

Foal Health

The New Year always brings hope and high expectations, especially for breeders who wait 11 long months for their mares to birth the next generation of racetrack hopefuls. In the excitement of the foaling season, planning for the health and well-being of these foals is essential. A robust foal is the product of a well-thought-out preventive health and nutrition plan, beginning the moment the broodmare conceives.

“Unfortunately, Thoroughbreds are fair-

ly high-maintenance, but with proper care you can avoid a lot of expensive veterinary procedures,” said Louis Logan, farm manager at Brookdale Farm near Versailles, Ky., a medium-sized breeding farm that handles about 50 foalings per year.

From taking temperatures daily to performing fecal egg counts and knowing the latest vaccine strategies, raising a healthy foal requires round-the-clock commitment. As foaling season gets under way, here are some things to keep in mind that

will help you ensure your babies get the best start.

HEALTHY START

A foal should have a veterinary exam within the first 24 hours of life, says Dr. Nathan Slovis, co-author of the *Color Atlas of Diseases and Disorders of the Foal* and an internal medicine specialist at Hagyard Equine Medical Institute near Lexington. “Some breeders will want to save a few bucks and not have a veterinarian come



Healthy, robust foals are better equipped to face the challenges of their environment

out and check it," said Slovis. "That's a big no-no."

In the initial physical exam the vet will check for ailments such as fractured ribs, an abnormal-looking umbilicus, and early signs that the foal is at an increased risk for sepsis.

A severe bacterial infection of the blood, sepsis, is the biggest health concern for young foals. "It's the number one thing we see in very young foals that come in," said Slovis.

He says there are three common causes of sepsis. The first is failure of passive transfer, meaning the foal did not receive adequate colostrum from the mare. Colostrum, or the mare's first milk, contains antibodies that the foal absorbs through his digestive system within the first 24 hours of life. These antibodies provide him with some immunity to infections.

After the first 24 hours, owners can see if their foal has received adequate colostrum by having a veterinarian perform a blood test that checks for antibodies or immunoglobulins, specifically, immunoglobulin type G (IgG). While there are five basic types of immunoglobulins, IgG is the main antibody in colostrum and is the predominant type of

immunoglobulin found in a horse's blood.

At Brookdale, Logan said, members of the barn staff watch to see if the mare leaks her first milk prior to giving birth. If this happens, they will collect the colostrum,

or give the foal milk from the farm's colostrum bank. In a sense, "We steal from the rich and give to the poor," he said.

Passive transfer is so important to the foal's health that Logan says many insur-



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New York	1,908	1,080	57%

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ance companies require a minimum IgG level in order to insure the foal.

The second most common cause of sepsis occurs when owners fail to dip the umbilicus, said Slovis. The umbilicus is essentially an open wound, and a "dip" is an antiseptic solution used to kill bacteria.

"There are many debates on what the proper dip is," said Slovis. "What we know in data is that chlorhexidine (four parts water to one part 2% chlorhexidine, which is a type of antiseptic), will actually absorb into the skin a little around the umbilicus and have some prolonged effect."

Some owners prefer to use tincture of iodine, however, Slovis said there is some speculation that this solution might chemically cauterize the umbilicus and trap bacteria inside.

According to Slovis, the solution should be dipped or sprayed on the area two to three times a day for the first 24 to 48 hours.

Dr. Bonnie Barr, an internal medicine specialist at Rood & Riddle Equine Hospital, also near Lexington, believes less is more when it comes to preventing an infection in the umbilicus. "Clean it once a day for a couple of days," she said. "I always worry that the more you handle it, the more risk you have of contaminating it."

The third most common cause of sepsis, according to Slovis, is the foal picking up an infection from a dirty foaling stall. "Large barns generally disinfect foaling stalls because they see so many foals," he said. "A smaller farm might not pay

as much attention to this because they're only foaling out five mares, so they don't care."

The walls of a foaling stall should be sealed with a surgeon-approved latex paint, if they are concrete, or polyurethane, if they are wood. This makes the walls easy to disinfect with soap, and it makes them less porous, according to Slovis.

Along with sepsis, Barr said neonatal maladjustment syndrome is another of the more common reasons newborn foals are admitted into the clinic. Affected animals

biochemistry test that checks for elevated muscle enzymes can indicate a foal might have been deprived of oxygen. If muscle enzymes are elevated, then this may be an early indication that the foal may have had some compromise in tissue oxygenation or blood perfusion. These foals may be at more risk for postpartum complications and, therefore, need to be monitored closely for the first 24 to 72 hours of life. In some cases an injection of vitamin E and selenium can counteract some of the damage.



Colostrum's antibodies provide some immunity to infections

BUILDING A FOUNDATION

Promoting healthy growth and development of a foal into a performance athlete is a top priority for owners, so it's not surprising that an initial vet check will also address any limb and joint issues.

Once the foal stands, owners should look for contracted or lax tendons, said Barr. Initial problems like these might look severe, but they can correct themselves within the first few days of life. "Limited turnout for the first two to four weeks can really help," said Slovis.

Slovis also advised owners to watch their foals move and keep track of their hoof growth. "Watch for a club foot and an upright pastern," he said.

Corrective trims can help get the growth of a club foot back on track. For other angular limb deformities, glue-on shoes can help straighten the legs. But some problems, such as congenital contracted limbs, might require surgical intervention.

"In some instances you may have to do a procedure within the first four to six weeks of life because you want to do these procedures before the growth plates close," said Slovis.

Proper nutrition helps with sound growth and development of the skeletal system, but this has to begin with the broodmare. "If you base your foal feeding program from the day the foal is born, you may still have a disaster because you inherited a poor skeleton through the mare being fed improperly," said equine nutritionist Dr. Stephen Duren, owner of Performance Horse Nutrition in Weiser, Idaho.

In 2007 the National Academies Press updated its 1989 publication, *Nutrient Requirements for the Horse*. The committee responsible for this latest edition gathered all of the nutrition research from the past two decades, analyzed it, and updated the guidelines. The biggest difference, according to Duren, is that the committee recommends owners be more calculating in the early feeding of broodmares. "They made significant inroads in defining, based on the month of pregnancy, the specific nutrient requirements of that mare," he said.

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Within the publication, those nutrient requirements are spelled out, down to milligrams per day. “(Generally) Farm managers don’t concern themselves with that, though,” said Duren. “That’s the job of a nutrition consultant.”

When it comes to young foals, Duren likes to start creep feeding early. “Certainly by a month of age, I’d like that foal being fed his own feed,” he said, noting that he is not looking to feed high volume or calories, but, rather, he wants that foal to receive necessary vitamins and trace minerals. For foals that tend to hog the mare’s feed, separate feeders at different heights can help control foal intake.

The end goal is optimum growth, which means the growth rate is controlled. “We don’t want these horses to simply be the biggest yearling; we want the yearling that is structurally sound and going to make a good racehorse,” said Duren.

Vitamins and trace minerals in a commercial feed can help balance a foal’s diet and prevent development of orthopedic diseases such as physitis, which is an inflammation of the growth plates, the areas of the bone that grow and lengthen in young horses. To properly balance a foal’s diet, however, owners must know the nutrient contribution of the pasture and hay, which they can determine through a lab analysis.

Climate and pasture are major factors in determining foal diets, according to Duren. “A foal fed in Central Kentucky is going to be very different from a foal fed in California because of the differences in weather and grasses. Those things are taken into account by the nutritionist or feed manufacturer in that area,” he said.

AN OUNCE OF PREVENTION

Owners can effectively thwart their own early preventive care and proper nutrition efforts if they aren’t proactive about deworming and vaccination schedules. This means not only implementing these schedules and sticking to them but also considering the latest research findings on the most effective strategies.

The American Association of Equine Practitioners has divided vaccines into two categories: core and risk-based. The core vaccines for horses are tetanus, Eastern equine encephalitis, Western equine encephalitis, West Nile virus, and rabies. Risk-based vaccines include anthrax, botulism, equine herpesvirus, equine influenza, Potomac horse fever, rotaviral diarrhea, and strangles.

Two months before the foal is born, mares should receive the vaccine boosters recommended by your veterinarian. This will increase the mare’s level of antibodies to pass to her foal in colostrum. Interestingly, the vaccine delivery method can impact the amount of available antibodies in the colostrum. Dr. W. David Wilson, a



A foal’s movement should be watched carefully and his hoof growth tracked

professor at the University of California, Davis, who focuses primarily on equine preventive medicine and infectious diseases, explained, “An intranasal vaccine for a respiratory infection, such as flu, stimulates local respiratory tract immunity to block infection. This doesn’t stimu-

late a very good antibody response in the circulation, and the antibody response in the circulation is essential to concentrate antibodies in the colostrum. So it doesn’t do the foal any good to have a well-protected mare that doesn’t have antibodies in the colostrum to pass on to the foal.”

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Because of this, most veterinarians recommend injection boosters rather than intranasal pre-foaling boosters for broodmares.

Although it varies from region to region and vaccine to vaccine, most owners and managers begin giving foals core vaccines at about 4 months to 6 months of age—an initial vaccine followed by a second dose about one month later. And while this has been standard practice for primary vaccination of foals for many years, Wilson said an additional booster, given three to five months later, will provide the best protection for foals, regardless of whether they have passively acquired antibodies from the mare via colostrum. Along these lines, another issue to consider is a phenomenon called maternal antibody interference.

Essentially, maternal antibody interference relates to the antibodies foals receive from their mothers through passive transfer. These antibodies work like pieces in a jigsaw puzzle, so if the flu virus, for example, invaded the foal's body, the flu antibody would "fit" the flu virus and neutralize it. A vaccine works by stimulating an immune response. However, the antibodies the foal received from its dam could bind to the vaccine he is given at 4 months old so that it doesn't get to his immune system, where it would generate its own immune response. Eventually, these maternal antibodies will wear off, though, and if the vaccine given to a foal at a young age failed to stimulate an immune response, the



Corrective trims can help get the growth of a foal's foot back on track

foal could be left unprotected.

"Our conclusion was if you are vaccinating at a young age, the first dose or two may be pretty much wasted and, worse still, the foal may remain unprotected," said Wilson.

Some foals have maternal antibodies present beyond 6 months of age, and this is one of the reasons why Wilson recommends a third vaccine dose three months after the second dose in the primary series. "The response you get to that third dose is typically a lot higher and longer lasting than the response to the second dose," he said.

While vaccination isn't something to worry about until the foal is 4 to 6 months old, parasite control should begin at about 60 days, said Barr, who noted that roundworms are the greatest parasite concern at this stage in life.

Roundworms are a particular threat to foals because they have not developed an immunity to the parasite, as older horses often do. Roundworms can migrate through a foal's body and establish themselves in the lungs, causing a bacterial infection that can turn into pneumonia.


Barr said Rood & Riddle's protocol is to deworm every 60 days, rotating dewormer types to prevent the parasites from developing resistance. Then, at 60 days foals receive a dose of oxibendazole; at 120 days, a dose of ivermectin; at 180 days, pyrantel; at 240 days, moxidectin; and at 300 days the schedule returns to oxibendazole again.

Additionally, fecal egg counts should be performed two weeks before and two weeks after deworming in order to check the efficacy of the medication, as you might encounter resistant parasites.

"I've had unthrifty foals come in and the owners say they deworm them every 30 days, but the foal still looks bad. If you do a fecal egg count, they still have a high worm burden because the dewormer the owners were using wasn't working. That's why it's important to do regular fecal egg counts," said Barr.

When this happens, owners can re-evaluate their deworming strategy and work with a veterinarian to implement a more effective one.

TAKE-HOME MESSAGE

While luck has a lot to do with racing, careful planning and preventive practices build the foundation of a healthy foal. An aggressive program initiated even before those little hooves ever hit the ground will help give your foal a healthy head start at success. 

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