

Care of the Hypothermic Lamb

Hypothermia

This term refers to a body temperature below the normal 39-40°C. When the lamb is losing heat to the environment at a faster rate than the body can produce it, hypothermia can occur. Several factors can influence the balance between heat production and heat loss.

A lamb is born with a small reserve of energy in the form of brown fat in the body cavity, which in the course of its metabolism provides heat.

Why does hypothermia occur

1. During a difficult birth, a lamb may consume large proportions of its energy reserves, reducing the potential for heat production.
2. Long time intervals between birth and the first feeding, result in energy reserves becoming greatly depleted.
3. Small lambs have a higher ratio of body surface to body volume than large lambs. This means that heat loss occurs at a pace higher than that relative to the rate of production.
4. Newborn lambs lose heat at a much higher rate when they are wet than when they are dry. Evaporation of moisture from the surface causes cooling.

Recognising hypothermic lambs

Lambs may be recumbent and shivering or they may be standing with an arched back and head down. They may not notice your approach or be slow to get up when approached. They may be separated from ewe or unwilling to follow her. They are often hollow with minimal evidence of recent feeding on palpation. A good quick way to monitor temperature is to feel inside the mouth. If unsure use a digital thermometer.

Treating hypothermia

The treatment strategy will depend on the severity of the hypothermia and the age of the lamb, as lambs over 5 hours old will probably have depleted their brown fat energy reserve, resulting in hypoglycaemia. If you are in doubt about the age of the lamb or the severity of the hypothermia (e.g. no thermometer available) it is best to treat it as a case of serious hypothermia in a > 5 hour old lamb, as heating a hypoglycaemic lamb prior to glucose administration is likely to result in death.

- in lambs less than 5 hours old

- a. Moderate hypothermia (temperature 37-39°C) in a lamb less than 5 hours old: In most cases a lamb this young will still have some energy reserve and, therefore, glucose administration will not be necessary. The lamb should first be vigorously towel-dried and then given colostrum at 50ml per kg. If it can nurse, encourage it; if not, feed 50ml by stomach tube at two-hour intervals. The lamb need not be warmed with more than a heat lamp in a draft-free pen.
- b. Serious hypothermia (temperature < 37°C) in a lamb less than 5 hours old: This lamb should again be dried and warmed, with rapid warming becoming more important. This can be accomplished by plunging the lamb into warm (40°C) water or by using a warming box. In the box, the air surrounding the lamb should have a temperature of 37-40°C, since a higher temperature can cause death. When the lamb has a rectal temperature of over 38°C, give colostrum by stomach tube.

- in lambs over 5 hours old

- a. Moderate hypothermia (37-39°C) can be treated as for lambs <5 hours old.
- b. Serious hypothermia (<37°C) in lambs over 5 hours old is likely to have resulted in hypoglycaemia. It is vital to reverse this hypoglycaemia before heating the lamb by giving an intra-peritoneal glucose injection before warming the lamb. The lamb will almost certainly not survive if this sequence is not followed.

Giving an Intra-peritoneal Glucose injection

The dosage is 10 ml per kg body weight of a 20% glucose solution. For a 3kg lamb:

1. Use a sterile syringe and a new 1-inch, 20 gauge needle. Draw up 15ml of 40% glucose solution, and then 15ml of recently boiled water (or sterile water for injection), to make 30ml of 20% solution.
2. Clean an area of the abdomen to one side of the navel and slightly behind it.
3. Suspend the lamb by its front legs and inject it with the 20% glucose solution with the needle entering the scrubbed area, 1 cm to the side and 2 cm behind/ below the navel, aiming (at a 45 angle) toward the lamb's rump.



Use of warm box

A warm box can be used for short periods in the treatment of severely hypothermic lambs. Lambs should not be left in the box unattended for longer than 30 minutes, and the air in the box should not be allowed to exceed 40°C. Once the lamb's temperature has been raised to 38°C it should be moved to a warm pen. Lambs unresponsive to initial treatment should be euthanized.

Use of warm pen

A warm pen should be set up in a draft free location, with a heat lamp situated 4ft above ground level. Plenty of straw can be added for additional warmth. Lambs with mild hypothermia can be left in the pen for further warming post feeding. All lambs in this pen should be regularly inspected to ensure appropriate treatment, feeding or other action is taken.