



Care of the orphan donkey foal

A foal may be orphaned because of its dam's death, rejected due to antagonistic behaviour or undernourished by an inadequate milk supply. Alternative means of maintenance must be found until the foal reaches at least five months of age.

FOSTERING

Finding a nurse mare has many advantages, but they are rarely available. A mare that has just lost her foal is ideal. Success depends on a number of variables affecting the mare to foal relationship, including:

- Mares that have had a stillborn foal or have not suckled are less likely to accept.
- The longer the period between the death of the mare's foal and the introduction of the orphan foal, the less the chance of success. After 2 to 3 days of not being suckled the mare's milk may dry up.
- If the size discrepancy between mare and foal is great, chance of acceptance is less.
- If the foal has never suckled, it gradually loses the instinct.
- A mare's mothering instinct varies between individuals. Some mares show extreme hostility at first but, once they have accepted a foal, they can make the best mothers.

Overcoming rejection

There are a number of ways to help avoid or overcome rejection of a foster foal:

- Move the mare to an alternative stable from one she might associate with her dead foal.
- The amnion, meconium or hide from a dead foal should be smeared over the orphan foal before presenting it to the mare.
- Place a strong smell over the mare's nostrils, such as 'Vick' vapour rub. Also place this on the foal, especially over hindquarters, head and neck. Renew at frequent intervals.
- Put the foal to the mare when it is hungry, i.e. every 3 hours. Introduce the mare to the foal when she has a full udder.
- Restraints such as chemical tranquillizers or hobbles can be used. The need to use restraints should diminish at each subsequent meeting.

Observe the mare and foal when first left together, some mares and foals are best kept separated by a partition, this will allow the sight and smell of each other, but will protect the foal.

If unsuccessful on the first encounter re-introduce after a short period of time, as success may be achieved after further attempts. If the mare is still showing an antagonistic response after 10-12 hours then the chances of success are poor.

Colostrum

Colostrum must be given within the first 12 hours of life; the first feed should be within 2-3 hours of birth. The recommended amount is 250mls every hour for the first 6 hours, making a total of 1.5 litres. Absorption rapidly falls after 3 hours of age so foals should be encouraged to

nurse as soon as possible; if in doubt, the foal's IgG levels can be measured 16-20 hours after birth.

In a case of rejection of the foal, obtaining the colostrum from the mother would be preferable, or it could be taken from another mare within two days of giving birth. A healthy mare should have enough for 250mls to be taken off after her own foal has sucked, although it is useful to check colostrum quality first using a refractometer. Clean hands and the mare's udder before milking and sterilise all utensils. Colostrum from a cow is not really suitable, although if fed in large quantities it would be better than having none. Collect colostrum and freeze at -15 to -20°C. Store in 250 ml batches, when required; defrost slowly in hot water until reaches 38 °C. If the foal has received no colostrum, or IgG levels are measured at <800mg/dL, then plasma (preferably hyperimmune) must be administered intravenously during the first 12 hours of life. Catheter placement and plasma administration is usually performed under sedation. Good levels of sedation in the donkey foal have been achieved with IV diazepam at 0.1-0.25 mg/kg.

Supplementary feeding

If a mare is not producing enough milk for her foal, her diet can be supplemented while the mare is in lactation. To try and increase milk production, the following methods may be successful:

- An injection of oxytocin, 0.5 to 1.0 ml, to stimulate the milk flow
- Feed lucerne (alfalfa), or allow to graze on lush, green grass.

HAND REARING

There may be no alternative but to hand rear. Consider:

- **Personnel** - Hand-rearing a foal is neither easy nor cheap, and those involved should be prepared to commit their time and resources. Experienced, conscientious personnel are essential.
- **Companions** - A foal can develop poor behavioural characteristics if hand-reared without other animal contact. Sheep and goats make good companions, but the foal should also be allowed to see other equines. When out in the fields (once the foal is over one month of age), it can be joined by a quiet pony or donkey. This companion will act as a role model.
- **Exercise** - Make sure that the foal gets regular exercise, especially as it gets older and stronger. As milk contains very little vitamin D, the foal should be allowed outside regularly in the sunlight. Donkeys exposed to sunlight for at least three hours a day can produce their own vitamin D, which is essential for proper bone development.
- **Environment** - The foal should be kept in a warm, dry place, and sheltered from the wind. A clean loose box with clean bedding is ideal. Ideally the box should have been empty for two or three weeks before housing the foal and there should be no incidence of enteric disease associated with the area.
- **Hygiene** - The box and all equipment used should be cleaned, disinfected and/or sterilised. All personnel who enter the box should take the necessary hygiene precautions, particularly in the first 72 hours.

The foal can be given covering antibiotics for the first few days if desired – although this is a matter of preference and is not generally advocated.

Bottle feeding

Time-consuming but it is preferred. Could be used in the transitional period before a foal is trained to drink from a bucket. Lambs teats are the closest in shape and pliancy to those of a donkey mare.

If the foal rejects the teat, place an index finger in its mouth and, if it does not suck, move the finger against the roof of the mouth. Slowly replace the index finger with the teat once sucking begins, be patient. Keep the bottle in an upright position.

Bucket feeding

Less time-consuming once the foal has been trained, but it is much harder to introduce than the bottle. Usually best started when the foal is 2 weeks old or older. Milk should be offered ad lib in a wide, shallow bucket placed at head height. It should be replenished twice daily, and the bucket cleaned thoroughly.

To train, place your fingers into the foal's mouth and, as it begins to suck, slowly lower your hand into the bucket of milk. It may be necessary to push the foal's head down to show it the bucket. At worst, it may take a whole day for a foal to learn to drink from a bucket.

Nasogastric intubation

Sometimes a weak foal needs to be fed via nasogastric tube. Insertion of the tube can be quite difficult, and great care must be taken during placement to ensure that the tube is in the oesophagus. A "portex" male urine catheter 20 F can be used to intubate donkey foals, but ensure the end is capped to avoid aerophagia. This can be secured into place. As gastric intubation is a risk factor for gastric ulceration in foals the use of Omeprazole (GastroGard®, Merial Animal Health Ltd, UK) may be indicated (although note Gastrogard® is not licensed for use in foals under 4 weeks of age). Donkey foals should be accurately weighed and care taken with dosing of any drugs.

PROTOCOL FOR HAND REARING

- Warm milk to 38°C for initial feeds, gradually reducing to air temperature over the first week. Changes should always be made slowly over 24 to 48 hours.
- A 10kg foal requires 30 kcal/kg (125kJ/kg) per day.
- A sick or premature foal requires 36 kcal/kg (150kJ/kg) per day.
- The recommended volume of milk for a healthy foal is 100ml/kg body weight per day. For a 10 kg foal this means 1 litre of milk a day, i.e. 10% of its body weight.
- A foal naturally sucks from its mother about seven times a day. Ideally it should be fed at 2 to 3 hourly intervals, although during the first week it is preferable to feed every 1 to 2 hours. If the foal is sick, it may be unable to tolerate more than 50 to 100mls every hour, so more

intensive rearing is required. As it improves this volume can gradually increase to 200mls an hour.

Day 1 & 2:

Feed 100 -120mls every 2 hours (10-15% of body weight) - 10-12 feeds per day.

Day 3 to 7:

Increase the volume of each feed to 150 - 200mls (25% of body weight).

Reduce the number of feeds to about 8 a day, feeding every 2 to 3 hours.

Milk-based pellets can be offered from one week old. From 3 weeks old this can be supplemented with Top Spec Comprehensive balancer, introduced slowly up to 100g/100kg.

Weeks 2 & 3:

Give 300 - 350mls at each feed, reduce to 6 feeds a day on a 4 hourly basis. Allow access to fresh water, and consider training to bucket feed. The foal may pick at the straw bed and allow a limited quantity of good quality hay/haylage and access to grazing to start the foal weaning.

Week 4:

Feed 500mls 5 times a day. Do not wean off milk until eating adequate dry food. The changeover should be gradual to allow the digestive enzymes to adapt.

Week 8 to 12:

Weaning can be progressed during this time. Give one litre of feed, 4 times daily at 8 weeks, then 3 feeds a day at 12 weeks. The foal may still be taking 1/2 litres of milk a day. A hand-reared foal should be fully weaned by five months of age.

Types of milk to consider

Mare's milk

This is obviously the best option for the foal, but is not always readily available. Milking a mare is very time-consuming.

Goat or cow's milk

This is much easier to obtain but not similar in composition, as it contains higher total solids, fat and protein but is considerably lower in sugars. The need to mix powders is avoided, but it can be expensive, particularly with regard to goat's milk.

Goat's milk is considered to be good foster milk as the fat particles are smaller than in cow's milk and so it is more easily digested. It also seems very palatable.

Cow's milk can be made to resemble mare's milk more closely by adding one teaspoon of honey to a pint of 2% fat milk. Jersey milk must not be used due to its high fat content.

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Cow's milk may contain a surprising number of bacteria so it is advisable to pasteurise it by heating to 70°C for 15 seconds.

Suggested formula

300mls cow's milk

150mls lime water (50g hydrated garden lime in 10 litres of water - leave overnight to settle, and then pour off limewater from sediment).

20g of lactose/ molasses/ honey/ brown sugar.

Milk replacers

The ideal formulation contains 15% fat, 22% crude protein and less than 0.5% fibre.

Calf milk replacers are not recommended. They are a poor source of high quality protein and often contain antibiotics. There are suggested formulae for calf milk replacers (Denkavit) without antibiotics.

Human formulae should be avoided, as they are not well tolerated by the foal's gastrointestinal tract. However, there is experience in developing countries of human milk being used with no reported problems. Poor milk replacers can cause stunted growth. It should also be noted that following the manufacturer's guidelines may cause dehydration and constipation. It may be best to use 12.5% solution of replacer, giving 10% of the foal's body weight and slowly increasing by day 10 to 20% body weight.

There are many brands of artificial milk for foals, just 'Google' foal milk replacer.

Some are listed here:

Aintree foal milk replacer

Battle, Hayward & Bower Ltd. Tel: 01522 529206. bhb@battles.co.uk

Nutrecare. Tel. 01562 825978. support@nutrecare.co.uk

Equilac

Dodson & Horrell. Tel: 01832 737300.

Mare's milk replacer

Baileys Horse Feeds. Tel: 01371 850247. info@baileyshorsefeeds.co.uk

DIARRHOEA

Nutritional Diarrhoea: Causes & prevention

The processing of milk substitute causes a loss in basic amino acids. A good quality replacer with 22% crude protein should be chosen. Excess liquid milk substitute at any one meal can swamp the digestive enzyme system and acidity control in the stomach, causing rapid proliferation of pathogenic enteric organisms. Give feeds little and often. Infection can easily be picked up from the environment, human contact and dirty utensils. Keep hands and utensils clean. Milk left to stand allows growth of bacteria. Only use fresh milk. Shop-bought milk can contain quite high levels of bacteria, which may or may not be pathogenic. Sudden diet changes can upset the digestive enzymes. Changes should always be made slowly.

Lactose intolerance: Causes and treatment

Lactose intolerance diarrhoea can be found mostly secondary to intestinal damage caused by an infectious agent and can be identified rapidly as it responds to the removal of the milk and returns when milk is fed again. Oral lactase therapy has been used in donkey foals: 4-6 drops PO q 4h of Colief® (Crosscare Ltd).

Treatment of diarrhoea

The milk substitute should be withdrawn and replaced with a solution of 50 grams glucose in 500mls warm, boiled water for one or two days. The return to milk should be gradual, alternating with the solution. The number of feeds per day should be increased with the same total daily consumption. Consideration should be given to supplementing with lactobacillus paste during dietary changes.

Intolerance to the milk substitute causes colic, diarrhoea and/or bloat. This could also indicate gastroduodenal ulceration, so antiulcer medication should be considered. Decreasing the volumes or increasing the frequency can be tried, or a change to an alternative source.

Should you require further information please contact the Veterinary Department, Slade House Farm, Sidmouth, Devon EX10 0NU, by telephone on +44 (0)1395 579162, or by email to vets@thedonkeysanctuary.org.uk