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# The New Born Foal

By Dr John Kohnke BVSc RDA

A healthy, new born foal is well adapted for survival, but special precautions should be taken to reduce stress and risk of disease by careful foaling and post-natal management.

The majority of healthy mares have little difficulty in foaling, although overweight and fat mares, or very old mares are more likely to be less fit and lack muscle tone to ensure a quick and explosive foaling action. Obviously these mares require more careful observation, and any difficulties or a delay in the foaling process can increase the stress on the newly dropped foal.

## Check the Foal and Mare at Birth

If you are present at the birth, ensure that the membranes are free from the foal's nose once the foal is born and on the ground. Avoid too much intervention – allow the mare to remain down and resting – up to one third of the foal's blood volume is transferred from the membranes within 1-2 minutes after foaling – leave the umbilical cord intact until the foal attempts to move away. The foal will normally break the cord itself as it moves or the mare stands up.

### Check List:

1. Check the mare for foaling lacerations – seek advice from your vet if necessary.
2. Check that the cord breaks and the foal is vigorous.
3. Check the mare's membranes – they should come away (expelled) within 1-2 hours – check that the full membranes are present by spreading them out. If in doubt – seek advice from your vet.

**Note:** If the membranes are retained for more than 4 hours – seek advice from your vet. An injection of oxytocin hormone may be necessary to release the membranes attached in the womb. If the membranes are not expelled within 6-8 hours, manual removal by a vet will be necessary. Membranes retained for more than 8 hours, when the cervix closes, are difficult to remove and may develop infection, resulting in severe toxicity, with risk of laminitis (founder).

4. Once the foal is standing, check for any abnormalities.

### Handy Hint

#### Attend to the Cord

The umbilical stump should be sprayed with 10% iodine solution or cetrimide spray to help dry it up and reduce the risk of infection. If the stump is soft and leaking fluid (urine), seek advice from your vet.

Birthweight is a critical guide to the vitality and chances of survival as well as the foundation for future growth and development of the new born foal. Foals weighing less than 35 kg at birth have virtually little chance of growing and achieving adequate early growth targets for a racing future. Many overseas studs do not keep these foals. Where twins are born, the combined birth weight should be a minimum of 55-60kg, and only the larger twin is worth keeping for a future racing career.

### Handy Hint

Most new born foals stand and drink within 30 mins to 3 hours after being born. A new born foal is abnormal if it does not stand within 60 minutes of birth, fails to seek security and comfort from its mother within 2 hours of birth, or has not attempted to suckle within 3 hours of birth.

### Handy Hint

At birth, a foal leaves the sterile, warm conditions of its mother's womb that has provided nutrition and protection against disease and injury, and enters the "hostile" and highly contaminated paddock environment.

## The Importance of Colostrum

For this reason, it is important the the newly born foal receives colostrums milk as soon as possible to provide energy, protein and water, as well as essential antibody protection against disease. Colostrum (first milk) provides immunoglobulins or antibodies that are concentrated into a mare's milk during the 10-14 days prior to foaling. The transfer of circulating antibodies to the foal direct from the mare's blood is prevented by the numerous layers of the placental barrier during pregnancy. Only low levels of antibodies are present in the foal's blood at birth and intake of colostrum is essential to provide immunity against common diseases during the first few weeks of life.

Failure to either obtain, or to absorb, adequate levels from colostrum within 16 hours after birth will predispose a young foal to a higher risk of bacterial infection. A foal that does not receive adequate colostrum or antibody cover during its first day is more likely to fail to thrive and succumb to infectious disease. Many of these foals develop persistent diarrhoea or are retarded in their growth and development.

It is most important that all newborn foals receive adequate colostrum within 8-12 hours after birth. A healthy, active newborn foal weighing 50-55kg at birth, will suckle from 2-3 litres of colostrum during the first 12 hours of its life.

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## Handy Hint

Ideally, a pregnant mare needs to be exposed to the environmental contamination and profile of microorganisms, such as bacteria that cause scours, joint-ill and septicaemia, for at least 2 weeks prior to foaling down on a stud. In fact, studies have shown that up to 4 weeks exposure to germs in the paddock or foaling environment, is needed to provide adequate levels of environment specific antibodies as immunoglobulins in her colostrum milk.

Colostrum contains three types of protein immunoglobulins:

- IgG for immunity against bacterial and infective diseases.
- IgM for general immunity and health
- IgA which increases in milk after foaling and remains for up to 3 weeks, is not absorbed into the body and provides local gut protection against bacteria and other germs that commonly cause diarrhoea in a young foal, especially once a 7-10 day old foal starts to nibble pasture or share hard feed with its mother, which can overwhelm its gastro-intestinal defence.

## Secretion of Colostrum

**Expert management and care of a new born foal is essential to ensure that it receives adequate immunity via colostrum milk.** A mare only produces colostrum for the first 2-3 days of lactation, and the level of antibodies is highest during the first 6-12 hours. **Surveys have shown that up to 23% of foals tested within the first few weeks of life, have low blood levels of antibodies in their blood.** A less than optimum uptake of antibodies from colostrum can result from low levels in the mare's milk, or failure of the foal to suckle or to absorb sufficient amounts of colostrum within the first 12-16 hours after birth. After 24 hours the long chain proteins that form the immune antibodies can no longer be absorbed, but local immunity is provided by the milk by IgA for up to 3 weeks.

**Up to 12.4% of mares pre lactate, or 'run their milk', seen as thick milk dripping from the teats and splashing down the mare's legs, before foaling. If a mare runs her milk for more than 3 days before foaling, she will significantly deplete her colostrum levels of essential IgG and IgM, for systemic immunity, but usually adequate IgA reserves will remain to provide gut immunity for 2-3 weeks.** There is no way to prevent pre lactation in a mare near to foaling.

## Handy Hint

If a mare bags up and starts to drip colostrums for a few days before her due date, then it is best to milk her out two or three times a day as the colostrum accumulates and drips from her teats. Wash the teats and glands thoroughly and collect the colostrum hygienically into sterilised (eg boiled) 500-750mL soft drink bottles. The colostrum can be frozen to prevent it souring, just in case the mare does not foal for 2-3 days. As soon as the mare foals, slowly thaw the bottle(s) of colostrum in lukewarm water. The newborn foal should be provided with colostrum within 1-2 hours after birth at hourly intervals by bottle or stomach tube as soon as it attempts to suckle. Consult your vet for advice.

Up to 500mL of colostrum per 50kg body weight (an average large breed foal weighs 45-50kg at birth) can be given by stomach tube each hour. Consult your vet for advice on the amount a foal may need relative to its vigour and nursing behaviour. Usually around 750mL of colostrum is adequate to establish immune cover in a new born foal during the first 16 hours after birth.

Aged mares over 20 years of age generally have lower levels of antibodies in their colostrum. A mare that foals earlier than 320 days of pregnancy may not accumulate adequate colostrum reserves to feed her foal. However, foals born early are still able to absorb antibodies provided in colostrum. Most foals that are less than 320 days of pregnancy have a poor rate of not surviving because their lung fluid and respiratory system is not fully functional.

During the first week of life, a foal suckles up to 105 times each day, and stays within 1 metre of its mother for about 85% of the time, and rarely moves more than 5 metres away. The frequent intake of colostrum and milk containing IgA antibodies bathes the gut lining with protective antibodies. Frequent nursing also stimulates the mare to start to produce more milk to feed her foal, with daily volumes of 15-17 litres being produced by the peak of lactation 4-10 weeks after foaling.

Shy maiden mares may resent initial attempts to nurse and deprive their foals of essential colostrum. Foals that are poor suckers, dummy foals, or foals that are weak or become separated from their mothers at birth may also not be able to suckle an adequate volume of colostrum. If you are unsure as to whether a foal has suckled sufficient colostrum, consult your vet for advice. A simple 'on-the-spot' blood test is now available to check IgG levels.

## Handy Hint

Colostrum from a newly calved cow can be safely given by nose tube to a newly born foal at 500mL per 50kg body weight to provide short term immune protection to an orphan or colostrum deprived foal. Mare colostrum provides more specific and longer lasting antibody levels than cow colostrum.

## Absorption of Colostrum

A foal that is born prematurely and survives, should be able to absorb antibodies because the special intestinal transport cells are formed early in foetal development. Although a foal's immune system can produce antibodies from 2-3 weeks of age, full scale response is not developed until 10-12 weeks of age. Therefore, the colostrum absorbed during the first 12-16 hours after birth must provide a temporary cover against common diseases over this period. The low point of immune protection in a foals' blood, especially a foal that did not receive adequate colostrum, occurs at about 5-6 weeks of age. A newly foaled mare produces colostrum for only 2-3 days, but the level of antibodies rapidly falls after 12-14 hours, once her foal has suckled and depleted the initial colostrum reserve.

## Sources of Colostrum

Colostrum can be collected from another mare within 12 hours after she foals. The best choice is a good producing mare that is still secreting colostrum after feeding her own foal. Up to 250mL (1 cupful) of colostrum can be stripped from a newly

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foaled mare at hourly intervals after each time her own foal has nursed. A newborn foal will only take 50-60mL per drink. Stripping 3 cupful colostrum immediately after she has fed her own foal (1 cupful at a time) to freeze or feed to another foal, will not significantly drain or lower the antibody levels available for her own foal at its next drink.

## Handy Hint

Colostrum can also be collected from a mare that has had a still born foal, or one that has lost her own foal soon after birth. Colostrum must be collected within the first 6-8 hours after the mare has foaled. Once a mares' own foal has suckled and removed 2-3 litres of colostrum, the quality of the subsequent colostrum secreted after 12 hours declines as the antibodies are drained. A test is available to measure the remaining antibody level in a mare's colostrum. Consult your vet for advice. Choose a healthy mare to provide supplementary colostrum - avoid a mare that is in poor condition, one that has prelactated or an aged mare, as antibody concentration may be lowered. Always wash and dry the udder and teats, and practice good hygiene when stripping colostrum.

**Although recipes for artificial colostrum are available using cows milk fortified with egg protein, these may aid nutrition but do not provide protective antibodies.** In areas where major horse studs are grouped, frozen colostrum is usually available from a colostrum 'bank' for orphaned or colostrum deficient foals. Some horse breeders routinely collect colostrum from newly foaled mares, and may make sufficient available to you or your vet. Colostrum can be stored frozen for 12 months without deterioration. It must be thawed slowly in warm water - not microwaved or heated excessively as this damages the structure of the immunoglobulin protein and destroys their protective effect.

## Handy Hint

Where mare colostrum is not available, similar volumes stripped from a newly calved dairy cow will provide an adequate level of IgG and IgM antibodies, as well as IgA protection to the foals gut against common germs in the environment. However, cow colostrum will not give the long lasting immune protection provided by the IgG in mare colostrum.

If fresh or frozen colostrum has a lower level of antibodies, then larger volumes need to be given. This is best administered in smaller doses of 400-500mL at 30-40 minute intervals, for 4-5 times to avoid overloading the foal's digestive system. Consult your vet for advice.

If colostrum is not available, your vet can harvest serum antibodies from a locally adapted donor horse (eg a mare or gelding – but not the foal's mother), that has been resident on the stud or your property for at least 3 months. Alternatively, you can purchase a commercial concentrated source of serum antibodies prepared from horses. These antibodies can be given either by stomach tube within the first 16 hours after birth, or dripped into the vein, depending on the age of the foal. The dose rate is 20mL/1kg body weight. In a foal with severe diarrhoea, a similar dose of plasma given by stomach tube may help provide gut immunity. Consult your vet for advice.

**A booster of plasma antibodies from an environmentally adapted horse that has been on the stud for some time may be worthwhile to boost immunity levels in a young foal from a valuable mare transported from interstate or an aged mare, to give it more specific protection against local diseases. Consult your vet for advice.**

A sample of the foal's blood taken after it has suckled, or within 9-12 hours of birth (by midday for a foal born overnight) can be checked with a Foal Antibody Test strip to determine if adequate antibody levels have been established. Consult your vet for advice.

**A foal's serum IgG level should be above a minimum of 400 mg/dL, and ideally at least 800 mg/dL to ensure optimum immune protection.**

A foal that has not suckled strongly, one that is orphaned, or if the mare has prelactated for more than 3 days, should receive supplementary colostrum within 16 hours after birth.

## Handy Hint

A colostrum deprived foal should receive a minimum of 2-3 litres of good quality colostrum by bottle if it will suck, or alternatively over the tongue by syringe or by stomach tube. Volumes of up to 1 litre per 50kg body weight at 60-90 minute intervals can be given by stomach tube by your vet, preferably starting within 6 hours of birth.

## Handy Hint

If you observe that a foal is attempting to suckle almost constantly, or appears to be uncharacteristically worrying a mare by attempting to suckle more frequently than usual, or is aggressive as if hungry, check the mare whether she has a full udder and sufficient milk. A nurse mare or hand rearing may be necessary if a mare has dried up, developed mastitis or secretes only a small amount of milk.

## Check the Mares Teats

Flat shiny teats indicate that a foal is drinking or the mare has little milk. Enlarged, dirty teats suggest that a foal has not been drinking regularly. Occasionally a maiden mare will not be accustomed to her foal suckling and not allow it to drink. A foal may not be able to drink because it is sick, or the mare may have developed an infection in her udder (mastitis). Consult your vet for advice. After the first week of life, a foal drinks 2-3 times per hour, or up to 60-65 times daily. The peak of lactation in a mare occurs at about 4-10 weeks after foaling. A well fed mare will provide enough milk for her foal to obtain most of the nutrients from milk, as well as some grazing and nibbling at its mother's feed to meet its needs as it doubles its birthweight in the first month after foaling.

## Handy Hint

If a young foal is unable to locate a teat to drink soon after it is born, then carefully strip out both teats on the mare (often they are swollen and full of milk), so that the foal can grasp the smaller, flatter teat in its mouth. Smear some milk over the teat to attract the foal.

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