



The Informed Arizona Equestrian HORSE HEALTH SERIES

Knowing What is Normal for Your Horse

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You are asked by the show manager to assess the health of five horses that arrived late last night at the horse show grounds because someone has complained that they are not healthy. If there is any chance that one or more are sick, they must be immediately quarantined, diagnosed, treated, and/or sent home. Your friend who works in a vet clinic advises you to get all their vitals and call the local vet if anything looks abnormal. Where do you start!?!

Early recognition of an illness or problem with your horse is easier to catch if you are familiar with what is normal for your horse. If your horse is usually a voracious eater and suddenly shows less interest in their feed, this can be a first sign that something isn't right. Many changes in health status can be identified simply by observing your horse in his or her environment. Vital signs can be evaluated to provide indications of the type of illness or health challenges your horse may be experiencing. This article presents methods to help you make **observations** of your horse's **behavior** and determine **what is normal or abnormal** and how to **take and evaluate vital signs**.

Your ability to make these informed observations will not only help you recognize a problem or illness earlier but sharing these observations with your veterinarian will inform your conversation with the vet and their response. If you call and just exclaim "Clover is sick!!" as opposed to "I'm worried about Clover, he stopped eating last night, his pulse is a bit higher than normal at 52 beats per minute, his gums are tacky and pale, and he is looking at his flank",

the vet will be much more prepared and will usually engage with you with a more informative and proactive discussion. Not every abnormal vital sign will result in a veterinary visit. In fact, noticing sub-optimal observations/signs may prevent an expensive vet visit by catching something early. Regular monitoring of your horses' behaviors and vital signs can help you be proactive in adopting management changes when an issue arises. "Normal" behavior can vary greatly between horses. While one horse is content to hang out watching pasture mates and is low on the herd hierarchy, the pasture clown who is always tearing off his pasture mates fly masks or blankets may have a very different "normal". It is good for you to know what are the normal behaviors and vital signs for each of your horses.

The following guidelines layout the types of observations to make and how to evaluate, measure, or monitor normal and abnormal health indicators in your horses. The first set of observations reflect overall general attitude, actions, behaviors, and functions that your horse exhibits on a day-to-day basis.

Normal Vital Sign Summary

- BAR:** Bright, Alert, Responsive
- E/D/U/D:** Eating, Drinking, Urinating, Defecating Normally
- Temperature:** 99-101 degrees Fahrenheit
- Pulse:** 25-40 beats/minute
- Respiration:** 8-24 breaths/minute
- Gum Color:** Pink and moist
- Capillary Refill Time:** 1-2 seconds
- Gut Sounds:** occasional long rumbles and short gurgles
- Secretions (Nasal/Eye):** Minimal, clear and watery



Figure 1: Whether your horse use is for work or pleasure, knowing what is normal for your horse can be important for early identification and treatment of a sick horse (Photo credit Betsy Greene).

Daily Observations:

Normal

Abnormal

Attitude: BAR

BAR means **B**right, **A**lert, **R**esponsive. This provides an abbreviated description used by veterinarians to quickly identify the horse's attitude and general wellbeing.



Figure 2: A bright, alert, and attentive horse (Photo credit Betsy Greene).

Horses are engaged or interested in their surroundings. They respond to changes or stimuli, such as people, pasture mates, vehicles, wildlife, etc.



Figure 3: This horse is actively interested in his environment (Photo credit Betsy Greene).

Depressed or agitated. The horse may be difficult to rouse and uninterested in surroundings. The head may be down, eyes dull, and ears inattentive (at half-mast). An agitated horse may fidget and be over reactive, especially if in pain.

Evidence of pain on face. A pained expression on the horse's face will sometimes be described as "worried" or painful [4].



Figure 4: Several expressions of Sidney: content (left), scared/alert (middle) to angry/painful (right) (Photo credit Wendy DeVito).

Behavior/Movement

Get to know your horses and take the opportunity to watch them when completing daily feed and management tasks.



Figure 5: Normal behavior (Photo credit Betsy Greene).

Actions/attitudes that are consistent with horse's normal behavior.

You should be able to **recognize distinct personality traits** and usual herd interaction (e.g., dominant vs submissive to other herd members).

Figure 6: Normal herd behavior (Photo credit Unsplash.com).



Exhibits lameness (see AAEP Lameness Scale for more details). **Reluctance to move, pointing a toe, non-weight bearing, or limping** could indicate injury.

Change in behavior (becomes aggressive or passive) or **horse by itself** instead of with the rest of the herd.

Unusual behavior, movement, stumbling, circling, head pressing, or ataxia (uncoordinated) could be signs of neurologic dysfunction or bodily weakness.

Eating/Drinking/Urinating/Defecating

Eating, Drinking, Urinating, and Defecating (EDUD), is another quick acronym that veterinarians use to describe the normal/abnormal bodily functions of horses. Often the first sign of a problem is that they stop normal eating or drinking behaviors. Knowing what is normal for your particular horse can help you spot issues early. Horses are individuals and have their own unique preferences and behavioral norms. For example, some horses are more vigorous eaters when group housed compared to when they are individually stalled without competitors. Herd dynamics can also play a role in behavioral norms.

Daily Observations:	Normal	Abnormal
<h3>Eating</h3> <p>Horses spend most of their time eating. Keep track of how much feed is provided and consumed. If horses are group fed, watch to make sure that all horses partake, especially those that are lower in the herd hierarchy.</p>  <p>Figure 7: Concentrates (i.e., grain) tend to generate high interest from horses (Photo credit Sara L. Mastellar).</p>	<p>Horse is demonstrating normal chewing behavior and eating a consistent amount in a normal manner.</p>  <p>Figure 8: Horse eating hay with enthusiasm (Photo credit Betsy Greene).</p>  <p>Figure 9: Young horse enjoying grain (Photo credit Aspen Adams).</p>	<p>Decreased appetite, stopped eating, or “off feed”. This is especially concerning if the horse is usually very highly food motivated. Herd dynamics (or changes) should be considered in group settings.</p> <p>Chewing sideways or dropping feed (quidding). Tooth or mouth pain can cause a horse to chew or eat in abnormal ways.</p>  <p>Figure 10: Geriatric horse being treated for an abscess shows no interest in feed (Photo credit Betsy Greene).</p>
<h3>Drinking</h3> <p>Monitor how much water is provided and consumed. If horses are group housed, watch to make sure that all horses partake, especially those that are lower in the herd hierarchy. Automatic waterers can be fitted with water meters for this purpose.</p>	<p>A typical horse can drink 10-15 gallons per day, but this amount varies with environmental conditions, size of the animal, and exercise.</p>  <p>Figure 11: Clean, fresh water can stimulate drinking (Photo credit Sara L. Mastellar).</p>	<p>Decreased water intake, not drinking, or excessive drinking.</p> <p>Dehydration can escalate quickly, especially in hot and humid conditions. Immediately check the water source for contamination (dead birds, algae, etc.) and quantity/ cleanliness. If the waterer is automatic or has a heater, check for a short (stray voltage).</p>

Daily Observations:

Normal

Abnormal

Urinating

Monitor the amount of bedding absorbing urine in stabled horses along with the smell.

Urine color before it meets the ground can be a useful indicator.

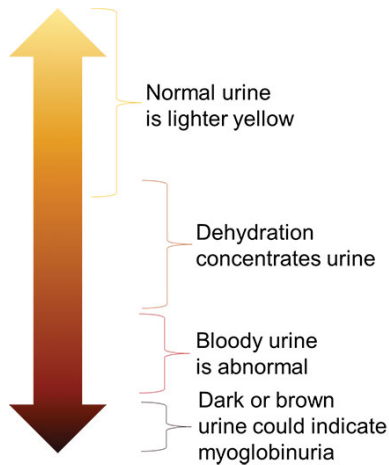


Figure 12: Equine urine color can be affected by hydration status and health issues.

Normal amount and comfortable posture while urinating. Color is a light shade of yellow.



Figure 13: Normal urination stance for a male horse (Photo credit Betsy Greene).



Figure 14: Contact with cold snow can result in normal urine having a reddish or orange tint (Photo credit Kate Gresham).

Decreased urine amount, not fully evacuating the bladder, or walking away before completing urination. Horses with excessive waxy smegma buildup, bladder stones, fly strike, or cancer may show discomfort while urinating.

Concentrated urine (darker yellow or red/brown). Dehydration will concentrate urine, resulting in a darker yellow color and stronger smell when expelled. The destruction of red blood cells or muscle tissue may cause dark colored metabolites to be excreted in the urine.

Excessive urination may also be a sign of a health problem (e.g., PPID: Pituitary pars intermedia dysfunction – formerly known as Cushings).

Defecating

Monitor the number of piles and **amount of manure** produced. Check **consistency** and for any foreign material (e.g., parasites or sand). Diet plays a key role in how feces will look, so be sure you know what is normal for your horse on their diet.

The amount and consistency are as usual. Some looser stool can be expected during dietary changes (e.g., rich pasture). No or low presence of internal parasites when fecal egg count is performed.



Figure 15: Two examples of normal horse feces (Photo credits Sara L. Mastellar & Betsy Greene).

Decreased frequency or amount of feces or abnormal consistency (dry or diarrhea). Abnormal feces may indicate colic or other gastro-intestinal problems. Dry fecal balls could indicate dehydration. Diarrhea may be caused by feed change or a more serious issue (e.g., Potomac Fever, Salmonella, or colitis).

Unusual color/ texture or presence of parasites, sand, or undigested feed. Ingested sand can interfere with gut function. Poor dental health can result in large or whole pieces of feed to be excreted.



Figure 16: Diarrhea (Photo credit Sara L. Mastellar).

Vital Signs for Mature Horses

Vital signs commonly include **TPR** (**T**emperature, **P**ulse, & **R**espiration), a check of mucous membranes using **CRT** (**C**apillary **R**efill **T**ime), listening to gut sounds, and evaluating secretions. Note that young foals have faster metabolisms, and their normal vital signs are not the same as those of mature horses.

Vital Signs:	Normal	Abnormal
<p>Temperature (°F)</p> <p>Rectal thermometers are the most common way to take equine temperatures.</p>	<p>99-101 °F</p> <p>Normal temperature helps the horse maintain homeostasis. Young foals will have a higher normal internal temperature (100-102 °F).</p>	<p>≤ 98 or > 102 °F</p> <p>Low internal temperature can indicate hypothermia or shock. High internal temperature can indicate fever, illness, heat exhaustion, or muscle exertion.</p>

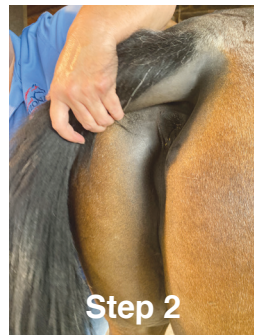


Figure 17: Be sure to stand to side, draw tail out of the way, use lubricant (petroleum jelly or saliva), very gently place in and hold until you hear the beeps (digital thermometer), remove and read. Make sure you clean the thermometer after each use (Photo credits Joslyn Beard).

<p>Pulse or heart rate (beats/min)</p> <p>Know your horse's resting rates. Common locations to take pulse or heart rate are the mandibular artery and the heart girth.</p>	<p>25-40 beats/min</p> <p>The normal, resting heart rate will vary greatly between horses, based on age, physiological state, fitness level, and overall health status.</p> <p>Resting heart rate of fit horses will be lower than unfit horses. Foals have a higher resting heart rate (60-80).</p>	<p>Outside of normal range for your horse.</p> <p>High heart rate can indicate exertion, anxiety, pain, fever, heat exhaustion, shock, or heart problems.</p> <p>Low heart rate can indicate shock, hypothermia, poisoning, or heart problems.</p>
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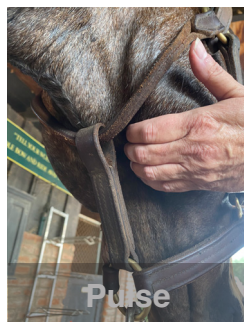
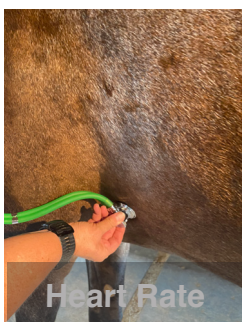


Figure 18: Heart rate can be taken with a stethoscope and pulse rate can be taken by feeling for the mandibular artery on either side under the horse's jaw. When feeling for the horse's pulse do not use your thumb. Take the heart rate from the left side with a stethoscope. Be sure to count "lub-dub" as one beat. Once you've found the pulse or heart rate, count for 15 or 30 seconds and then multiply by either 4 or 2, respectively, to get beats per minute (Photo credits Joslyn Beard).

Vital Signs:	Normal	Abnormal
<p>Digital pulse (lower limb)</p> <p>Finding the pulse on the lower limb can be difficult. One of the best places to try is the inside of the pastern (left) on the digital artery, or just above to the middle of the fetlock (right). Remember to only use your fingers, since your thumb has a pulse.</p>	<p>When normal, the digital pulse is subtle and difficult to feel. You may feel it when horse has been worked and heart rate is high.</p> <p>Normal blood flow to the horse's hoof without strong pounding.</p>	<p>Strong digital pulse.</p> <p>A strong or pounding digital pulse can be caused by inflammation in the hoof (e.g., laminitis or an abscess).</p>



Figure 19: Feeling for a digital pulse behind the pastern (left) or just above the fetlock area to the mid-cannon bone (right) (Photo credit Betsy Greene).

<p>Respiration (resting) (breaths/min)</p> <p>Be sure that the horse is not actively sniffing during your count as that will artificially inflate the respiration rate. Count for 15 or 30 seconds and then multiply by either 4 or 2 to get breaths per minute.</p>	<p>8-24 breaths/min</p> <p>Resting respiration rate of fit horses can be lower than unfit horses. Foals will have a higher resting respiration rate (20-50 breaths/min).</p>	<p>Outside of normal range for your horse.</p> <p>Rapid respiration rates can indicate exertion, pain, fever, heat exhaustion, electrolyte imbalance, shock, or a respiratory infection. Slow respiration rates can indicate hypothermia, shock, or the effect of a drug.</p>
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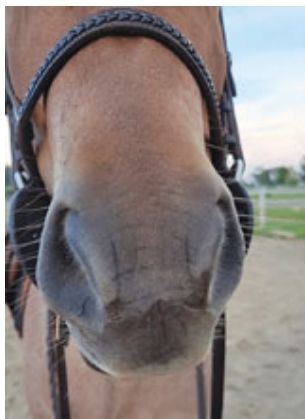




Figure 20: Respiration can be monitored by watching the nose or flank (Photo credit Sara L. Mastellar).

Vital Signs:	Normal	Abnormal
<p>Gum Color</p> <p>Mucous membranes can give clues to what is happening inside the body. Gum color can provide insight on what is wrong with your horse. A gentle approach and some practice help most horses accept viewing of their gums as well as performing capillary refill time checks.</p>  <p>Figure 21: Healthy, bubble gum pink gums (Photo credit Sara L. Mastellar).</p>	<p>Pink/moist</p> <p>The normal gum color will be light pink and the gums moist.</p>  <p>Figure 22: Lift the upper lip to view gum color (Photo credit Joslyn Beard).</p>	<p>An unusual color (pale, red, blue, yellow, etc.) or dry.</p> <p>Pale/white and/or dry gums can indicate shock, dehydration, or anemia. Horses with red gums may have a fever or toxicity, while blue may mean their oxygen moving capacity is reduced. Yellow gums can point to liver problems or even moldy corn poisoning.</p> <p>Gum color is one time we don't like to see our national or state flag colors, but a helpful way to remember (see below):</p>

American Flag

- Red:** feverish, toxicity
- White:** shock, dehydration, anemia, severe blood loss
- Blue:** decreased oxygen capacity



Arizona Flag

- Yellow:** liver issues, icterus



Figure 23: National and State flag mnemonic device for remembering “abnormal” gum colors (Credit Betsy Greene)

Capillary Refill Time (CRT)	1-2 seconds	>2 seconds to return color
<p>Lift the horse's lip out of the way, so that you can see the gum. Press with your finger and release. Be sure that your hands are free from any offending substances (e.g., liniment, wound ointment, pine tar, etc.) before touching your horse's gums.</p>	<p>The gums have many capillaries near the surface. Press and remove your finger on the gum and it will look white, but quickly return to pink.</p>	<p>Delayed CRT can indicate shock, dehydration, poisoning, or illness.</p>



Figure 24: Practicing (left and center) and performing capillary refill time (CRT). To practice what it should look like, push on your own fingernail, remove the pressure and watch the color of your fingernail go quickly from white to pink (Photo credits Joslyn Beard).

Vital Signs:	Normal	Abnormal
<p>Hydration (evaluate all)</p> <p>There are several ways to evaluate hydration. Perform a skin pinch on the neck, look at the flank and eye, and evaluate gum color/CRT (see above) to check for hydration status.</p>	<p>Skin Pinch: Skin returns to normal in <1 second.</p> <p>Flank/Eye: Normal flank/eye appearance.</p> <p>Gums: Healthy pink, moist gums with CRT <2 seconds.</p>	<p>Skin takes >1 second to return to normal.</p> <p>Area around the horse's flank appears drawn up and the eye may look sunken in.</p> <p>Gum color may be pale to white, and the CRT will be >2 seconds.</p>

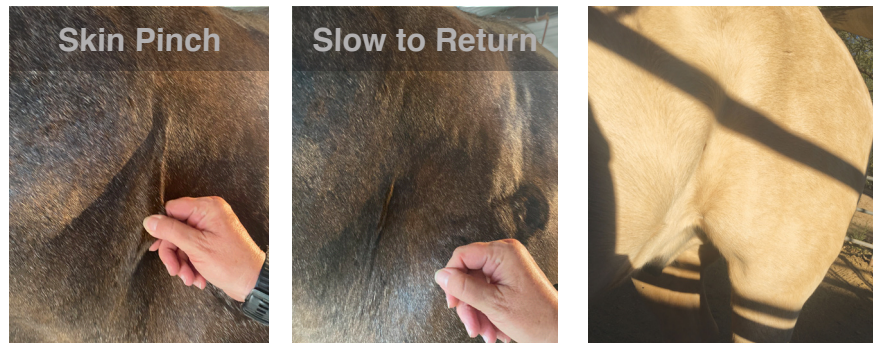


Figure 25: To perform a skin pinch dehydration test, take some loose skin above the shoulder and draw it away from the horse's body (left). Let go and see how quickly the skin goes back to its original position (center). When the flank looks drawn up (right), this is another sign of dehydration (Photo credits Joslyn Beard and Betsy Greene).

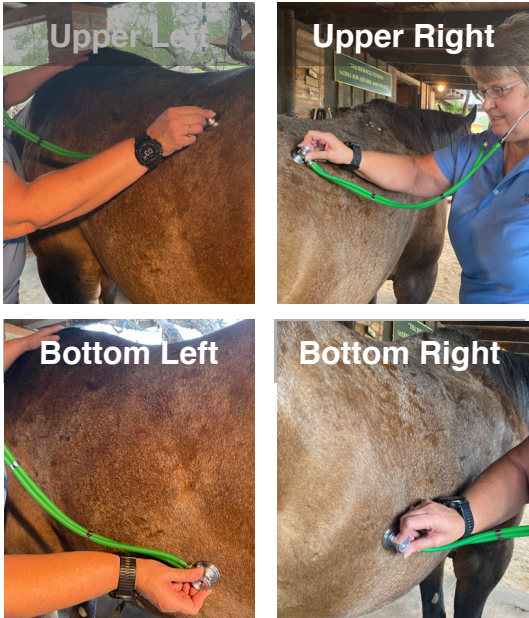
Gut Sounds	Normal	Abnormal
<p>Gut sounds in different areas of the abdomen can tell you about the health of your horse's gastrointestinal tract. Excessive or no sounds can indicate trouble.</p> 	<p>In general, most normal gut sounds will include long rolling rumbles interspersed with shorter gurgles.</p> <p>Different parts (quadrants) of the gastrointestinal (GI) tract will have different "normal" sounds. For example, in the upper right quadrant you will be listening to the cecum, and it may sound like a toilet flushing periodically.</p>	<p>Excessive (gassy/gurgles) or none. Excessive or lack of gut motility may also signal colic.</p> <p>High pitched pings interspersed w/period of quiet (possible gas colic).</p> <p>In cases of sand colic, if you place a stethoscope under your horse's belly approximately $\frac{2}{3}$ of the way back, you may hear "ocean sounds" if your horse has excessive sand settled to the bottom of his GI tract.</p>

Figure 26: Listening to the gut sounds of the four quadrants (Photo credit Joslyn Beard).

Vital Signs:	Normal	Abnormal
<p>Secretions (eye, nose, mouth)</p> <p>Some amount of secretions are normal and expected from a horse's eyes and nostrils.</p> <p>Check eyes daily because eye issues are particularly painful and become very serious very quickly.</p>	<p>Minimal amounts of eye and nasal secretions that are clear and watery. The body uses secretions to clear away irritants, such as dust out of the eyes.</p> <p>Saliva is used by the horse to help move food down the esophagus in boluses.</p>	<p>If you see a snotty nose or crusty or inflamed eyes - note color and consistency of the secretions. If your horse has thick and colored (white/ yellow/ green/ bloody) mucous secretions from nostrils or eyes, this could be evidence of a potentially contagious illness.</p> <p>Excessive slobber can be a symptom of dental issues or ingestion of legumes infected with fungus that produces the toxin slaframine. These slobbers can lead to dehydration when water is not readily available.</p>

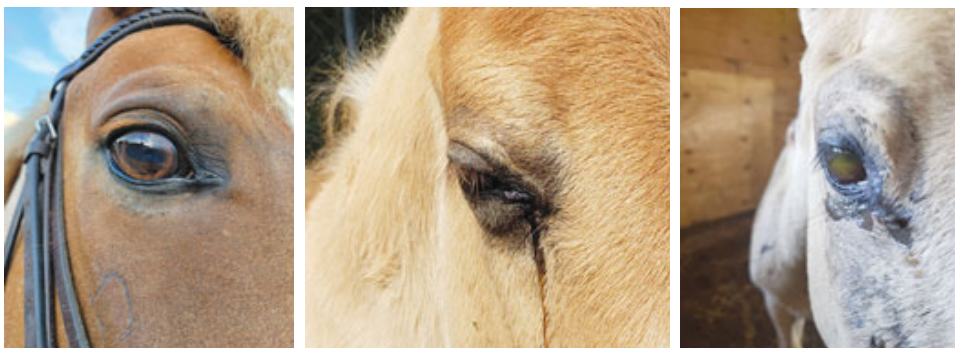


Figure 27: A normal eye (left) should be bright and clear. An irritated eye (center) will often be held partially closed and have excessive tearing and/or swelling. Loss of sight in an eye (right) may result in a hazy or cloudy appearance (Photo credits Sara L. Mastellar and Aspen Adams).

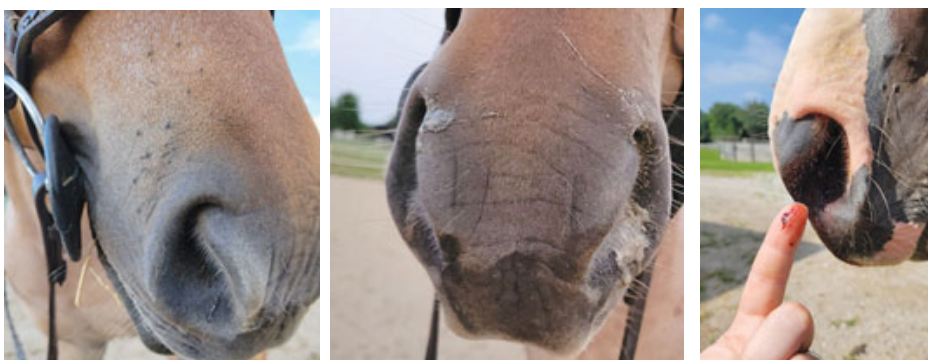


Figure 28: Normal (left) and suspect (center) nasal discharge from the same horse months apart. If your horse is coughing or snorting more than usual during warmup, consider checking their nose again. A bloody nose (right), also known as epistaxis, in horses could have many causes (Photo credits Sara L. Mastellar).

In addition to all the factors listed above there are a few more you should regularly evaluate. **Hoof quality**, **hair coat**, and the **amount of muscle/fat** a horse carries can all be affected by the horse's underlying diet. Keep records of a horse's **weight**, **body condition score** (BCS, <https://tinyurl.com/UtahBCS>), **cresty neck score** (CNS, <https://performancehorsenutrition.com/tools/cresty-neck-scoring>), and **topline score** to see trends over time.

Regular, thoroughly observant grooming can tell an owner or manager a lot of information. The grooming process can help you find everything from a loose shoe that needs a farrier's attention, to blood-sucking, disease carrying ticks, to the beginnings of cancer, to excessive bite marks indicative of herd dynamic issues. Failure to shed out hair coat on time despite regular grooming is a red flag that the horse needs to be evaluated for metabolic problems.

Horses' fitness and attitude are key to them being able and willing to do their jobs. The quicker a horse's vital signs return to normal (recovery) the greater their level of fitness. Monitoring fitness can be accomplished by measuring pulse, respiration,

sweating, and attitude. As the horse's fitness level improves, the heart pumps more efficiently, thus lowering the number of beats per minute required to circulate blood at rest. Under the same conditions a fit horse will sweat less and have less "lather" than an unfit horse. The horse's attitude is another indicator of fitness and comfort with their job. Tired horses, especially those with sore muscles, are less willing to move. Soreness can cause the horse to be resistant and to resent work. Unwillingness to do certain maneuvers may be because of pain from injury, poor saddle fit, poor posture, or lack of fitness. If you keep good records of training, work, horse's attitude/response, and equipment (e.g., bit type, saddle, etc.) you may be able to spot potential problems sooner. This is especially true for horses that are used by multiple people, such as lesson horses.

Regular care from appropriate professionals (e.g., farrier, veterinarian, qualified nutritionist) should be documented. Vaccination status, health (e.g., dental), and nutrition records can help professionals know what care your horse needs when and can help pinpoint the cause of any issues. Your observations will help you ask productive questions of these professionals and assist them in providing more effective care for your horse.

Take Home Message

If you happen to notice that Clover "doesn't seem himself", you check his vital signs, find out he is dehydrated (pale/dry/tacky gums, >1 second skin pinch, tucked up flank), then you can find out why. Did an animal die in his water tank? Is there a short in the wiring in the automatic waterer? Did somebody neglect to water? If the source of the issue is identified and resolved, and Clover takes a long sip of clean, fresh water, you may have just prevented an impaction colic!

Observation is your best tool for identifying horse health issues early. Take the time to watch and check your horses regularly as part of their routine care. It is part of the "fun" of horse ownership! Getting to know your horses' attitudes and antics can be enjoyable. If you learn what is normal for your horses, you may be able to catch an issue early and prevent more serious complications. Armed with the "**knowledge of normal**", you can improve the health of your horses through proactive management.

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Other Useful Resources

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<https://performancehorsenutrition.com/tools/cresty-neck-scoring>

Checking Horse Vital Signs (U of MN): https://youtu.be/utDa_QLiJrE

How to Check Your Horse's Pulse: <https://thehorse.com/140965/how-to-check-your-horses-pulse/>

Dehydration Tests (Guelph): https://youtu.be/crY8_dBzimw

Equine Vital Signs and How to Take Them (CHA): <https://youtu.be/4mPjPCQGDgc>



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