extension
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Foal Management: Preweaning Phase

► Learn steps a horse owner can take during the preweaning phase of a foal's life to ensure optimum health and future productivity.

To protect the initial investment in a foal and to optimize its health and productivity after birth, horse owners should practice good horse management, including gentling, halter breaking, creep feeding, and overall health care.

Health Care

A horse is at the highest risk of disease in its first 12 months of life. Newborn foals do not have any natural disease defense mechanism because immunity is not passed from the dam to the unborn foal in utero. A newborn foal's immune system is not mature enough to form antibodies until the foal is 3 to 6 months old. Therefore, the newborn foal must depend on immunoglobulins it obtains from the colostrum (the first milk) to protect it from disease during the first months of life.

Diarrhea and septicemia are the greatest disease risks to a foal during the first week of life. Diarrhea during the first week of life can seriously dehydrate a newborn foal, especially if the foal is not nursing enough or if the dam is not producing enough milk. Foals that do not receive adequate immunoglobulins from the dam's colostrum are at a high risk for diarrhea.

Septicemia, commonly called joint ill or navel ill, is caused by bacteria, or toxins produced by bacteria, in the blood and tissues. It affects the entire body and organs of the foal and is the leading cause of death in newborns. Foals can contract bacteria in utero or through the umbilical stump, intestinal tract, or lungs. Septicemia usually occurs within 3 to 4 days of birth, and often the foal shows no noticeable signs until the disease is well advanced. Signs of septicemia are depression, a decrease in nursing activity, diarrhea, and excessive sleeping or resting. Septic foals may have milk on their foreheads, and the mare's udder may be full and hot.

Other common health problems in young foals include respiratory infections and pneumonia. A viral or bacterial respiratory infection often weakens the foal so that it is more susceptible to pneumonia-causing organisms.

Proper management of the mare and foal can reduce the incidence of disease in the foal. Mares should be introduced to the foaling area (stall, pasture, or breeding farm) 30 days before foaling to give them time to develop antibodies to disease-causing organisms common to the foaling environment. Also, mares should receive their annual booster vaccinations about 30 days before foaling so they can pass a high level of immunity to their foals through colostrum.

Mares also should be on an effective deworming program before and after foaling to reduce parasite exposure to the foal. Ideally, mares should be allowed to foal outside in a clean, grassy pasture. However, if foaling stalls must be used, they should be kept clean and should be thoroughly disinfected between mares. Foaling stalls should be well ventilated, and buildings that retain moisture, such as concrete block buildings, should be avoided as foaling areas. If foaling stalls are used, healthy mares and foals should be moved outside within several days after foaling. Overcrowding mares and foals should be avoided because it concentrates disease organisms and causes stress, which increases disease risks. Ideally, mares and foals should be segregated from horses that move on and off the farm, such as show horses and outside mares brought in for breeding.

Vaccination programs for foals should begin at 3 to 4 months of age. All foals should be vaccinated against eastern and western equine encephalomyelitis and tetanus. Horse owners should consult their veterinarians about the need and timing of other vaccinations such as rabies, rhinopneumonitis, strangles, influenza, and West Nile virus. There is some recent evidence that influenza vaccines may not be effective in the foal until it is about 8 months old because of prolonged activity of colostral antibodies to influenza.

Deworming programs for foals can begin at 1 to 2 months with a dewormer that is labeled safe for foals this young. With the assistance of a veterinarian, horse owners should develop a deworming program that fits their management situation.

Horse owners should also perform regular hoof care on foals. Regular hoof trimming can help keep a foal's bones properly aligned and can correct minor feet and leg problems before they seriously affect the foal's movement or health.

Cuts, bruises, and scrapes are also common health problems in foals between 1 and 6 months of age. If possible, maintain mares and foals without halters to reduce the possibility of the foal getting tangled in the mare's halter or getting its halter caught on objects in the stall or pasture. However, if it is necessary to leave halters on horses, make sure that they fit properly and are either leather halters or specially made breakaway safety halters. Nylon halters can be deadly because they do not break, and they are more likely to irritate the foal's skin than leather halters are. Check the fit of the foal's halter every 2 weeks to make sure that it does not become too tight as the foal grows.

Maintaining safe pastures is especially important with foals because of their natural curiosity. Pastures should be free of trash and farm equipment. Remove low tree branches, and keep pasture fencing safe and highly visible to the foal.

Feeding

The amount of milk broodmares produce peaks when foals are 30 to 60 days old and then gradually declines. Nutrient content of the milk also peaks during the first 30 days of lactation and declines as lactation continues. Mare's milk alone may not provide enough energy to meet the requirements of a 4-month-old or even younger foal.

Foals should be introduced to feed in small amounts (2 to 3 pounds a feeding), and the amount fed should be gradually increased until feed is available free-choice to the foal. Free-choice feeding allows the foal to eat small, frequent meals, which is a natural situation mimicking the foal's nursing schedule. Free-choice feed also gives timid foals a chance to eat when dominant foals are away from the feeder. However, feeding foals free-choice does increase the level of management needed in comparison with the level required for feeding foals distinct meals. When feeding foals free-choice, managers must carefully monitor the feeder for spoilage and must make sure that fresh feed is always available. Ideally, enough feed must be provided so there is only a small amount left in the feeder the next time feed is given. If the feeder has been empty for a long period, a hungry foal that is allowed free-choice access when the feeder is replenished could overeat and colic. If foals are sorting through the feed and leaving a particular ingredient uneaten, use pelleted feed to ensure that the foals receive a balanced creep ration.

Providing a nutritionally balanced feed for the foal by 2 months of age will increase preweaning growth and acquaint the foal with the feed it will eat when weaned. Feed should be formulated especially for foals to provide the correct amounts of nutrients needed for proper growth and development. Most feeds formulated for mature horses (even high-quality broodmare feeds) do not provide enough overall protein, calcium, or phosphorus for foals. Feeding foals these feeds may result in a deficiency in lysine, the first limiting amino acid that foals need for growth. Broodmare feeds may give the foal enough energy for weight gain without providing the basic nutrients needed for proper growth and skeletal development, resulting in fat foals with improperly developed musculoskeletal systems.

Because feed tags usually do not indicate the energy density of a feed, the energy density has to be estimated by the percentages of crude fiber and crude fat listed on the tag. Crude fiber is inversely related to energy (more crude fiber equals less energy), and crude fat is directly related to energy (more crude fat equals more energy). With a constant fat concentration, the minimum

percentage of crude protein, calcium, and phosphorus needed in the feed will decrease as fiber content increases because the foal will consume more of the feed. However, remember that young foals are unable to consume and use large quantities of fiber, so feeds should be carefully balanced.

Protein quality, reflected by the amount and type of essential amino acids contained in the protein, is also a consideration in selecting a feed. High-quality protein sources, such as soybean meal, alfalfa meal, animal protein, or milk protein, should be used in formulating a feed. Table 1 shows minimum amounts of crude protein, calcium, and phosphorus needed in feeds containing various amounts of crude fiber at a constant level of crude fat (3 to 3.5 percent crude fat is the amount occurring naturally in most horse grains). Table 2 is a similar table showing minimum amounts of crude protein, calcium, and phosphorus needed in feeds containing supplemental fat, which increases the total crude fat concentration of the feed to a constant 8 to 8.5 percent. Practically, a commercial feed containing at least 16 percent crude protein, 0.8 percent calcium, and 0.5 percent phosphorus should meet the foal's nutritional needs. When feeds contain smaller amounts of these nutrients, it is difficult for the foal to consume enough of these nutrients in a reasonable amount of daily feed.

A young foal has the potential of gaining 2.5 to 3 pounds daily. Feeding the foal with a balanced ration in order to compensate for the nutritional deficiencies in the mare's milk allows owners to increase the foal's growth rate while minimizing bone and joint disorders (developmental orthopedic disease, or DOD) sometimes found in large-framed, rapidly growing horses. This disease complex includes problems such as contracted tendons, epiphysitis, osteochondrosis, and enlarged or deformed joints. Genetic predisposition, nutrient imbalance, and excessive exercise of stalled horses have all been identified as possible causes of DOD in horses. Inadequate protein, vitamin, and mineral concentrations relative to the energy concentration of the diet may promote DOD in foals. However, feeding foals with a balanced ration does not contribute to DOD.

Remember that the purpose of feeding is to increase foal growth and development by compensating for the nutritional deficiencies in the mare's milk. Maximal growth and overly fat foals are not goals of a feeding program and may contribute to bone and joint disorders in young horses.

Table 1. Minimum Percentages of Protein, Calcium, and Phosphorus Needed in Feeds Containing 3 to 3.5% Crude Fat & Varying Amounts of Fiber

Crude Fiber	Crude Protein	Calcium	Phosphorus
2	18	0.90	0.55
3	18	0.85	0.55
4	17	0.85	0.55
5	17	0.80	0.50
6–8	16	0.80	0.50

Table 2. Minimum Percentages of Protein, Calcium, and Phosphorus Needed in Feeds Containing 8 to 8.5% Crude Fat and Varying Amounts of Fiber

Crude Fiber	Crude Protein	Calcium	Phosphorus
2	19	0.95	0.60
3	19	0.90	0.55
4	18	0.90	0.55
5	19	0.85	0.55
6	17	0.85	0.55
7	17	0.80	0.50
8	16	0.80	0.50

Conclusion

Breeding a mare and feeding her for 11 months before a foal is born is a substantial investment in time and money. In order to protect the initial investment in the foal and to optimize its health and productivity after birth, horse owners should practice good horse management, including gentling, halter breaking, creep feeding, and overall health care. Friendly, confident foals that are gentled before being weaned are usually less stressed during the weaning process and may learn more rapidly than unhandled foals do.

Feeding foals with a balanced ration can optimize growth and introduce the foal to the feed it will be eating after weaning. Careful attention to health management of the foal can reduce injuries and diseases. Although all these management procedures represent investments in time and money, horse owners who take these steps are usually rewarded with a healthy, active foal.

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