Managing Equine Neglect Cases

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General Definitions

- **Neglect** is the failure to provide proper shelter, food, or water. Neglect may also include failure to provide veterinary care to a horse that is ill or injured.

- **Abuse and cruelty** includes the intentional act, omission, or neglect whereby unnecessary or unjustifiable physical pain or suffering is caused or permitted. Examples include poking with a sharp stick or excessively beating, intentionally scaring, or poisoning a horse.

- **Owner** is anyone who cares for, possesses, controls, or otherwise assumes custody and is responsible for its care.

Causes of Neglect

- Ignorance or lack of skills accounts for more than 50% of neglect cases. These neglect cases usually can be resolved with proper education.
- Economic hardship can precipitate neglect especially in horses kept as companions.
- Apathy or laziness of the care provider can impair proper care.
- Illness, injury, or substance abuse over a long term compromises quality of care.
- Domestic violence strategies may use the neglect of an animal to "punish" a person such as a child or spouse.

Role of Veterinarian

- Medical evaluation including diagnosis, prognosis, supportive treatment and/or rehabilitation is the expertise of the equine veterinarian.
- Education can resolve most neglect cases and the veterinarian is qualified to participate as the lead educator in the resolution of neglect cases.
- Reporting neglect cases to authorities should be reserved for those offenders who consciously ignore educational efforts or failed to initiate remedial steps. Reporting to authorities can prevent further neglect or abuse. Reporting animal abuse or neglect may be mandatory under some governmental authorities. If reporting is not compulsory, "good faith" reporting is warranted for the veterinary professional.
    - There is a strong connection between animal cruelty and human violence including child or spousal abuse. Reporting human abuse is mandatory under some governmental authorities. If not, veterinarians aware of suspicious circumstances should consider reporting to the proper agency.
- Testifying as an expert witness in the prosecution of animal abuse or neglect.

Role of Other Agencies-Various agencies have different functions and roles in neglect cases. Investigations are usually initiated by humane or animal protection organizations.

Law enforcement, such as animal control officers, sheriffs' departments, local and state police, or governmental veterinarians, may investigate as well as enforce existing codes, regulations and laws. Law enforcement is also concerned about public health and safety. Social services may assist with an animal neglect case if there is suspected human violence or other human safety or health needs.

Assessment by the Veterinarian

- **Safety-** Safety is a concern for the veterinarian. Proceed with caution since the cause of neglect is unknown and the suspected perpetrator may be psychologically unstable. Do not trespass to help a horse, as this act may result in criminal charges, jeopardize your credibility, and damage any existing legal proceedings against the owner.

- **Reporting-** Start and maintain a log book recording all communication and visits. Include the date and time with each entry. Record both positive and negative observations. Be objective in assessments.
    - Record the property address and names of the contact people, owners, and witnesses.
    - Write summaries of all phone calls, meetings, and in-person discussions.
    - Record information on the animals' environment.
    - Record, in detail, all oral and written recommendations and instructions.
    - Samples submitted to commercial laboratories should be recorded and the proper chain of custody procedures should be followed.

- **Environment**-Record, and if possible, photograph the conditions of the facility in detail at each visit including:
    - Facility design, such as barns, flooring, bedding, feeders and water containers, stall design and maintenance, water supply, and outside pen conditions (i.e., appropriate fencing, presence of mud, and hazardous objects or materials).
    - Feed storage, including the amount and type of feed stored on property.
    - Sanitation, including manure management, water cleanliness, presence of pests, or other conditions that impact horse health.

- **Evaluating animal condition:**
    - History of the neglected horse in the preceding weeks or months should be initiated through discussion with the owner. However, the owner may provide misleading or false information. Contacting their veterinarian and/or feed supplier may assist an objective assessment. Others involved in the investigation may provide information, especially information on the timeline of events.

- Identification of specific horses should include a written record and/or photographs using the following as a guide:

    - General characteristics, including gender, breed, age, coat color, markings, and hot or freeze brands.
    - Specific identifying marks, such as scars, swirls on forehead, blindness, or other unique conformation characteristics (i.e., frost bitten ear, sway back, or "Roman-nose").
    - Photographs of side, rear and front stances are helpful in identifying horses, especially with seasonal changes in coat color and fluctuations in body condition.

- Body condition should be assessed on the initial visit and at weekly intervals during rehabilitation.

    - Scoring using the Henneke method (1983) is commonly utilized under field conditions to evaluate body condition. This scoring method is based on visual appraisal and palpable fat in six areas (Table 1) to assess the percentage of body fat. Scores range from a score of 1 to 9. A score of "1" is designated as "poor" with no fatty tissue felt, while a score of "9" is considered extremely fat and described as having patchy and bulging fat depots. Scores of 5 and 6 are desirable in most healthy horses.

    - Heart girth tapes measure the circumference of the heart girth size which will decrease with losses in body condition. Record the heart girth measurement rather than the associated weight marked on commercial heart girths, as weight can vary according to breed and conformation of the individual horse.

    - Scales provide the most accurate body weight measurement. Portable scales are available for horses.

- Injuries should be documented along with their location and severity.

- Document the amount and condition of feed accessible to the horses and stored on premises. Note consumption or refusal of offered feed. Identify any poisonous weeds in pasture. Consider sampling pasture or feed for nutrient content by chemical analysis at an approved laboratory. Document the water source, the cleanliness, and consider submitting water for analysis of any toxins or pathogens.

- Health of each horse should be evaluated by the veterinarian with consideration to any necessary diagnostic tests. The following is a guideline in assessing health of horses in neglect cases:

- Physical examination of each horse should be performed. The symptoms of the starved horse over time include:
    - Behavioral changes with a depressed reactivity to external stimuli. This occurs usually 3-4 days to a week after the severe restriction of feed (Kronfeld, 1993)
    - Immune compromise occurs 3-4 days after total feed deprivation, with a decrease in circulating lymphocyte count and a compromise in phagocytic response (Naylor and Kenyon, 1981).
    - Body weight loss becomes noticeable after 1 to 2 weeks of feed deprivation.

- Evaluate existing parasite control program.
- Examine dental condition of horses.
- Evaluate hoof condition. Photograph overgrown hooves with a ruler to provide a reference for the length of hoof.
- Perform or submit dead animals for necropsy (Kronfeld, 1993). Consideration should be given to the following:
    - Atrophy of fat depots occurs first with the coronary and perirenal adipose tissues, followed by the subcutaneous, and then the abdominal fat depots. Muscle wasting occurs with prolonged starvation.
    - Parasites should be identified.
    - Tissues for histology should be submitted for liver and kidney, and when appropriate, thymus, pancreas, intestinal wall, or lymph nodes.
    - Other conditions, such as cancer (lymphoma) or adenoma, can be identified with necropsy.

- Document presence and condition of any other animals on premises.

- Recommendations for immediate care or treatment of horses should be discussed and presented in written form to the owner and any authorities. Less urgent recommendations can be written as an educational document to the owner or report to enforcement authorities.

Causes of Emaciation- Causes can be multi-factorial and include (Kronfeld, 1993):

- Lack of quantity and quality of feed, especially the nutrient content and balance of energy and protein. Deficiencies of certain minerals and vitamins over the long-term can contribute to emaciation, but also the excessive use of supplements.
- Seasonal declines in the primary feed source such as pasture.
- Malabsorption of nutrients associated with diarrhea or poor dental function.
- Parasites can be either a primary or secondary contributor to emaciation.

- Conditions such as lactation, pregnancy, or old age increase dietary requirements.
- Pathological conditions such as cancer, diabetes, infections, or diseases of the liver, kidney, or pancreas, or heart can elicit symptoms associated with emaciation.

Nutritional Rehabilitation of Starved Horses

In humans, the refeeding syndrome arises when emaciated patients are given concentrated calories usually in the form of glucose, either enterally or paraenterally. Refeeding syndrome can lead to cardiac, hepatic, or respiratory failure, convulsions, coma, and acute death in 3 to 5 days. These patients have normal reference range electrolytes at the start of refeeding, but develop severe hypophosphatemia, hypomagnesemia, and hypokalemia due to the effects of insulin on the marginal stores of electrolytes in the emaciated body (Solomon and Kirby, 1990).

Horses which are severely starved with BCS of 1 or 3 may experience the "refeeding syndrome" when presented with concentrated calories. Data from starved horses have shown serum phosphorous levels were within the normal reference range at the initiation of refeeding, but declined throughout the 10-day trial. Serum magnesium levels were in the low reference range at the initiation of refeeding, and showed an increase during the research trial in horses fed a diet (alfalfa) high in magnesium content. Thus, a general dietary recommendation is the gradual increase in the amount of high quality forage, which is preferably low in bulk and high in magnesium content. Grains such as oats or corn are high in soluble carbohydrates producing an elevated post-prandial insulin response and are not recommended. Alfalfa is recommended as preferable forage due to its high phosphorous and magnesium content, low carbohydrate content, and low bulk. These qualities in feed are supportive of successful nutritional rehabilitation of starved horses (Witham and Stull, 1998).

Feeding programs are based on the digestible energy (D.E.) requirement of the horse at normal body weight. The daily D.E. requirement for the horse at different body weights and production levels (maintenance, growth, pregnancy and lactation) along with the various common equine feeds are given in the NRC's (1989) "*Nutrient Requirements of Horses.*" In general, small portions of high quality forage should be consumed with a 4 hours interval to allow the insulin response to return to baseline. Generally, severely starved horses will gain about 10 lb (4.5 kg) during the first week, and regain normal body condition by 6 months, barring any other medical conditions.

Sample Feeding Protocol- The following protocol has been used in experimental studies and is calculated for a starved horse with a normal body weight of 880 lb (400 kg) and a daily D.E. requirement of 13.4 Mcal per day. Alfalfa hay with a D.E. of 2.28 Mcal/kg and 21% crude protein as determined by chemical analysis is used as the forage in the following protocol:

- **Days 1 to 3**: Feed 50% of the digestible energy (D.E.) requirement in 6 feedings with four hour intervals.

    - Feed 1.1 lb (0.5 kg) of leafy alfalfa every 4 hours (6 feedings per day)

- **Days 4 to 5**: Feed 75% of D.E. requirement in 6 feedings every 4 hours (6 feedings per day).
    - Feed approximately 1.6 lb or 0.75 kg of alfalfa per feeding.

- **Days 6 to 10**: Feed 100% of the D.E. requirement in 3 feedings every 8 hours (3 feedings per day).
    - Feed approximately 4.3 lb or 2.0 kg alfalfa per feeding.

- **Days 10 to 120**: Continue feeding 2 to 3 times per day, increasing quantity if consumed. It is recommended not to feed grain until body condition score of 3 or higher is achieved, usually after 2 months of refeeding the emaciated horse.

Complications

- Refeeding syndrome characteristics of hypophosphatemia and hypomagnesia have been documented in starved horses in studies measuring serum electrolyte levels. Death occurred or euthanasia was elected in these horses with the onset of respiratory or neurological compromise on days 4 to 6 of the refeeding period (Witham and Stull, 1998).
- Salmonellosis and other bacterial infections may occur due to the compromised immune system.
- Diarrhea may be associated with forages of large bulk such as oat hay.
- Lack of appetite may occur but is usually transient. Attempts with very small portions of fresh forage may assist in establishing consumption.

Prognosis-Once a horse loses more than 50% of its body weight, the prognosis for survival is extremely poor. Horses which are recumbent for long periods of time are also poor candidates for nutritional rehabilitation.

Table 1. Description of body condition scores using the Henneke method (1983).

Score	Name	Description
1	**Extremely emaciated**	Extremely emaciated; no fatty tissue can be felt; bone structure of the withers, shoulders, and neck easily noticeable; spinous processes, ribs, tail head, tuber coxae and ischii projecting prominently.
2	**Emaciated**	Emaciated; slight fat covering over base of spinous processes; lumbar vertebrae feel rounded; spinous processes tail head, tuber coxae and ischii prominent; withers, shoulders, and neck structure faintly discernible.
3	**Thin**	Transverse processes cannot be felt; fat build-up halfway on spinous processes; tail head prominent, ribs easily discernible, withers, shoulders and neck accentuated.
4	**Moderately thin**	Slight ridge along the back; faint outline of ribs discernible; withers, shoulders and neck not obviously thin.
5	**Moderate**	Back is flat with no crease or ridge; ribs easily felt, but not seen; withers appear rounded; shoulders and neck blend smoothly into body.
6	**Moderately fleshy**	Slight crease down back; fat over ribs and tail head; fat beginning to be deposited along side of withers, behind shoulders, and sides of neck.
7	**Fleshy**	Crease down back; ribs can be felt but noticeable fat between ribs; fat deposited along withers, behind shoulders, and sides of neck.
8	**Fat**	Definite crease down back; difficult to feel ribs; thickening of the neck and areas along tail head, withers, behind shoulders, and between thighs filled with fat.
9	**Obese or extremely fat**	Obvious deep crease down back; patchy fat over ribs; fat depots bulging around tail head, withers, behind shoulders, along neck, between thighs and near flank.

References:

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