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For People Who Love Horses

Monitoring Your Horse's Vital Signs

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Temperature, pulse and respiration rates in your horse are called "vital signs" because they are indicators of critical bodily functions. TPR is the common abbreviation and you'll want to know what numbers are "normal" for your horse so you can use them for comparison.

Pulse and respiration rates are reported as the number of pulses or breaths per minute. Learning how to monitor these is easy and can help confirm any suspicions that something is bothering your horse-or put them to rest! This is also very important information to be able to give to your vet if something is wrong with your horse, because his normal TPR provides clues as to how serious the problem may be.

Take a Temperature Reading

Horses temperatures are taken rectally, using either a digital or a traditional mercury thermometer. While the digitals often read more quickly, they have some drawbacks. They're really designed to be inserted no deeper than a half-inch (for human use), but this won't get past the anal sphincter muscle of a horse. There's no way to secure them in place while they "cook," so you will have to hold onto it, an inconvenience that is offset to some extent by the shorter time it takes to get a reading.

Baseline Readings

- Monitor your horse's vital signs for several days to get an "average" normal.
- Take readings at several intervals and under similar conditions since TPR may vary depending on time of day, feed and activity.
- Count a complete breath-in/breath-out cycle as "one" respiration.
- Use capillary refill time and the skin turgor test as additional measures of health and hydration.

Although usually reliable, digital thermometers are electronic devices and battery-powered, so may not be accurate when the battery is failing, or may decide to fail just when you need it. I recommend changing the battery every one to two years, regardless of how much you have used the thermometer.

Equine glass thermometers, the old-fashioned kind with a mercury column, have a loop at the end you can tie a string to, which is then attached to a clip so that the thermometer can be inserted into the horse's rectum and secured to the tail hair with the clip. This allows you to get safely out of the way of the horse's back legs. Disadvantages are that a mercury thermometer takes longer to get an accurate reading (2 to 3 minutes), is breakable, and the mercury it contains is highly toxic.

Although many people use a lubricant, this really isn't necessary. If you do want to use something, use only water or a water-soluble substance like K-Y Jelly. Do not use vaseline/petroleum jelly. It will insulate the thermometer. If using a glass thermometer, shake it down to below 96 degrees before inserting.

With the horse tied or restrained by someone at his head, touch the horse's shoulder so that he knows you are there. Then walk back along the chest wall and hindquarters keeping a hand on the horse at all times. Use one hand to move the tail out of the way (expect the horse to try to move it back and/or to clamp it down). With the other hand gently insert the thermometer. Leave a digital in place until it beeps; a glass thermometer for 2 to 3 minutes. Do not stand directly behind the horse, and stay pressed up close to the hindquarter, being alert for attempts to kick to the side.

Dehydration Checks

In addition to the big three of TPR, how well your horse is hydrated is an important piece of information. For example, with serious colics, fluid is lost into the intestinal tract rapidly and the horse becomes dehydrated. Dehydration also accompanies heat stroke, and horses that just plain don't feel well for a variety of reasons usually don't eat or drink well either.

Capillary refill and skin turgor are two ways to test hydration. In the capillary refill test, you press the gums above the upper incisor teeth with your thumb to make them blanch white, then count how many seconds it takes them to return to a pink color. It should take less than 2 seconds for the color to return.

Skin turgor is tested by picking up a fold of skin along the horse's neck, tenting it up away from the body then letting go. When hydration is good, the skin will snap right back into place. If the horse is dehydrated, it either returns slowly, or stays visible as a fold. (Note: This test may be inaccurate on older horses who have less skin elasticity.)

Left: A hydrated horse's skin should snap back into place after being pinched. Right: Check your horse's capillary refill time by pressing on his gums with your thumb. A healthy, hydrated horse has bright pink gums.

Monitor the Pulse

Taking the horse's pulse is the most difficult thing for most people. Practice on your own wrist first to get an idea of how much pressure needs to be exerted to feel a pulse.

The pulse is easiest to take at either the facial artery or the tail artery. The facial artery crosses the lower jaw bone about halfway along its curve. The tail artery pulse is taken by pressing in the groove that runs down the middle of the tail to feel the pulse.

A pulse can also be taken at the digital arteries, which are paired arteries that cross over the sesamoid bones at the back of the fetlock (ankle) joint. However, pulsations here are difficult for many people to find or feel clearly, especially with long hair. Count the number of beats you feel over a 15-second period and multiply by four to get the pulse rate per minute. You can also try taking the heart rate by sliding your hand between the elbow and the chest wall on the left side, or by listening to the heart with a stethoscope.

Should You Use a Stethoscope?

Using a stethoscope is the easiest way to get an accurate heart rate and respiratory rate, but you'll need a little training. Horses vary in their response to having someone come at them with a strange contraption hanging from their ears, so make sure your horse gets accustomed to the procedure before you take readings. Avoid quick movements, loud talking (you're supposed to be listening anyway!) or excessive pressure with the stethoscope. Keep a hand gentling resting on the horse at all times, but don't stroke the horse (it's distracting).

For respiration, listen for the loud inspiratory noises that occur when the horse breathes in. Look for the chest to rise or move out at the same time. As the chest begins to fall, you may hear expiratory sounds too. Don't count those.

Ask your vet to check out your heart-rate monitoring technique, and explain to you exactly how your horse's heart sounds. You probably expect to hear the familiar description of a lub-dub for the heart beat, but equine hearts can have many extra sounds and split sounds. They also sound different depending on exactly where on the chest you listen, and what side of the chest.

In most horses, you will hear at least three heart sounds: Lub-DUB-dub. The middle sound is usually loudest and there may be a short pause before the third sound. Some horses have four heart sounds and some have split sounds. This can be very confusing when you don't know what you're listening to. When the heart rate is on the low end, there is usually a long enough interval between heart beats that you can tell sounds are coming in clusters, regardless of how many sounds you hear.

Count the Respiratory Rate

There are several different ways to take the respiratory rate. But before you can do that, you need to understand what one breath is: It's the complete cycle of breathing in and breathing out. Many people make the mistake of counting both the inspiration (breathing in) and expiration (breathing out), so the respiratory rate they get is actually twice as high as what it really is.

Watch for the gentle rise and fall of your horse's side, or actually rest your hand lightly on his side and feel for it. When a horse is breathing quietly, you often can't see any movement to the nostrils, but with higher respiratory rates you can see a slight flare or flutter.

Do not place your hand on the nostrils or your ear close to the nostrils to try to get a respiratory rate. The horse's natural instinct will be to move away from anything that close to the nostrils, and he may be a little irritated by it, both of which could also make him breathe a little faster.

You can also take the respiratory rate by listening to air moving through the horse's trachea (windpipe) with a stethoscope. Inspiration is normally much louder than expiration. You may not be able to hear the horse exhale. Or, use the stethoscope to listen to your horse's lungs at his side. As you listen, watch the chest rise and fall to double-check what you are hearing.

Once you have mastered taking vital signs, you should spend a little time learning what is normal for your horse. The following chart gives a range of normal values, but individuals may be slightly above or below that range and still be normal. It's important to know what values your horse has when healthy so that you can interpret changes. For example, a temperature of 101.5°F will mean a lot more in a horse that normally runs 98.8°F than in one that normally runs 101.2°F.

Record your horse's TPR in the morning, afternoon and evening for two or three days, always taking the readings at the same time and under the same circumstances. Eating, recent exercise, change in routine, even just walking down the barn aisle can all influence vital signs to some extent, so keep the conditions of testing similar. Environmental temperature can also have an impact, so you'll want to get readings in both hot and cold weather.