

# Calving Ease

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## Cold Stressed Calves [Hypothermia]

### Summary

1. Hypothermic conditions in calves vary from mild to severe.
2. Take temperatures to confirm suspected cases of hypothermia.
3. Treat hypothermic cases promptly to minimize subsequent health problems.

### Mild Cold Stress or Hypothermia

At this stage of cold stress we observe vigorous shivering. If we look carefully we will see pulse and breathing rates above normal. Recall that the normal pulse rate of a calf at rest falls in the range of 70 to 100 beats per minute; normal breathing rate of a calf at rest falls in the range of 20 to 40 breaths per minute].

These calves are likely to have a body temperature around 100°F rather than the more normal 102°F. Check for an excessively cold nose. Cold hooves, too, are a clue that blood is being diverted away from extremities.

### Severe Hypothermia

At this stage of cold stress shivering may slow or even stop. Shivering is replaced by rigidity – muscles are stiff. Nostrils will be cold and pale. Calves, if standing, may be clumsy and act confused. They are unlikely to suckle.

Pulse and breathing rates continue to slow. Body temperature continues to fall below 100°F. Textbooks tell us that at the mid-90°F level the vital organs are chilling. Even the brain is beginning to get cold.

### Diagnosing Cold Stress or Hypothermia

Due to hormones that accompany birth calves experience a surge of energy and are able to stand 30 to 60 minutes after delivery. After a hard birth many calves look okay until these hormone levels drop. They look and act normal. Then, after 15 or 30 minutes they may get progressively weaker, have a weak suckle response and be unable to stand. Often their body temperature has begun to slide down to 100°F or less. Definite diagnosis? Take the calf's temperature.

Prewaned calves are more likely to experience hypothermia where there is sustained loss of body heat. In outdoor housing calves that get wet, lie on cold bedding or experience windy conditions can lose

more heat than they can generate. In naturally-ventilated calf barns winter temperatures combined with drafts and poor bedding may cause gradual hypothermia. Definite diagnosis? Take the calf's temperature.

### **Treating Mild Hypothermia**

Warm up the calf. For newborn calves the first step is to make sure the calf is dry – to stop evaporative heat loss (See [www.atticacows.com](http://www.atticacows.com) in Calving Ease, “Drying Off a Calf” March 2010) Rubbing the calf vigorously with clean dry towels not only gets the calf dry but also stimulates higher pulse and breathing rates. I like to add a clean dry calf blanket, too. The second step is to feed plenty of high quality, clean, warm colostrum to warm the calf from the inside.

A third step may be to put the calf in a warm environment until her temperature is back up to 102°F. Warm rooms work. Commercial calf warmers work. Boxes with heat lamps work. Remember, however, the calves need to go back into their cold environment as soon as their body temperature comes back up to normal. Monitoring calf temperature is a best management practice – calves headed for cold housing need to go there as soon as they get back to “normal” temperature.

How about preweaned calves that have experienced a steady loss of body heat? Feed 102° body-temperature milk. Offer equally warm water. Add a calf blanket. If needed, try temporary residence in a warm room (not on a cold wet concrete floor, however). Adding a heat lamp to a hutch can work, too.

Treat hypothermia promptly. Body reserves of energy are severely depleted in cold stressed calves. They will gain weight slowly. Most importantly, their body defenses against infections are likely to be weakened. They need to be watched closely for infections for at least two weeks after a hypothermic event.

### **Prevention is better than treatment**

Minimizing the effects of a hard pull through good calving management practices will help our dystocia calves. Prompt and thorough drying of these calves along with timely colostrum feeding will go a long way to reduce cold stress.

Preweaned calves can stand a lot of cold without developing hypothermia if: (1) we feed enough to meet both maintenance and growth needs, (2) their bedding is clean and dry, (3) they have enough bedding to prevent heat loss down through the bedding, (4) their hair coat is dry, and (5) air movement provides fresh air but does not carry away too much heat.

References: Garry, F.B. and Others, “Dairy Worker Training in Newborn Calf Management” in Proceedings of AABP, 40:33-37; Garry, F.B., “Non-infectious newborn calf problems and survival” in CVC proceedings accessed 23Dec10 at <http://veterinarycalendar.dvm360.com/avhc/Veterinary+Food+Animal/Non-infectious-newborn-calf-problems-and-survival-/ArticleStandard/Article/detail/586447>; Torell, R. and others, “Care of hypothermic (cold stressed) newborn beef calves” accessed 23Dec10 at <http://www.unce.unr.edu/publications/files/ag/other/cl788.pdf> ; Robinson, B., “Rewarming Chilled Calves,” accessed 23Dec10 at <http://www.thebeefsite.com/articles/1262/rewarming-chilled-calves>.

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