

IV. Water

Indoor water supply: ___ Buckets ___ Automatic Waterers

___ Availability _____

___ Cleanliness _____

Outdoor water supply: ___ Tanks ___ Automatic Waterers ___ Naturally Occurring

___ Availability _____

___ Cleanliness _____

Please list all indoor/outdoor water sources:

V. Pastures and Paddocks

___ Cleanliness _____

___ Available for Turnout _____

___ Access to Feed and Water _____

___ Size _____

___ Division of Horses _____

VI. Fencing

___ Type _____

___ Condition _____

___ Safety _____

VII. Facility

___ Barns _____

___ Stalls _____

 Size: _____

Number: _____

Isolation/Quarantine Area: _____

___ Run-in Sheds _____

___ Living Quarters for Workers _____

___ Personnel Present at Facility at All Times _____

VII. Farrier

___ Regular Visits _____

___ Quality of Care _____

VIII. Horse Transportation

Please describe modes of transportation for horses available at this facility (van, truck trailer, etc.):

IX. Equipment Condition

___ Tack _____

___ Buckets _____

___ Brushes _____

___ Hoses _____

___ Hay Racks _____

X. Environment

___ Safety _____

___ Cleanliness _____

___ Bedding _____

___ Manure Removal _____

___ Fly Control _____

Additional Veterinary Comments:

Veterinarian: _____

Date: _____

