FOAL NUTRITION:
CREATING A FOUNDATION FOR FUTURE ATHLETIC SUCCESS

The Educated Horseman: Nutrition Series

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Foal nutrition is critical to the development of healthy, athletic horses. The first year of a foal's life is a period of rapid growth and physiological change, setting the foundation for future performance. Proper nutrition during this time is essential not only for supporting growth but also for optimizing bone development, muscle formation and overall health.

Nutrition plays a pivotal role in the growth and development of foals, particularly during the first year when the most significant growth occurs. During this time, foals require a balanced diet that supports their rapidly developing bones, muscles and organs. The nutritional needs of foals differ significantly from those of mature horses due to their accelerated growth rates and the demands of their developing bodies.

- **Colostrum intake:** The first milk after birth, or colostrum, is crucial for foals as it provides essential antibodies that protect against infections. Colostrum also supplies high-quality protein, energy and nutrients needed for early growth. It is vital that foals receive colostrum within the first 24 hours of life, as their ability to absorb these antibodies decreases rapidly after birth.

- **Milk consumption:** For the first few months of life, the foal's primary source of nutrition is the mare's milk. Mare's milk provides a balanced source of energy, protein, vitamins, and minerals tailored to the foal's needs. By 4-6 weeks of age, foals typically begin to show interest in solid food, marking the transition from milk to a more varied diet.

- **Creep feeding:** Introducing a specially formulated grain or pelleted feed for foals around 2-3 months of age can support growth, especially if the mare's milk production decreases or if the foal's nutritional needs outpace what the mare can provide. Creep feeding can help prevent growth spurts that may lead to developmental issues, providing a steady supply of essential nutrients like protein, calcium and phosphorus.

As the foal continues growing, proper nutrition is critical for the foal's skeletal development, muscle formation and overall physiology. Key nutrients include:

- **Protein:** Intake is directly linked to muscle growth and development. Foals require high-quality protein sources that provide essential amino acids like lysine, which is crucial for muscle development and overall growth. Protein deficiency can result in stunted growth and poor muscle development, however excessive protein can strain the kidneys.

- **Energy:** Energy is supplied by carbohydrates and fats in the diet. The balance between energy intake and expenditure is important. Insufficient energy can lead to poor growth, while excess energy can contribute to obesity and developmental orthopedic diseases (DOD). Early nutrition affects metabolic programming, influencing how the horse's body handles nutrients and energy throughout its life. Proper management can help prevent metabolic disorders such as insulin resistance, which can affect performance and health.

- **Minerals:** Calcium and phosphorus are vital for bone development. The calcium-to-phosphorus ratio is critical, ideally maintained at 1.2:1 to 2:1. Imbalances can lead to skeletal abnormalities such as osteochondrosis and limb deformities. Copper and zinc also play important roles in bone and joint development. Copper is involved in the formation of collagen and elastin, while zinc is essential for protein synthesis and cell division. Deficiencies or imbalances in these minerals can result in poor skeletal health which can compromise your horse's future athletic ability.

- **Vitamins:** Vitamins play crucial roles in the development of a strong immune system. A well-nourished foal is better equipped to resist infections and recover from illnesses, contributing to long-term health and resilience.

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Photo by Bettye Ann Browning

- **Vitamin D:** Supports calcium absorption and bone health. Adequate sunlight exposure usually fulfills the foal's vitamin D needs, but supplementation may be necessary in regions with limited sunlight.

- **Vitamin A:** Important for growth, vision and immune function. It is usually provided in adequate amounts through mare's milk and fresh forage.

- **Vitamin E:** A powerful antioxidant which is only found in green forage, supports muscle health and immune function. Adequate vitamin E is necessary to prevent muscle degeneration and support overall health.

Effective management practices are essential to ensure that foals receive the nutrition they need for healthy growth and development. These practices include:

- **Monitoring growth rates:** Regularly monitor the foal's growth to ensure it is steady and within the normal range. Sudden growth spurts can increase the risk of developmental orthopedic diseases. Adjust feeding practices based on the foal's growth rate and body condition.

- **Balanced feeding:** Provide a diet that balances energy, protein, vitamins and minerals. Use high-quality commercial feeds designed for foals, which are formulated to meet their specific nutritional needs. If feeding grain, ensure it is specifically formulated for young horses to avoid imbalances.

- **Creep feeding:** Introduce creep feed gradually, starting around 2-3 months of age. Ensure that the creep feed is high in protein and balanced in minerals, particularly calcium and phosphorus. Creep feeding can help bridge the nutritional gap as the foal transitions from milk to solid food.

- **Forage quality:** Provide high-quality forage, such as alfalfa or grass hay, to support digestive health and provide essential nutrients. Forage should be clean, free of mold and appropriately stored. Introduce pasture grazing slowly to avoid digestive upset.

- **Weaning practices:** Weaning is a critical period that can stress the foal's digestive and immune systems. Ensure that the foal is well-established on solid food before weaning and that the diet is balanced to support continued growth and health during this transition.

- **Water availability:** Always provide access to clean, fresh water. Hydration is crucial for digestion, nutrient absorption and overall health.

- **Veterinary consultation:** Regular veterinary check-ups are essential to monitor the foal's health and nutritional status. Work with a veterinarian or equine nutritionist to tailor the foal's diet to its specific needs.

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Foal nutrition is a critical component of equine management that influences growth, physiology and future athletic potential. Providing a balanced diet that meets the foal's nutritional needs during this crucial period can help ensure the development of strong bones, healthy muscles and a robust immune system. By following best practices in nutritional management, horse owners and breeders can set the foundation for a foal's long-term health and performance potential.

References

Cymbaluk, N.F., and Christison, G.I. (1990). Environmental effects on thermal balance and nutrition of horses. Veterinary Clinics of North America: Equine Practice, 6(2), 355-372.

Frape, D. (2004). Equine Nutrition and Feeding (3rd ed.). Blackwell Publishing.

Hoffman, R. M., and Kronfeld, D.S. (1999). Nutrition and feeding of foals: Influence on growth and development. Journal of Equine Veterinary Science, 19(4), 226-241.

Jackson, S.G., and Hammer, C.J. (2008). Nutritional management of growing horses. Veterinary Clinics of North America: Equine Practice, 24(1), 67-86.

Kawcak, C.E., and McIlwraith, C.W. (1994). Developmental orthopedic disease in the foal. Compendium on Continuing Education for the Practicing Veterinarian, 16(1), 1363-1371.

NRC (National Research Council). (2007). Nutrient Requirements of Horses. Retrieved from https://webassets.nationalacademies.org/nrh/.

Pagan, J.D. (1998). Foal growth: Practical considerations. Proceedings of the Kentucky Equine Research Nutrition Conference.

Ralston, S.L. (1996). Foal nutrition: Strategies for optimal growth. Veterinary Clinics of North America: Equine Practice, 12(1), 197-208.

Valentine, B.A., and Van Sickle, D.C. (1992). Skeletal development in horses: Effects of exercise and nutritional factors. Journal of Equine Veterinary Science, 12(2), 80-87.

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