

# Equine Vital Signs

VITAL SIGNS	MATURE
(T)emperature	99.5-101 <sup>o</sup> F - May be higher in younger equines and can vary with environment
(P)ulse / Heart Rate	35-50BPM – May be higher in younger or athletic equines
(R)espiration	14-16RPM
Capillary Refill Time	Less than 2 Seconds
Mucous Membrane Color	Lighter Pink, Shiny
Skin Turgor / Tenting	Snaps Back when Pulled
Intestinal Motility / Borborygmus	1-2 Loud rumblings per minute, 4 Quadrants

- **Temperature:**

A horse's temperature can vary somewhat with the season. During the winter, it is not uncommon for the temperature to drop to as low as 97. But usually, we are not concerned with temperatures that are low unless the potential of hypothermia exists, but rather, trying to determine if he is running a fever from an infection. During the winter, any temperature above about 100.5 should be suspect, with average fevers normally running from 101.5 up to 104. The summer heat, as well as any exercise, can often raise the core temperature upward even without a fever. This must be taken into account when the assessment is made. A high fever doesn't always indicate a severe condition, but if his temperature is over 102 F, you should call your veterinarian.

**How To Take a Horse's Temperature:**

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. The 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 or Vaseline. 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. Stand close to the horse's hip, do not stand directly behind the horse, because some horses don't like this and might kick out - but most don't mind. For the most accurate reading, leave a mercury thermometer in position for at least 3 minutes - Many digital thermometers work well in less than 1 minute. *Important:* 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.

- **Pulse:** The pulse rate is most often taken by listening to the heart on the left side of the chest just

behind the left elbow. Horses that are fit may have rates as low as 28BPM, and this is not considered abnormal. However, ANY rate above 40BPM, even 44BPM, should be looked in the context of how the horse is feeling. Rates between 40-60BPM are considered "serious", but may be explained by an elevated temperature. However, rates above 80BPM are considered "critical" and indicate a very serious problem. Of course, these rates apply to a horse at rest, and any exercise just before taking the pulse should be taken into consideration. Also, if the horse is suddenly excited, it may be elevated on a very temporary basis. Listen to the rate for at least a minute, checking to see if it comes down, before recording the final rate.

### **How to Assess a Horses Pulse:**

Use a clock or counter to time a 15 second period. Multiply the number of beats you counted by 4. One of the most important things when checking for a pulse is not to push too hard. If you push too hard with your fingers you can actually occlude the pulse and you won't feel anything at all. So very light touch with your fingertips. Usually two to three fingers across the artery and vein. And then being patient and quiet you'll be able to feel your horse's pulse beneath your fingertips. The horse's pulse can be found near the front of the left jawbone. Under the jawbone, there is a major artery that sticks out slightly. Using your forefinger (never your thumb - because you may feel your own pulse), press against the artery firmly. You may also place your hand or a stethoscope behind the horse's left elbow to take his pulse. Be sure to count each lub-dub as 1 beat. You can also assess the pulse just below the knee joint on the inside of the foreleg or slightly above or below the fetlock joint. Another location is on the face just behind the eye. This is the transverse facial artery and vein. A very easy one to find for checking for a pulse in your horse is in what we call the jugular groove which is the big long groove in the neck. This is also location that we give quite a few injections, intravenous injections for our horses. To check for the pulse in the jugular groove you take your fingers down to where the neck ties in to the chest. Use three fingers, index, middle and ring finger. Place your fingers against that groove and you should very easily be able to find a pulse.



- **Respiration:** The normal rate for horses is between 8-12 breaths per minute. However, many things can effect this that must be taken into consideration before considering whether it is abnormal.

One common factor is his temperature. Other characteristics of breathing, rather than just the rate, may be more of an overall indicator of problems.

Deep heavy breathing, or breathing with an extra abdominal effort, abnormal noise, labored breathing, or gasping are all indications of a very serious problem. Report any observations that are anything but quiet and easy breathing.

**How To The Respiration Rate:**

Watch or feel your horse's ribcage/belly for one minute. Be sure to count 1 inhale and 1 exhale as one breath (not as two). Each breath is fairly slow. If you are having difficulty seeing the ribcage move, try watching the horse's nostrils or place your hand in front of the nostrils to feel the horse exhale. An even better method is to place a stethoscope to the horse's windpipe to listen to his breathing. This will also give you strange sounds if the horse's windpipe is blocked by mucous or if the he has allergies or heaves.

- **Mucus Membrane Color:**

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 paler than a humans. The normal color is pink. Gums that are pale, deep red, purple, overly yellow, or streaked

with the appearance of small broken blood vessels are abnormal and should be recorded. Some of the causes for abnormal appearance are listed below:

Pale: Low perfusion of blood indicating a "shock" condition.

Deep red: Congested membranes, also a shock type condition with toxicity.

Purple or blue: Low oxygen levels or serious toxicosis.

Overly yellow: Gums are normally slightly yellow, but very yellow may be a liver problem.

**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.

- **Capillary Refill Time:**

Capillary Refill Time (CRT) is the time it takes for blood to return to blanched tissues in the gums. This is an indicator of blood circulation. Normal refill time is 1 to 2 seconds.

**How To Check CRT:**

Lift your horse's upper lip up and firmly press your thumb against his gums for 2 seconds to create a white mark. This white mark should return to the normal pink color within 1-2 seconds after releasing the pressure. After depressing the gums with your finger, the color should return within 1-2 seconds. Delayed return of color, 3 seconds or more, is an indication of poor blood perfusion, often brought on by serious dehydration, shock, or other toxicosis.

- **Intestinal Motility / Borborygmus:** This refers to the sounds that the gut makes in digesting the feed. A horse should have a normal gurgling sound on both sides of the abdomen back near the flanks. Make a determination if gut sounds are considered "normal", "none", "low", or "hyper-motile". During colic episodes, horses with little or no gut sounds may be in serious condition. A hyper-motile gut may be indicating an irritation, and this may be coupled with a loose stool or diarrhea. Assessing the gut sounds from one moment to the next may indicate whether a horse's condition is improving or deteriorating. Gut sounds should always be present. The absence of gut sounds is more indicative of a problem than excessive gut sounds. Usually, an absence of gut sounds indicates colic. If you don't hear any sounds, contact your veterinarian.

**How To Check for Gut Sounds:**

Press your ear up against your horse's barrel just behind his last rib. Check for gurgling noises. Be sure to check gut sounds from both sides. If you do not hear any sounds, try using a stethoscope in the same area.



- **Hydration State:** The best way to determine hydration is through an assessment of the horse's blood parameters. However, using the "skin turgor / tenting test" can often be a quick field aid. The skin over the shoulder should be pinched with some elevation of the skin. If it snaps back into place very quickly, the horse may be considered to be adequately hydrated. Any delay should be suspect and assessed along with the other vital signs. Older horses tend to have a more relaxed skin, so this should be taken into account. Healthy horses drink a minimum of 5 gallons of water per day. If your horse is dehydrated, it is very important that you urge him to drink. If he refuses to drink water, try adding flavor to it (Gatorade, Molasses or apple juice is ideal), and contact your veterinarian if he still won't drink.

**How To Perform a Pinch Test:**

Pinch the skin on your horse's neck. If the skin flattens back into place when you let go in less than 1 second, the horse is fine. If it doesn't, it means he isn't drinking enough water, he is dehydrated. The longer the skin stays pinched up before flattening, the more dehydrated the equine is going to be.

