**TEMPERATURE**

Normal body temperature is **99 - 101 F**. A temperature higher than that, may indicate an infection. A healthy horse's temperature can vary by 3 degrees depending on environmental factors. Horses tend to have higher temperatures in warm weather and during/after exercise, stress or excitement. A high fever doesn't always indicate a severe condition, but it is a good idea to take your horse's temperature often and if you his temperature is over 102 F, you should call your veterinarian.

The most accurate way to take a horse's temperature is rectally. Always secure a string to the end of the thermometer, so that it doesn't get lost (some of you know what I'm talking about, or have experienced it...it's not very fun). Tack shops and pharmacies sell all types of thermometers. Plastic digital thermometers work very well and are generally easier to use, and most of them beep when they are done. Be sure that if you use an older mercury-type thermometer, that you shake down the mercury before taking the horse's temperature.

The horse should be tied or held still by an assistant. Lubricate the tip of the thermometer with petroleum jelly, KY Jelly or saliva. Move the horse's tail to the side and out of the way and insert the thermometer into the horse's rectum, angled slightly towards the ground. Do not stand directly behind the horse, because some horses don't like this - but most don't mind. For the most accurate reading, leave the thermometer in position for at least 3 minutes. Many digital thermometers work well in less than 1 minute.

Always clean the thermometer well before returning it to its case...and especially if used on an ill horse, to prevent the spreading of an illness.

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**RESPIRATORY RATE & EFFORT**

You can check a horse's respiratory rate and effort by observing the movement of the thorax and evaluating nostril flare. The normal respiratory rate in an adult horse is 8-16 breaths/minute. There is a slight noticeable abdominal component during expiration.

**How to Check the Respiration Rate:**
- Carefully watch or cup your hand over his nostrils, or watch between the flank and the last rib. You can also try putting your ear against him to hear the air moving in and out.
- Using a watch or stop watch, count for 15 seconds and multiply by four for the breaths per minute rate.
- A normal horse at rest takes about 10 breaths per minute.
- A high respiratory rate in a resting horse can be caused by excitement, pain or infection.
- How quickly a horse's breathing returns to within normal limits following exercise is one of the best indicators of his fitness level. The standard for competitive riders is within 10 minutes.
**BLOOD PRESSURE**

**Taking a Horse's Blood Pressure**

The blood-pressure cuff is an accurate, but underutilized tool in detecting laminitis. The average horse's systolic reading, which indicates the force of blood pumped from the heart, will remain between 110 and 120. (Diastolic pressure is rarely an indicator of disease in horses.) Early in an episode of laminitis, a horse's blood pressure shoots up by 20 to 30 points or more as blood is forced through the constricted vessels within the hooves. This increase occurs as much as 12 hours before the obvious physical signs of laminitis appear, a small window of time to begin aggressive treatment that may prevent the worst damage.

For this procedure, you'll need a manual pediatric blood-pressure cuff (sphygmomanometer).

- To take a horse's blood pressure, place the cuff under the tailbone at the point where it is least tapered. Be sure to put the bladder of the cuff, where the tubes enter, on the underside of the tail.
- Use the cuff's Velcro closures to secure it. Make it snug but not too tight so that it exerts about the same pressure that a tail wrap would.
- Make sure the valve by the bulb is closed and pump the bulb until the pressure reads 160 or greater.
- Then crack the valve very, very slightly so air leaks extremely slowly. If you let air escape too quickly, you won't be able to get a reading.
- As the cuff deflates, watch the needle fall. At certain points, it will hesitate before dropping again. Eventually, the needle will hesitate, then bounce upward to a higher reading before dropping again. That bounce is caused by the blood in the underside of the tail pressing against the cuff. The number at which the needle first hesitates before bouncing up again is the horse's systolic blood pressure.

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**MUCOUS MEMBRANES**

The mucous membranes are the lining of a horse's eyelids, his gums and the inside of his nostrils. The color of the mucous membranes are another indicator of blood circulation. A healthy horse's gums are slightly more pale than a humans. If a horse's gums are very pale, bright red, grayish blue or bright yellow, call a veterinarian immediately.

**Color of Mucous Membranes:**

*Moist Pink:* Healthy normal circulation.
*Very Pale Pink:* Capillaries contracted, indicates fever, blood loss or anemia.
*Bright Red:* Capillaries enlarged, indicates toxicity or mild shock.
*Gray or Blue:* Severe shock, depression and illness.
*Bright Yellow:* Associated with liver problems.
To test an animal's capillary refill time use your thumb to press on the animal's gums, after you withdraw your thumb the color of the gums should return to normal within 1-2 seconds.

- The veins should be evaluated for distensibility, refill, thrombosis and estimated venous pressure. Jugular pulsations are normally seen in the ventral third of the neck (distal 10 cm) and are reflections of right atrial pressure changes.
- The evaluation of jugular venous refill is another indication of perfusion and hydration status.
- The jugular veins are collapsed and should fill rapidly (within several seconds) when held off.

- The evaluation of the saphenous vein refill is a good indication of hind limb perfusion. The saphenous veins are visible and somewhat filled. Each saphenous vein should be held off and the blood within stripped back towards the pelvis. The vein should then be released and should fill within several seconds.
The pulse rate of an adult horse at rest averages 22-44 beats per minute (bpm). A pulse rate of 50 or higher in an adult horse at rest may mean the horse is in physical distress. The average pulse rates for young horses are as follows:

- **Foals** (70-120 bpm), **Yearlings** (45-60 bpm), **2yr. olds** (40-50 bpm).

The horse's pulse rate will increase if he is excited or nervous, in pain, during/after exercise, or has a disease. The higher the heart rate, the more severe the condition.

**Monitoring the Pulse**

A strong pulse can mean a few different things. If the pulse is stronger only in one leg, for example, chances are an infection--from a wound or abscess, for instance--is present. A bounding pulse in both front legs, however, is an early sign of laminitis, especially when the blood pressure is also elevated. Taking a horse's pulse isn't simply a matter of putting a finger to an artery, however. Equine blood vessels can be difficult to locate; you'll need to master a three-fingered technique to glean the most useful information. Be prepared: Taking an accurate reading of a horse's pulse requires lots of practice.

This technique is effective no matter where on your horse's body you take his pulse. Place three fingers along the artery, pressing hardest with the finger farthest from the heart, slightly less with the middle finger and barely pressing with the last finger. By largely restricting the artery with the finger farthest from the heart, you'll amplify the pulse somewhat, making it easier to feel. (Making the pulse stronger won't confuse your interpretation if you do it every time; it's the leg-to-leg and day-to-day comparisons that are important.) If you don't use this gradient pressure across your fingers, you may not be able to find a pulse, and even if you do, you won't be able to judge how strong it is.

1. You can feel a horse's pulse on both his front and hind legs just over his sesamoid bones. The closest pulse point to the hoof that is relatively easy to find, this is the best place to feel for the throbbing pulse that comes with laminitis. Place your three fingers on the inside of the widest point of his fetlock. You'll feel a large vein (which doesn't have a pulse) and possibly a nerve, with the normally thinner artery resting between them. Press the vein flat to feel the pulse in the artery.

2. Another pulse point on the front legs is located on the inside of the knee, just behind the bony "knob" of the joint. Again, you'll have to push aside a vein to feel the artery, but it may be easier to find the pulse at this location than at the fetlock.

3. The hind-leg pulse can also be taken on the cannon bone, where an artery lies between the splint bone and the leg bone. Look for the pulse about three quarters of the way up the cannon bone; farther down it's harder to locate. This is the easiest leg to pulse to find and a good place to practice your technique.
4. You can also place three fingers of each hand on either side of your horse's face. The artery you want to feel runs horizontally across the face, just below the cheekbones. Feel for it behind where the halter cheekpieces sit. This can give you a general sense of your horse's cardiac function and is extremely easy to detect.

http://caltest.vet.upenn.edu/lgcardiac/normal_cases/equine_normals/physical_exam/pe1.htm