Nutritional Assessments

Paradis also stressed that owners can monitor body weight using a modified Henneke Body Condition Scoring scale, ranging from 1 to 5. The scale is typically used with adult horses, but Paradis modified it specifically for foals. "A foal with a lower score would be the first sign of a medical problem in the foal that should be investigated," she said.

Paradis recommended monitoring the foal's growth on a regular basis and to conduct regular physical exams and nutritional assessments starting immediately after birth. "The goals of nutritional assessment would be to identify the malnourished foal early, to identify at-risk foals, and to prevent risk foals, and to prevent foals from becoming malnourished," she said.

During a presentation at the 2012 American Association of Equine Practitioners convention, held Dec. 1 to 4 in Anaheim, Calif., Marjory Paradis, DVM, MS, Dipl. ACVIM, an associate professor in the Department of Clinical Sciences at Tufts University's Cummings School of Veterinary Medicine, discussed nutritional assessments of newborn foals. The foal's growth, as well as its nursing frequency and mare's udder for signs of problems.

In the initial physical exam and nutritional assessment, veterinarians should determine if the foal experienced any nutrient deficiencies, "she said. "The newborn foal is absolutely hungry and wants to eat," Paradis stressed, explaining that neonatal foals have very limited glycogen stores when they are born. There is limited glycogen in the dam's milk, so the foal begins life with an energy deficit. Initially after consuming colostrum, foals nurse six to eight times per hour and consume about 80 milliliters of milk per feeding (40% to 50% of its body weight).

As foals' glycogen stores deplete, they will nurse less frequently and consume smaller volumes. Over the next 72 hours, foals' nursing frequency slows down, with nursing every 2 to 3 hours. The foal is getting energy from glycogen stores, not the dam's milk. As foals' glycogen stores are depleted, the foal will nurse every 1 to 3 hours. At this point, the dam's milk is the major source of energy and protein for the foal.

Understanding Healthy Foals' Caloric Requirements

"The foal's body has a cylindrical shape," Paradis stressed, "and there is a relationship between the foal's body and the dam's body. This relationship is evident by the expression: dam body weight divided by 10, plus 30%. The foal on the other hand weighs 10% of the dam's body weight. By this relationship, the foal's body weight is estimated by the equation: X in pounds = dam body weight in pounds/10 + 30%.

Foals consume about 15 liters of milk per day, which translates to about 25% to 30% of their body weight. Thus, the average foal consumes roughly 7,500 to 9,000 calories per day. In utero, the foal consumes roughly 2,800 calories per day, as evidenced by low birth weight; normal foals generally weight 10% to 11% of their dam's weight, she said. Low birth weight foals might be at higher risk for the development of problems such as infection, so a practitioner exam is especially important.

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In subsequent nutritional assessments, veterinarians should begin nutritional assessments by obtaining a history and evaluating the dam and the foal. "A practitioner exam is very much more important," Paradis stressed. "Veterinarians should begin by asking if the foal is feisty or weak, if the dam is thirsty or dehydrated, if the dam's water bowl is dry, and if the dam's milk is thin or watery." Paradis stressed that owners should keep a detailed log of their foal's average daily weight gain and other nutritional observations.

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Paradis stressed that owners should keep a detailed log of their foal's average daily weight gain and other nutritional observations. "Once a foal's weight is graphed on a growth curve, it can be compared to the foal's body condition score and physical appearance," she said. "Owners can use this information to make informed decisions about their foal's nutritional wellbeing and to monitor their foal's progress over time."

"If the foal is constantly trying to nurse and the mare's udder is flat, one may suspect that the mare is not producing enough milk," Paradis said. "If the foal is not growing, one may suspect that the foal is not consuming enough milk. Owners should conduct regular physical exams and nutritional assessments, starting immediately after birth, to determine if the foal is consuming enough milk."

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