

Newborn ▶ KNOW-HOW

Care of the newborn foal from conception to weaning.

By Steven Fisch, DVM

Last year you bought that special mare and bred her to that special stallion and after almost a year of waiting and making sure the mare had every nutritional and environmental advantage available to her, the time for the foal's birth is here. You made sure the mare got all her pre-foaling vaccinations four to six weeks before her due date and you have made all the correct decisions in this process so far. Now you have to decide whether or not to let the mare take care of the birthing process on her own or arrange to make sure someone is with her when she foals.

In my opinion, not having a knowledgeable and experienced person with the mare when she foals is like driving 99 yards for the touchdown and deciding to stop on the one-yard line. It just doesn't make sense. There is a tremendous amount of expense that has already gone into getting a healthy foal on the ground. Depending on how many foals you raise each year, if you lose one foal because no one was there to help with any problems, then you have lost any amount of money you may have saved by not having the mare monitored during foaling. You have especially come out behind if you consider possible lost earnings of the foal and possible record enhancement to the mare, stallion and your breeding program. It is also generally much less expensive to prevent a problem than it is to treat one.

One of the relatively common problems that can develop in newborn foals and especially those that have unmonitored

births is the "neonatal maladjustment or dummy foal" syndrome. This syndrome can be caused by a short period of time during the birthing process that the foal does not receive enough oxygen. The lack of oxygen causes the mental abilities of the foal to be diminished for up to a few days. The lack of oxygen could be caused by blocked airways



This newborn foal is about five minutes old.



as the foal comes out of the birth canal. An experienced person monitoring the birth can make sure the airways are open. They can also have equipment on hand to assist the foal with breathing if assistance is needed. An oxygen tank with the ability to supply oxygen directly to the foal's nostrils can save many foals from developing "dummy foal" syndrome. Many times just a small amount of effort will be the difference in having a



It's important that breeders be prepared to follow a detailed nutrition, farrier and vaccine schedule from conception to the winner's circle.

live healthy foal, a sick foal with veterinary bills attached or in the worst-case scenario, a dead foal.

Once the foal is born, the next goal is to get him up within two hours and nursing within three hours. It's important for the foal to nurse well within three hours because the gut starts "closing" within four hours of birth and is totally closed within 24 hours of birth. This means that the GI system is

unable to absorb large molecules once it has closed. Antibodies are large molecules so if the foal does not absorb enough maternal antibody within the first four to 12 hours, the chances are it will be deficient in antibodies that are needed to prevent disease. Even if the foal is given colostrum 24 hours after birth, the body cannot absorb it. A normal foal will nurse at least hourly and should be able to readily find the teat. If the

foal is bumping the mammary glands but not really sucking vigorously, then this is a sign that the foal is getting weak for some reason. If this happens, now is the time to seek veterinary care. Waiting a few hours can mean the difference between saving and losing the foal. Sometimes all the foal needs is to get tubed with 300 to 500 milliliters of colostrum or milk to give it a boost of energy and fluids. Once the foal gets strong enough to nurse from the energy of the tubed fluids, it can start the cycle of nursing and keeping itself strong. If, however, the foal does not respond to the tubed milk then an intravenous catheter should be placed and the foal should be given IV fluids. Keeping the foal well hydrated is critical.

When the foal is 12 to 24 hours old it should have a blood sample pulled to check for maternal antibody level. If the value is less than 800mg/dl of IgG then the foal should be given at least one liter of equine plasma from hyper immunized donors. If the foal is showing any sign of a problem such as weakness, diarrhea, constipation or any sign of immaturity or prematurity then the foal should also have a complete blood count and a fibrinogen blood sample tested. If there is any sign of infection the foal should be put on broad-spectrum antibiotics

Another step that should be taken to ensure a healthy foal is dipping the foal's navel in 25 percent chlorhexidine solution. This should be done every few hours until the umbilical stump is dry. The umbilical stump is an excellent place for bacteria to enter the body and keeping it covered with dilute chlorhexidine helps kill any bacteria that may attempt to enter the body at this point. The 25 percent chlorhexidine solution has shown to be much better than the old standard of dipping the navel in iodine. I advise that a foal should have a veterinary examination at 24 hours of age to detect any abnormalities such as angular limb deformities, entropion or joint ill. If treated and diagnosed early these conditions can many times be treated successfully and sometimes they can be treated very inexpensively.

It cannot be emphasized enough that the newborn foal should be monitored closely for the first few weeks. There are many times that a foal can seem happy and healthy in the morning and be severely sick in the evening.

Special Mare and Foaling Section

A sick foal is not a “wait and see” matter. A sick foal is always a cause for timely, accurate and aggressive veterinary attention. Many times that’s all it takes to insure the foal that you took so much care, time and expense to get here has a chance to become the winner you knew it could be.

► Prenatal care

Care of the newborn foal actually starts before it is born. Basic pre-foaling vaccinations consist of tetanus, encephalitis, flu, rhinopneumonitis and West Nile virus. Depending on the history of the farm on which the foal will be born and how much immunity we want the new foal to get from his dam’s colostrum, the mare may also be vaccinated for strangles, roto virus and botulism. Since ingesting the mare’s colostrum is the foal’s only way of obtaining immunity to deadly diseases such as tetanus and eastern encephalitis and diseases that can cause death or at least sickness such as flu, EHV1 or rhinopneumonitis, roto virus, botulism and strangles, it’s imperative that these vaccinations be given as part of the preparation for foaling. All these vaccines raise the antibody level that will be present in the mare’s colostrum. They should be given four to six weeks before the foal is due to be born. Some of the vaccine protocols involve giving a series of two or more vaccinations given in the pre-foaling period, so it’s important to start the process with the time sequence of each vaccine protocol in mind.

The next step is to have the mare at the farm where she will foal at least four weeks prior to foaling. This allows her to build colostrum immunity to the germs at the farm. About two weeks before her due date make sure that if she has had a caslick’s surgery that the caslick’s is taken out. This will prevent her from tearing her reproductive tract during the foaling process. This is about the time we install a foal alarm and start



Foals raised in a pasture and in groups for socialization.

monitoring her for birth of the foal. The foal alert allows us to be at the mare’s side within two minutes of the time the birth process begins.

Nutrition is another important factor for the newborn foal that begins at conception. A pregnant mare has certain nutritional requirements beginning early in her pregnancy. Some breeders think that just because a mare is in good flesh that the fetus is receiving all the nutrition that it needs. Under most conditions, the mare’s body is geared to take care of the fetus first and the mare second, but there is definitely a difference in the survival rate of foals from well-nourished mares and those born to mares that were not fed properly. These nutritional deficits may not even show up early in life but they can show up later as unsoundness.

Nutrition is not as simple or as complicated as it’s sometimes made out to be. A balanced diet does not consist of equal parts sweet feed and pellets containing a certain percentage of protein. A balanced diet also does not consist of a balanced feed with various supplements added that result in a balanced feed becoming unbalanced. The nutrition program will depend partly on where in the country horses are being bred and raised. Many aspects have to

be considered such as calcium and phosphorous ratios and amounts, micronutrients, macronutrients, and energy and protein levels. More is not always better. The most critical time of pregnancy for proper nutrition is the last trimester when the mare’s demand for nutrients is greatest. We actually keep our mares and foals on a feed formulated for lactating mares and growing foals all year. There are several good brands out there but the important decision is to find a feed that has the proper amount of micronutrients, the proper calcium and phosphorus ratio and the proper protein and energy levels to allow the mare to produce good quality milk, maintain her new growing pregnancy and to maintain her own health. A feed with the proper nutrient levels will allow the growing foal to grow at the proper rate and to form sound joints and muscles with less chance of developmental orthopedic diseases (DOD) such as osteochondritis desicans (OCD), clubbed feet, epiphysitis and other developmental diseases. A proper amount of protein, essential vitamins and micronutrients are vitally important to intrauterine growth of the foal and to getting the foal off to a healthy and strong start. Proper nutrition also helps insure that the mare has the body condition to promote adequate milk production and to breed back on her foal heat. During early pregnancy the mare has the ability to divert an adequate supply of her own nutrients to the foal but in later



Pre-foaling vaccines

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A radiograph of a foal post check ligament desmotomy surgery. He has a shoe on to keep him from wearing off his toe. Many times careful daily monitoring of the foals can decrease the need for corrective surgery.

pregnancy the demands of the developing fetus cannot be met if the mare is on a marginally adequate or inadequate diet.

The nutritional level of the mare can greatly influence the health of the foal at birth. In general the mare should be fed a good quality mare and foal feed along with a good quality hay mixture, which meets the protein and calcium/phosphorous requirements for a gestating mare. An example of this hay mixture would be an amount equal to 2 percent of the mare's body weight with

about 33 percent to 50 percent being an excellent quality legume, such as alfalfa or perennial peanut hay. In those ratios the correct calcium/phosphorous ratios are kept intact and the protein level is high enough to provide for growth of the fetus. Not only are total amounts of certain nutrients important, but also the ratios of the nutrients to each other are just as important. These ratios can come into play with respect to prevention of such developmental orthopedic diseases as OCD

► Raising and feeding the young horse

Nutrition for the young horse between birth and the 2-year-old year is very important. The bones, ligaments and tendons are being formed during that time. Proper levels of all the nutrients stated above are equally important to the young horse as far as development goes. The exact levels will vary from horse to horse and each young horse should be evaluated weekly to make sure it is not developing any developmental orthopedic disease or angular limb deformities. If caught early these problems can be treated conservatively many times. Otherwise they become surgery candidates or they become untreatable. This results in a poorer quality of life for the horse and/or added expense for the owner. It's important to consult with an equine veterinarian who is knowledgeable in equine nutrition before problems present themselves. When you can visibly see the problem, many times it's already too late.

This is one area where an ounce of prevention is worth a pound of cure.

Another important aspect of raising horses is that the bones, ligaments and tendons will form stronger and last longer if the baby is raised outside. It has been shown with research that foals that are kept in a stall for even a few weeks have a higher rate of bone, ligament and tendon problems later in life. Of course sometimes we have to keep them in for various reasons but their physical development is best when they can run and play in large pastures while growing up.

► Methods of weaning

Weaning is a critical time in a young horse's life. How weaning is done can greatly affect the growth of the foal during subsequent months. The best weaning method is the one that fits your facility and results in a stress-free, relaxed and uninjured mare and foal. One popular method is pasture weaning and this method is commonly used on farms where mares and foals are pastured in groups. At weaning time, one or two of the mares with the oldest foals are removed from the group, leaving their foals with the group. The mares should be removed quickly at a time when the foals are occupied elsewhere. The mares should be taken to an area completely out of sight and hearing distance of the other mares and foals. Additional mares may be removed from the group when their foals reach the desired age. This process occurs until all mares have been removed. Some farms will introduce a nice, calm gelding

that remains with the weaned foals to provide some education. This method seems to have little stress on the foals since most will quickly adjust to the herd of familiar horses. However, all foals should be observed in the hours following weaning to ensure they don't become too distressed when they realize they can't find their mothers.

If pasture or interval weaning isn't possible, which is often the case



Image 1 (far left) is of a carpus valgus or knock kneed horse that had to have a screw placed through its growth plate to slow down the growth on the fast growing side of the radius. Image 2 (left) shows the X-ray pre-surgery. Many times these problems can be prevented through daily attention to the foal and its conformation.

if there is only one foal to be weaned, other common methods are used. One method involves immediate separation from the dam, while the other is gradual separation. Immediate separation involves bringing the mare and foal into a stall and removing the mare. Some people will place the newly weaned foal with a companion animal or another just-weaned foal. Although a companion may seem to be a less stressful option than leaving the foal alone, foals that are weaned and given companions have been shown to have increased stress response than those weaned and left alone. If you do plan to use a companion animal, it's important that the foal doesn't become overly attached. This can make separation from that companion nearly as stressful as weaning from its mother.

Gradual weaning is another common method. Allowing foals to see, hear, smell, and touch their dams through a fence, but not nurse, for seven days prior to complete separation is known to be less stressful in the days following weaning than abrupt weaning. Studies have shown a reduced stress response and higher feed intake in the first week after weaning in gradually weaned foals. Foals weaned by this method also exhibit less emotional stress, vocalization, and activity than abruptly weaned foals. When comparing gradual weaning with abrupt weaning, there is little difference in feed intake from about two weeks after weaning, but the major benefit of gradual weaning is the reduced stress and reduced risk of injury.

◆ **Effects of Weaning**

Researchers describe an animal as in a state of stress if it must make abnormal or extreme changes in its physiology or behavior to cope with the adverse effects of its environment or management. Under that definition, weaning surely qualifies as a stressor to young horses. It has been documented that foals that suffer undue stress when being weaned can lose their appetites and lose weight and when they recover later on, they often undergo a sudden growth spurt. The result of this dip and surge in the growth curve of a young horse sometimes is a cause of developmental orthopedic disease (DOD), the condition in which bones and joints begin to develop abnormally, causing contracted tendons, physisitis, or even bone cysts in the joints of the limbs. In contrast, foals that

undergo the minimum amount of stress during weaning continue to grow at a more even rate. A level rate of growth makes them far less predisposed to DOD.

One study reported that stalled yearlings had a reduction in radiographic bone density that was not observed in age-matched controls maintained on pasture. Reduced bone density is one effect that is minimized in foals that are weaned on pasture as described previously.

Another study evaluated the effect of age on weaning. Foals were weaned at either 4.5 months of age or 6 months of age. To compensate for possible seasonal effects, foals were matched so a 6-month old foal and a 4.5-month old foal were weaned on the same day and then kept in the same pasture. Although it was suspected that younger foals would be affected by weaning more than the older foals, weaning at an older age did not reduce the depression in average daily weight gain observed in the first week after weaning. Furthermore, at 8 months of age, there was no difference in either height at the withers or body weight between the two weaning groups.

Every foal must be weaned from its dam at some point. However, how the weaning process is undertaken may have significant effects on the growing foal. The goal is to have the foal healthy, well socialized and growing at a level rate when it is weaned. Then each management team must evaluate their facility and situation to make the foal's cross over from a life with mama to a life with its friends as seamless as possible. The result will be a happier, healthier and sounder athlete.

◆ **Summary**

Raising a healthy foal starts at conception and continues after weaning. The process demands careful and daily attention to many small details. Raising a healthy foal that goes on to be a great athlete is a time consuming but very worthwhile endeavor. It can be quite satisfying and profitable to take a foal from conception to being a winner. The cost of excellence is discipline. The cost of mediocrity is disappointment. Pay attention to the details and you will seldom be disappointed.

Email comments on this article to bhneditorial@cowboypublishing.com.