

# The Healthy Foal

*Owners, vets should be able to recognize normal behavior*



**In any environment, ensuring the foal's health and safety is the priority**

**Y**our broodmare is in her final months of gestation and is approaching her term. After a year of planning and preparation, you, as her owner, must be ready for what follows. The time has finally come to prepare the way so that the newest addition to your stable has every chance of reaching its highest potential. The mare, in essence, is “in the starting gate.” And when the bell rings, the race for the healthy foal will have begun.

## **The right nursery**

Ensuring the foal's health begins before that baby's little hooves touch the straw. According to Dr. Franziska Wohlfender, Swiss specialist in equine medicine and surgery who has carried out research on more than a thousand Thoroughbred foals

in Newmarket, it's important to think about where your mare will foal and what teams will be available to assist her if necessary. “Have a look at how the stalls and paddocks are built, and check for hygiene and tidiness,” she said.

Even though no foal can really be born into a bacteria-free environment, it doesn't hurt to make an effort to make its surroundings as clean and safe as possible.

Also, make sure the mare is healthy herself, well looked after, fed properly, and up-to-date on her vaccinations.

“General husbandry and common sense are very important when it comes to selecting a birthing site for your mare,” she added.

You'll also want to make sure you have a competent team monitoring the mare

and observing the actual birth. “It doesn't mean you have to interfere—and in most cases, you shouldn't,” Wohlfender said. Her recent research in Newmarket showed that foals were at a greater risk of infection when non-veterinary stable personnel assisted in the birth. “But you do want to keep a close eye on her and know when to call a veterinarian for help,” she added.

The team should also be knowledgeable about dealing with the umbilical cord, as its mismanagement is a common cause of infection. Wohlfender's advice: Don't handle the cord at all; it will naturally break on its own. Just dip the stump immediately in iodine solution or 0.5% chlorhexidine solution.

According to Wohlfender, if you move your mare to a new stable for the birth, she should ideally arrive at least a month before delivery. This gives the mare adequate time to build up antibodies to any germs that might be present in the new stable so these antibodies can be passed on to her foal through her colostrum.

## **Get that colostrum**

Top equine veterinarians and researchers agree: The best thing you can do for your newborn foal is make sure it's getting that antibody-rich first milk called colostrum—and fast. The thick, yellowish colostrum is replaced by mature white milk within the first 24 hours after birth, and, meanwhile, a foal is confronted immediately by germs. Additionally, colostrum antibodies can only be absorbed via the newborn foal's gut within the first 24 hours after birth, says Wohlfender. So the timing of colostrum is critical.

“All newborns foals are like AIDS patients; their own immune systems are just not well developed,” said Dr. Elisabeth Hemberg, equine practitioner and researcher specializing in fertility and foal diseases, based in Hjortkvarn, Sweden. “They need absolutely to have a good amount of colostrum in order to survive.”

Without sufficient amounts of good-quality colostrum, a foal is likely to succumb to essentially any infectious disease it's exposed to. Once infection sets in, intense (and generally expensive) veterinary

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Location	Mares Bred	Live Foals	% Live Foals
California	3,163 (2)	1,891	60%
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Kentucky	19,140 (112)	12,931	68%
Louisiana	3552	1678	47%
New York	1,625	908	56%

Number of mares in parentheses were covered in the Northern Hemisphere on Southern Hemisphere time.

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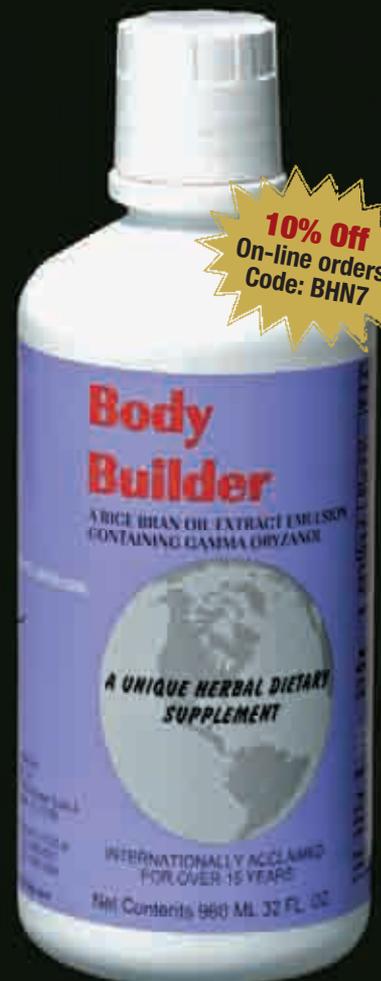
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care is required to keep the foal alive. But even intense therapy—which includes intravenous antibiotics, antibodies, and rehydration, to name a few—is not always successful. Septicemia—or

infection—is the number one cause of death in newborn foals.

“You’ve got to make sure the foal is getting the right quality and quantity of colostrum, ideally within the first four hours of life,” said Wohlfender. “But, unfortunately, that’s not always very easy to know.” It’s impossible to measure the exact quantity (ideally around 1.5 to 2 liters total) of colostrum a newborn foal ingests if it suckles, but there are some signs that owners can look out for. Newborn foals should nurse within two hours of birth and should be nursing several times an hour, she says. And while mares might wax up before birth, they shouldn’t be leaking colostrum. So if a foal is too weak to stand or suckle, or if a mare has been dripping from the udders prior to birth, there’s a good chance the newborn is not getting enough colostrum. Colostrum quality can also be verified through the use of a refractometer. Equine colostrum refractometers can be purchased at less than \$75 and are worthwhile investments for ensuring proper antibody protection.

Large stud farms can prepare for cases



A foal too weak to suckle can be hand-fed colostrum

of mares not having enough good-quality colostrum by taking advantage of frozen donor colostrum. If a mare loses a foal or is known to produce particularly large quantities of colostrum, that mare can be milked (around 500 ml) and her colostrum frozen up to a year in a normal freezer. Frozen colostrum should be defrosted in a warm water bath and not in a microwave in order to prevent damage to the proteins, Wohlfender says. The colostrum can be fed to the foal through a bottle or, if necessary, a stomach tube by a veterinarian.

Likewise, a foal that’s too weak to suckle can be hand-fed its own mother’s colostrum if the quality is good. However, Wohlfender’s research indicated an increased risk of infection in foals that are tube-fed, so this option should only be used as a last resort, she says.

Although colostrum intake can’t be measured directly, the foal’s absorption of antibodies from the colostrum can. A simple blood test taken within the first two days of life will reveal the “IgG” level—a number that indicates the concentration of antibodies in the foal’s blood and hence its capacity for protection against infection. An IgG level of 8 or more is considered good; between 4 and 8 the protection level is questionable, and 4 or below is insufficient, Wohlfender says.

Ideally, most of these antibodies should be absorbed within the first 12 hours, according to Hemberg, and a blood test taken at that time would allow treatment to be initiated as early as possible if necessary.

Hemberg and Wohlfender agree that if the antibodies are too low after the blood test, the foal should be given intravenous antibody-rich hyperimmune plasma.

The foal won't suffer from an excessive amount of antibodies, so if owners are concerned about a questionable IgG level on the blood test, and they're willing to spend the money (often more than \$300 for one liter), then the plasma can be safely administered.

The blood test should be considered an indispensable part of early foal care, according to Hemberg. It's easy to do and relatively inexpensive, and there's just no reliable substitute. "A very common misunderstanding is that if the foal is bright, behaving normally, and has had a good drink, it has had enough colostrum," she said. "But I have done postnatal check-ups on several seemingly bright foals that actually had not had enough colostrum. And they are really ticking bombs, because they have just not been infected by any bacteria yet. So my advice is, absolutely, get the blood test and get the plasma if indicated."

According to Hemberg's recent scientific study on the long-term effects of early disease, preventing infections in newborns reduces not only the risk of death, but also the risk of poor performance later in life. Foals that survived bouts of septicemia ("compromised" foals) within the first 18 hours of life frequently developed prob-

## Mental Health and Safety

It might seem like strictly a training issue, but foal handling and education are important for the horses' well-being. "A foal's health isn't just about his body; we also have to think about his mental health," said Dr. Dirk Langle. "A foal that isn't used to being handled is easily frightened and is at risk of injury when it comes time to handle him, for veterinary care, or loading onto a trailer, or for picking up the feet. When I see a future sport horse that isn't used to human handling, I consider that foal not to be in an ideal state of health."

Lady Carolyn Warren's foals would certainly not fall into this category. "They are handled from the day they are born, every day," said Warren. "This makes them easier to manage, which means there won't be some sudden, stressful moment when they have to be broken in. It's all sort of a natural progression."

Dr. Elizabeth Hemberg's foals are not only handled from day one, but haltered. "When a foal is born, I dry it off with a towel and touch it everywhere, and I put a halter on it on the first day," said Hemberg. "Then from every day on, I put a halter on him, and when I take out the mare and lunge her, the foal is there, too. Then it's no big deal for them, and you can go out to the pasture later and just walk up with a halter, and they don't get upset about it."

lems that ruled them out as sport horses. Among the Thoroughbreds and trotters in her study, 47% of the compromised foals later qualified for racing, compared to 75% of the healthy foals. None of the compromised foals had significant earnings, but 16% of the healthy foals went on to win greater than \$7,500/year in racing events. And 29% of the compromised foals were euthanized for various reasons before two

years of age, compared to only 7% of the healthy foals.

If a foal develops an infection later in life and then recovers, it tends to race with the same performance statistics as other healthy foals, according to Hemberg. "The problem really seems to be those critical first hours," she said, "Essentially, foals that are born healthy have a much stronger platform to stand on."



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However, it's currently difficult to prevent such early infections, as they might actually begin before birth, she says. It could be connected to the uterine dysfunctions of certain mares with infertility problems or to infections of the placenta. Her current research work aims to unravel clues to this mystery of the "whens" and "whys" of early infections in newborns. By studying foal behavior in the first hours of life compared to blood samples of mare and foal, she hopes her research will reveal whether compromised foals might already be compromised in the uterus. Until the answers are uncovered, however, the "best guarantee" she can offer breeders is to ensure optimum colostrum intake and watch for normal foal behavior by testing and close monitoring.

One thing that does seem to be clear is that giving healthy newborns rounds of preventive antibiotics has no effect on the frequency of disease, according to Wohlfinder. This relatively common custom of prophylactic treatment of foals with antibiotics daily for the first three days of life was first reported in 1955 by J.S.M. Cosgrove, who noted significant health improvements compared to untreated foals. Since then, management practices have improved, and prophylactic antimicrobial drugs seem to no longer be necessary in foal rearing, as Wohlfinder found in her research on Newmarket Thoroughbreds. She recommends that prophylactic antimicrobial drugs are used only if there is a clear need for it, such as a weak foal deprived of adequate amounts of colostrum or complications at birth. Early intervention in cases of septicemia remains crucial, however.



One key to healthy foals is raising them "as close to nature as possible"

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### The first few days and weeks

Breeders who educate themselves about what's normal and not normal in their young foals will go a long way in protecting their foals' health, according to Hemberg. Unfortunately, though, many breeders are not fully knowledgeable about the signs of trouble.

"It's very important for both owners and veterinarians to be able to recognize normal foal behavior," she said, adding that the "normal foal" criteria first described by Peter Rosedale in 1967 too often goes forgotten. "The foal should be standing within one hour, nursing within two, and galloping within four."

A good deworming program should also begin within the first few weeks. "Ascaris (roundworms) are the ones that you're concerned about in young horses," said Hemberg. She recommends an ascaris dewormer at about six weeks of age, repeated every two months until the foals are weaned. After that, she deworms with ivermectin to treat against other species of worms as well. The mare is wormed the day of foaling to reduce significantly the amount of *Strongyloides westeri* worms transferred. These worms can cause diarrhea in foals as young as five days old.

For German equine veterinarian, breeder, and national breeding conformation judge Dr. Dirk Langle, worming programs should start even earlier. "I deworm mine starting at eight days of age, followed by every six weeks afterward," said Langle, who has been judging sport horse breeding stock in Germany, France, and Switzerland for the past 15 years.

"A good indicator of parasite infestation is the foal's hair quality," he added. "If it's unsightly, and especially if the foal has a bloated belly with ribs showing and poor muscle development, this is a strong sign of worms."

Owners should also be on the lookout for other potential health problems unrelated to infection, such as contracted tendons, ruptured bladder, and colic, according to Hemberg. Usually, the only solution to these kinds of problems is rapid veterinary treatment once the situation is detected.

However, owners can help prevent meconium-related colic. This is the most common cause of colic and happens when the foal has difficulty passing the first bowel movement called meconium. Retained meconium can easily make a foal gassy, and it is likely to stop suckling. A veterinarian can perform a simple enema if the foal appears constipated to prevent this kind of colic.

### Get them outside

For Thoroughbred breeder Lady Carolyn Warren, who along with her husband, John, runs the Highclere Stud in Berkshire,

England, the key to the healthy young foal is raising them “as close to nature as possible.”

“The horse is not designed to live in stables,” said Warren, whose stud produces approximately 35 foals per year. “They are happier out. Letting them be as close to nature as possible is what we feel is the best way to rear horses.”

Foals at Highclere Stud, the leading consignor by gross sales for Book One of the October 2010 Tattersalls yearling sale in Newmarket for the fourth year in a row, live outdoors on rolling green acres from a very young age. “Generally, ours will be in a nursery paddock for the first two to three weeks and then progress to joining up with one other mare and foal, and then into a larger group from about four to five weeks old,” Warren said.

However, Warren adds that although this works for Highclere Stud, it might not be ideal for horses in other environments and conditions. And in any environment, ensuring the foal’s health and safety must be priority. “We are extremely careful about the amount of exercise they have as young foals,” she said, “as they can so easily get tired and incur injuries.”

Wohlfender agrees. “It’s a bit of common sense thing about what is best,” she said.

### Skin and hooves

A foal’s coat needs no special care and, in fact, shouldn’t be washed or overbrushed, according to Hemberg. “Foals normally have very good coats and good fat in the skin that protects them against insects,” she said. “To ensure optimum protection, it’s best to leave it alone.”

Hooves, on the other hand (or foot), are a completely different story. “Farrier work is very important, starting at about one month old,” Warren said. “Foals can be born turning out, turning in, or have other conformation problems. These problems need to be constantly reviewed.”

For Hemberg, 14 days old is a good time to check for soundness. “Hoof care doesn’t start at weaning; it starts much earlier—absolutely!”

Many hoof or leg conformation problems will work themselves out in the first few weeks, especially if the foal has access to large pastures, according to Langle. But if the problems persist, a veterinarian can order corrective resin shoes to be placed by a qualified farrier. But it’s important to do this when the horse is young, he warns. Usually, by the time the horse is two years old, it’s too late.

“This means teaching them to be comfortable with hoofcare very young,” he added. “I recommend starting them picking up their hooves at about one week old.”



Farrier work should begin when a foal is about one month old

### When to call it quits

Despite our best efforts, at times a foal’s health can be poor enough to give it little hope for the future. The responsible breeder should be able to recognize when it’s necessary to make the call, however, difficult, for euthanasia. “You might have a foal that can’t extend its legs, or that has a significantly deformed jaw that will

prevent it from grazing properly even if it can suckle as a foal,” said Langle. “This kind of horse has no future. Keeping horses for the sake of keeping them alive isn’t professional. We have to be responsible for the horses we produce.”

“Fortunately, it doesn’t happen every day. But maybe one foal out of forty will come up with a serious problem. And in that case, it’s best to let that one go and make room for another horse with a better chance for a future.”

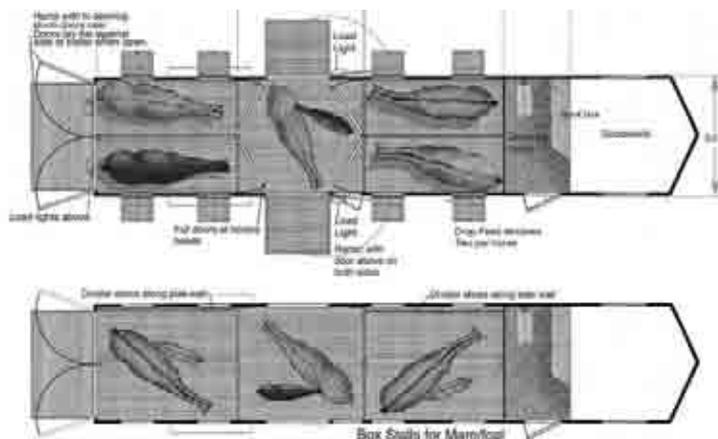
### Take-Home message

According to Warren, when it comes to proper foal care, you can never stop learning. “When you think you’ve learned it all, you never, ever have,” she said. So the path to the healthy foal is one of always reading and listening to the latest research and new ideas. When we breed racehorses, we constantly strive to improve genetics to have the most successful Thoroughbred in history. Foal care is much the same. From the time they’re out of the starting gate of life, we must constantly strive to improve our methods to have the healthiest foals we can. 

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