Prepping For A Premmie

Premature foalings – why they happen & how to give pre-term foals the best chance at survival

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A premature delivery can be a heartbreaking end to what had looked like a normal, healthy pregnancy because the majority of foals born before the final week of gestation will die.

Luckily though, prematurity is not a common cause of foal deaths (approximately 1 in 100 foals are born prematurely) – and is almost always caused by placental infection (placentitis).

Placentitis accounts for almost one-third (30%) of premature births, stillborn deliveries and foal losses within the first 24 hours of life.

The accepted normal gestation in a mare can be anywhere from 320 to 360 days, but averaging 341 days. A foal born between 300 to 320 days is considered to be premature, with foals born before this time considered to be aborted or non-viable live births.

Dysmaturity (immaturity) is a term used for a foal born anytime after 320 days, but still displaying signs of being premature (possibly due to insufficient nutrition). These foals will have very similar problems to premature foals.

Other causes that occasionally increase the risk of a premature birth include an incompetent cervix, a compromised, weak or infected uterus, the birth of twins, severe mare stress from chronic disease (diarrhoea, colic, pneumonia) and rarely, toxins.

Spontaneous abortions far outnumber premature births – and there are many more reasons for abortion than a premature delivery.

Unlike humans, an equine foetus only matures in the final 5 to 7 days of pregnancy and death is common if born before then.

The biggest question to be asked when you are faced with a 'premmie' foal is its long term viability and its chances for a good outcome, both financially and medically.

How you answer will depend on the cause for pre-term birth, the ease of delivery, the foal's gestational age, its overall condition and the quality and speed of postnatal care it receives.

Placentitis

The placenta functions as an exchange of gases, nutrients and waste products between the mare and the foetus. In the normal mare, it is a fully-enclosed sterile

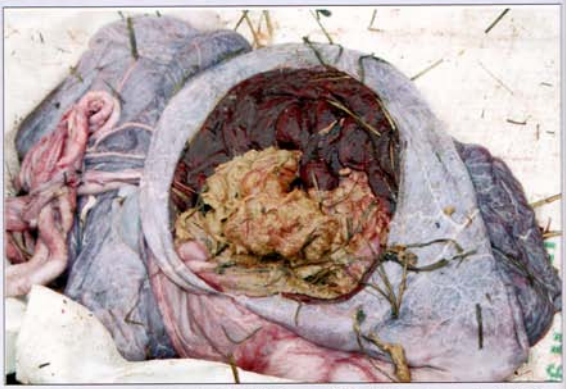
environment supporting foal development and is made up of two membranes – the amnion and the chorioallantois.

The amnion is a thin membrane that surrounds the foal and the chorioallantois is the thicker, vascular membrane that attaches itself to the lining of the uterus (endometrium).

In all cases of premature birth (and any other foaling problems) it is essential to have the placenta examined for defects and missing portions.

A mare should pass the entire placenta within two hours of birth and it can be refrigerated for future examination while you are providing immediate medical care to the foal.

Scientifically, placentitis means "inflammation of the placenta" but in general terms, it encompasses bacterial, viral or fungal infections. The term can also be used to describe placental insufficiency – which can still result in the birth of a live foal that is severely growth restricted and weak.



ABOVE: The compromised placenta (afterbirth) of a mare that foaled six weeks prematurely due to placentitis. The healthy part of the placenta is the velvety red area at the top, the diseased portion is at the bottom.

Placentitis is often referred to as the 'silent killer' because there can be little or no outward signs that anything is wrong with the mare – and by the time obvious signs appear (if at all), the damage has already been done.

Clinical signs include:

- Premature 'bagging up' or udder development, frequently resulting in dripping milk. Normal udder development usually begins four to six weeks before foaling, although maiden mares might not show mammary development until just before parturition.
- Vaginal Discharge
- Change in shape or 'dropping' of the belly
- Obvious signs of discomfort (before gestational day 330)

If placentitis is suspected, your vet will likely check the mare's blood for progestin levels (a rise in levels prior to 310 days can indicate a problem), swab any vaginal discharge and may suggest a transrectal ultrasound.

Treatment is aimed at combating infection, reducing inflammation, supporting the pregnancy and treating any underlying or causative conditions.

Early diagnosis and intervention is the key to successful treatment of placental infections, but current treatment regimes are far from perfect and the outcome is hard to predict.

The majority of infections are caused by bacteria entering the vagina and ascending through the cervix to the placenta.

The most common of these are called opportunistic bacteria and include Streptococcus equi spp zooepidemicus, Escherichia coli, Psuedomonas aeruginosa and Klebsiella pnuemoniae.

Bacteria, viral or fungal organisms can be passed to the mare during breeding or may be the result of poor anal/vulval conformation – (e.g. aspiration of air or contamination by faeces etc).

Nocardioform placentitis (sometimes referred to as Crossiella equi) is a different and distinct form of placentitis that causes lesions at the top of the placenta rather than at the cervix (as is the case with most infections). Because the cervix remains unaffected, vaginal discharge is not often present and it is harder to diagnose.

On post-delivery examination, the surface of the placenta is covered with a thick, brown exudate (pus), which contains dead placental cells, white blood cells, and bacteria.

Nocardioform placentitis is currently confined to the USA – but is worthy of a mention due to the large numbers of horses travelling, competing and breeding internationally.

Mares tend to clear this organism from their systems quickly after giving birth, or aborting, and they rarely need antibiotic therapy.

The blood-borne organism Leptospira has been implicated in cases of placentitis and causes lesions to appear randomly throughout the surface of the placenta. It is carried by cattle and rodents and spreads via infected urine or contaminated feed and water.

Australian cattle are routinely vaccinated against Leptospirosis, but it is logical to house your pregnant mare away from cattle and rodent-proof all feed and water if possible.

The role of Australia's Processional Caterpillars (Ochrogaster lunifer) and the USA's Eastern Tent caterpillars in placentitis and Mare Reproductive Loss Syndrome (MRLS) has been a source of much debate over the past couple of years.

It is thought that grazing pregnant mares inadvertently ingest the insects and their (bacteria covered) hairs embed in the intestinal wall. This in turn allows bacteria to enter the bloodstream and establish itself in areas such as the placenta.

Inspection of the paddock and routine control of any caterpillar breeding nests should be carried out.

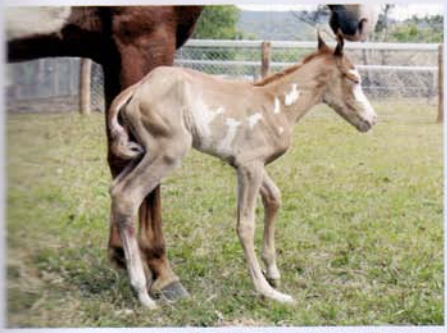
Care Of The Premature Foal

Premature foals are usually born with a low birth weight and show distinct clinical features which include a domed head, silky coat, floppy ears, loose tendons and incomplete bone formation (ossification) of the small tarsal or carpal bones. They may also have respiratory problems.

Foals weighing less than 25kg rarely survive. Premmie foals are also at higher risk of colic and gastrointestinal disorders, sepsis, muscle weakness, hypothermia (low body temperature), hypoglycaemia (low blood sugar), diminished suck reflex and ineffective swallowing.

The first step is providing warmth for the newborn before calling your vet (if not already onsite).

While you're waiting, and if the foal is breathing okay, jot down



ABOVE: Premature foals often look their best immediately following birth, but can deteriorate over the next 24 hours.

RIGHT: The first step is providing warmth for the newborn before calling the vet.

some history on the mare and the birth (it's the little details that can be forgotten and are often a great help in diagnosis). Include anything you noticed prior to the foaling, the length of time the mare was in labour and her previous foaling history.

Once the placenta is passed, put it aside for the vet to examine, being careful not to damage the membranes.

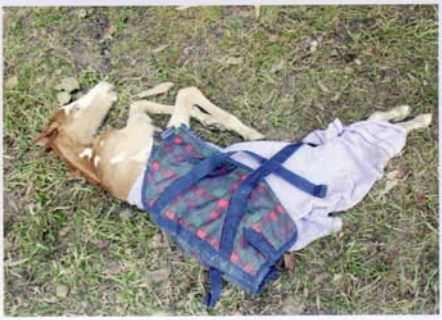
A normal foal should stand within one hour of birth and start searching for the mare's udder. If the foal has not managed to stand and nurse successfully within two hours of birth, it is time to intervene. Help the foal onto its legs and gently guide it towards mum. It helps to hand-milk a few drops of colostrum and coat the teats and your hand with it, allowing the foal to suck a finger before guiding it onto the teat.

Colostrum has a laxative effect on the foal and it is important that he passes meconium (firm, black faeces) within four hours of birth.

Premature foals often look their best immediately following birth, but can deteriorate over the next 24 hours. If your foal is still looking bright after 24 hours, he stands a good chance of survival.

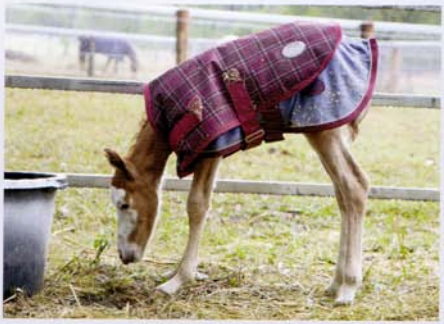
Post –foaling checklist:

- Make sure the foal is breathing
- Check that mucous membranes are pink and not congested or discoloured
- Apply iodine to the umbilical stump



- Make sure the foal receives colostrum within the first two hours
- Ensure meconium is passed within four hours
- Check the eyelashes are turned outward (not entropian)
- Ensure the entire placenta is passed within two hours following birth (keep and refrigerate)
- Check for limb deformities and umbilical hernia development
- Check umbilical stump over next few days for presence of urine
- Check mare over next few days for signs of infection (vaginal discharge etc)

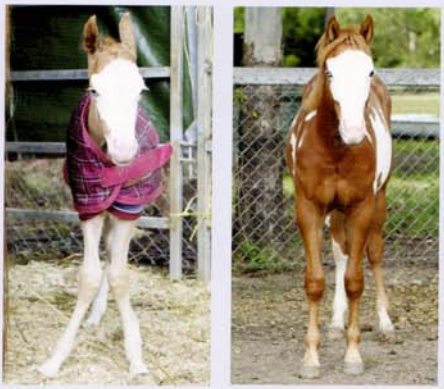
The next steps are up to your vet, but categorising the premmie foal into one of three groups is helpful in ascertaining immediate treatment and expected outcomes for the long term.



ABOVE: This premmie is being kept warm & dry with the use of two large dog rugs because it was too small for regular newborn foal or mini rugs.

Critical: Weak and suffering from multiple system failures. The foal is recumbent, unable to raise its head and gasps for breath. If they survive, it is only after prolonged and extensive intensive care lasting weeks. Oxygen therapy, warmth and IV fluids are required immediately, but ongoing care will require hospitalisation. The decision to attempt treatment will come down to financial viability and the long term expectations for the foal's future.

Stressed in-utero : Initially small and weak, but able to stand and nurse. Extra care can include higher than average nutritional needs, immune system support, preventative antibiotics and support or prevention of limb abnormalities due to incomplete bone formation (ossification).



BEFORE & AFTER: The same premmie foal as a newborn (left) & as a weanling (right) having received the very best care & nutrition.

Middle-of-the-road: Slight weakness and diminished suckle reflex, but presents with a bright demeanour. Nursing care is aimed at supporting the foal as it gains strength and preventing bacterial infections or complications. These foals may need nasal tube delivery of nutrition, IV fluids, antibiotics, immune system bolstering and artificial warmth. Exercise should also be limited until bones are stronger.

The outlook for a premmie foal in the last two groups is fairly positive and with the right care, he can still grow to his full potential. The biggest problem with premature foals (that survive the first 24 hours) lies in the development of the small bones in the hocks and knees.

Incomplete ossification of these bones can lead to permanent limb deformities and it is important that your vet evaluates the foal's ossification status via radiographs.

Some deformities or ossification problems can be supported with splints or casts and have little impact on the future maturity and athleticism of the animal.

Unfortunately, premature foals often remain undersized, lack athletic ability and can have chronic disorders at maturity.

A decision on the long term viability of a premmie foal needs to be made after all possible information has been gathered and will depend heavily on your expectations for the future career of the animal. Are you willing to pour money into this foal without a guaranteed positive outcome? Is it okay if he doesn't have a show career? What was to be his destiny and what is an acceptable outcome for you, the owner?

Predicted outcomes for premmie foals remain a difficult area for vets to assess. While there is no guarantee the foal will achieve its full potential even with the proper neonatal care, it is also possible that the foal will develop completely normally – despite its start in life.

If the foal survives the first 24 to 48 hours and you've decided to push on with treatment, it's likely to require intensive and ongoing nursing care at home for at least the next 3 to 4 weeks along with regular visits from your vet.

During this very important time your job will be to provide common sense support, while trying not to interfere too much in the mare and foal bonding process – which is often compromised by a premature birth.

Possible problems:

- Pressure sores – caused by thin 'premature' skin
- Respiratory problems
- Seizures
- High nutritional needs (up to 10 times normal)
- Immune system problems
- Musculo-skeletal problems – due to incomplete bone formation and lax flexor tendons

In most cases, your vet will advise you to restrict the foal's movement (stall confinement) until serial radiographs show

complete ossification of the newborn's bones. Lightweight structural support of the limbs is sometimes required for the first few days to prevent crush injuries.

There are many other conditions and diseases associated with a newborn foal (whether or not it is compromised by prematurity) and it's time to call the vet when:

- Temperature is lower than 37.2 degrees (Celsius) or higher than 38.8 degrees (normal foal temp is 37.7 to 38.8 degrees Celsius).
- Heart rate slower or faster than 80 to 120 beats per minute
- Nostrils are flared, breathing irregular and mucous membranes (gums) have a bluish tinge (normal foal resp. rate 20 to 40 – if stressed, this can rise to 30 to 40 breaths per minute)
- Any sign of nasal discharge (including small amounts of milk after feeding)
- Poor or reduced nursing (it is normal for foals to nurse several times an hour)
- Mucous membranes are discoloured (brick red, pale, yellow)
- Behaviour has changed – standing quietly, falling asleep while standing or laying down more often
- There is any abdominal distension, straining to pass faeces or diarrhoea or dribbling urine
- Umbilical stump is swollen, hot, painful or has any discharge (including urine leakage)
- Eyes are sunken or not clear and shiny and he is not 'following' the mare

- There are any signs of lameness or joint swelling

The single most important lesson with a premature foal is to get veterinarian help quickly. Don't wait until your premmie foal starts to fade – have him examined regardless and keep any placental material intact for inspection by your vet.

The mare's history (including any previous foaling problems), details of her pregnancy and of the birth are essential tools in determining the best treatment regime for a premature foal.

Not all premature foals are doomed and not all mares will have problems with subsequent pregnancies.

The key to a successful outcome is the timing and quality of treatment – and recognising the early signs of an impending disaster.

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