

# Helping New Calves *Breathe*

## Causes and remedies for impaired respiration.

by Heather Smith Thomas

Normally, calves born unassisted begin breathing as soon as the umbilical cord breaks and/or the amnion sac comes off the head, uncovering the face and nose. Unfortunately, other situations can impair a calf's ability to start breathing or keep breathing.

### Sac bound

For instance, the amnion sac can remain intact, often with fluid. If the sac does not break, and the membrane and fluids remain over the calf's nostrils, the calf will not take a breath. Its immersion reflex keeps the calf from drawing fluid into its lungs. Some calves die soon after birth unless the cow gets up immediately, starts licking the sac off and nudging the calf around to get it moving and breathing. If the calf goes too long without oxygen, it will suffocate.

If the sac membranes are thin and easily broken, the calf can lift or shake its head, breaking the sac. However, if the membranes are thick, it might be unable to break the sac on its own. The cow's instinct is to get up and lick her calf as soon as it's born, which generally resolves the problem. If the cow is tired from labor, though, she might not get up quickly enough. Likewise, heifers can take too long. Many calf losses due to the sac remaining intact are in first-calf heifers.

The amnion sac can remain intact following a quick, easy birth, too. Sometimes after an easy birth, the calf slides out quickly, still encased, and the heifer may not realize she has a new baby and does not get up immediately.

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DVM, a veterinarian near Drummond, Mont. “One of the things that stimulates the calf to breathe is the dropping oxygen level in the blood [as when the umbilical cord breaks and the calf no longer has a constant supply of oxygen]. This triggers the brain to tell the calf to breathe. But if we've been pulling the calf with constant pressure, we've cut the circulation off to the brain enough that this trigger isn't happening, and he won't breathe.”

If a newborn is not breathing, Cody Creelman, DVM, a veterinarian in Alberta, Canada, suggests placing the calf in recovery position — upright, rather than lying flat, resting on the sternum, with head and neck extended forward. The calf's front legs are forward in front or tucked underneath. The hind legs are placed alongside the calf with feet toward the head to keep it propped up.

“This allows for maximum oxygenation in the lungs, and they can both expand more fully,” Creelman explains. “If he is lying on his side, the bottommost lung can't expand. Extending the head forward allows for an open airway.” The recovery position also allows

— Ron Skinner DVM,  
Drummond, Mont.

some of the fluid and mucus from the nostrils to drain.

If the calf is not breathing, Creelman says clear the fluid away from its nose with your fingers and tickle the inside of one nostril with a clean piece of hay or straw. This usually makes the calf cough and take a breath. If the calf is unconscious and won't start breathing, you may need to give artificial respiration.

Creelman also shares an acupuncture method.

“There is an acupuncture/acupressure spot on the tip of the nose. If this is pressed or poked, it increases stimulation of the central nervous system. This increases heart rate, respiration rate and overall consciousness,” Creelman explains. “We teach ranchers to use a very small diameter needle, like a 20 gauge needle, and poke right into the center of the tip of the nose, giving the needle a little twist. This will stimulate the central nervous system, and works to stimulate breathing.” He adds you can press the spot with your fingernail if a needle is unavailable.

Keep in mind, acidosis — a pH imbalance in the calf caused by stress and shortage of oxygen during birth — also can prevent a calf from breathing immediately because it has an adverse effect on proper heart and lung functions.

It can take several hours or days for the pH to return to balance in new calves affected by acidosis. According to Skinner, one way to tell if the calf is compromised by acidosis is if the calf tries to raise its head and become upright rather than continuing to lie flat. If the calf lies still without trying to raise its head within a minute or two, Skinner suggests propping it up and rubbing the calf briskly to stimulate circulation. The calf can breathe better if it is upright; lung function and ribcage movement are impeded when the calf is lying flat.

Traditionally, compromised calves not breathing with fluid in their airways were held up by their hind legs to theoretically allow fluid to drain from the airways, but this is not recommended. Veterinarians say most of the fluids that drain from an upside-down calf are stomach fluids. Holding a calf up by the hind legs also puts pressure on its diaphragm from abdominal organs, interfering with normal breathing movements. It's more effective to use a suction bulb to clear the airways.



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### Calving hard

Calving difficulties are another common cause for breathing failure in new calves. The calf's nose and tongue may be swollen, causing the airways to constrict. The calf may be unconscious if the cord was pinched off or broken before it was fully born, leaving it short of oxygen. The placenta may start to detach if the cow took a long time getting the calf into proper position for birth, could not get it in proper position (breech calf) or delivery took too long.

Calves born normally usually begin breathing within 30 to 60 seconds after birth.

“What happens with most calves that don't start breathing [even though they still have a heartbeat] is that we've impaired blood circulation to their heads too long,” says Ron Skinner,

### **Giving artificial respiration**

If the calf's heart is still beating, there's hope to get it breathing even if it is limp and unconscious. If the calf does not start breathing soon, however, the heartbeat becomes weaker, slower and very faint. Heart rate is one way to tell if the calf is in respiratory distress since it drops as the body is deprived of oxygen. Normal heart rate in a newborn calf is 100 to 120 beats per minute. Place your hand over the lower left side of the ribcage, just behind and above the elbow of the calf's front leg. If heart rate has dropped as low as 40, the calf's condition is critical; it needs to start breathing immediately. The color of the calf's gums also offers a clue; if they are grey, blue or colorless, instead of pink, the calf is in trouble.

To get the calf breathing, first clear the airways. Use your fingers to strip fluid from the mouth and nose in a suction-like action, like squeezing a tube of toothpaste, or use a suction bulb if you have one. Rub and massage the calf, moving its legs, to help stimulate lung action. If the calf won't take a breath, even after tickling his nostril with a piece of hay or straw, you'll have to blow air into its lungs. Lay the calf on its side with head and neck extended. Cover one nostril tightly with your hand, holding its mouth shut to prevent air escaping. Gently blow a full breath into the other nostril, forcing air into the windpipe and lungs.

"You can apply light pressure (with your free hand) to the esophagus, just below the larynx a little higher than mid-neck," Creelman says. "This will help close off the esophagus to ensure that you are not just filling the stomach with air. Don't push so hard that you close off the trachea, too, because it is soft cartilage."

Also, blowing rapidly or forcefully can rupture a calf's lung. Blow until you see the chest rise and then let the air come back out. Blow in another breath until the chest rises again. Continue filling the lungs and letting them empty until the calf starts breathing on its own. Usually, once the body tissues become less starved for oxygen, the heart rate will rise, the calf will regain consciousness and start to breathe.

### **Artificial respiration aids**

Producers also have access to some tools that can help give artificial respiration to calves.

"One is the McCulloch Calf Resuscitator. It has a mask that fits over the nose and mouth and a syringe to push air in and inflate the lungs," explains Jennifer Pearson, DVM, with the University of Calgary Faculty of Veterinary Medicine.

"One drawback is that sometimes air goes into the stomach instead of the lungs," Pearson says. "Make sure the airway is open and the esophagus closed off, which is most likely the case when the calf's head and neck are extended. If the head is tucked toward the body, the airway is closed off."

Pearson and others at the University of Calgary are researching other devices to aid in calf resuscitation. One is the laryngeal mask airway (LMA). Initially, it was designed for human use as a way to keep the airway open with less chance of filling the stomach with air.

"This is often used by emergency medical technicians when they can't place an endotracheal tube to get air to the lungs," Pearson explains. "They put the LMA tube in the mouth [in the back of the throat] to provide a protected airway. The tube has a pointy end and a cuff you blow up that seals off the esophagus. It forms a seal around the trachea so that when you bag and provide air it goes into the trachea." It utilizes a bellows-type mechanism that pumps air through the tube.

As researchers continue to find new ways to help compromised calves take a breath, cattlemen can still call on tried and true methods such as the recovery position, the calf's natural reflexes and artificial respiration to help compromised calves take a deep breath. **HW**

**Editor's Note:** Heather Smith Thomas and her husband, Lynn, have ranched near Salmon, Idaho for more than four decades. She also writes cattle articles that appear in numerous U.S. and Canadian cattle publications, including *Hereford World*. She is the author of numerous books, including "The Cattle Health Handbook."