



## 2023 SUMMER ICHO GAZETTE

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#### SUMMER GAZETTE 2023

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#### Hello Curly friends and members!

With summer almost to a close, it's time to reflect on a busy season. The ICHO office is like an energizer bunny, with Bun-ny and Sheryl busy with registrations, lab tests, forms, orders, and special projects.

The ICHO Virtual show is now closed and classes are being judged with results soon. Thank you participants, it was another successful and fun season!

Dr. Mitch Wilkinson has been tirelessly researching, traveling, writing, and organizing the complex information that curly horses present and updating new genetic research.

Noted as the summer of extreme heat, 2023, included in this Gazette is a hot weather guide. A few weeks ago, an Old Order farmer, driving his Standardbred, nearly had his horse collapse by my mailbox. We eased the horse onto our lawn, and started cool pails of sponged water on his over-heated body. His sides were rapidly heaving, breathing and heart rate up considerably, and he seemed delirious as he walked aimlessly into shrubs although we were under shady maple trees. The young farmer explained that the symptoms came on suddenly, maybe a 100 yards back, when he began to notice the horse's gait becoming different. He stopped immediately and unhitched and unharnessed him. He called a friend to arrive with a trailer to get the horse home. The horse did not collapse, but his sides were heaving. It was alarming to see, and my youth student and I were wide eyed. The horse survived and continues his work for the farmer. But heat stress is real, and with our weather lately, well, you know. Being prepared and knowing how to take your horse's vitals is an important responsibility, but not a replacement for contacting your veterinarian in an emergency. Keep cool friends!

Sincerely, Joan Henning, ICHO President and Drifting Aurora, ICHO# 2378-S



## The 2023 ICHO AGM is coming!

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## GAZETTE AD DEADLINE

We now have a new Gazette ad deadline schedule for submitting ads as follows:

WINTER: Dec 15

SPRING: Mar 15

SUMMER: June 15

FALL: Sept 15

Ads that are received after the deadline will be run in the next following issue. Payments must also be made before the deadline. All ads and payment must be sent to the office. Thanks!

ARTICLES- We are always looking for interesting articles for the Gazette. The article could be about training, health tips, an interesting story about a Curly or anything of interest horse related. Please send all articles to the office before the deadlines. Awaken the writer within you!



**GAZETTE SCHEDULE**

-  **WINTER February**
-  **SPRING May**
-  **SUMMER August**
-  **FALL November**

Submit Ads & Payment to: [office@curlyhorses.org](mailto:office@curlyhorses.org)

**Ad & Payment Deadlines:**

Winter Dec 15 Spring Mar 15 Summer Jun 15 Fall Sep 15

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### **ICHO now offers DNA testing for:**

<i>Ancestral only TX A&amp;M</i>	<i>\$25.00</i>
<i>Parentage Only U of KY</i>	<i>\$30.00</i>
<i>CA- (Cerebellar Abiotrophy) VetGen</i>	<i>\$35.00</i>
<i>Genetic DNA Panel Testing</i>	<i>\$99.00</i>

*Visit the website for more info or contact the office.*

## Gazette Ad Specials!



**Stallion Station Ad**– only \$10.00 per issue, \$40.00 for the year, color ad.

**Business Card Ad**– only \$10.00 per issue, \$40.00 for the year, color ad

**All color Ads at Black and White Prices! All Gaz Color Ad fees reduced!!**

**Full Page Color \$40.00, 1/2 Pg Color \$20.00, 1/4 Pg Color \$10.00, Classified \$10.00**

Submitting ads:                      \*Pay for ads online on our webpage– <http://ichocurlyhorses.org>

**All ads must be copy ready** in word doc format or jpg, png. Since we have reduced our prices we need the ads in ready to print format. For photos png is preferred since it has the best resolution. We can no longer accept pdf format because it does not insert clearly for the Gazette editing process.

**All Ads must be sent to the office with payment. Ads also appear on the ICHO webpage.**



*Join us for the*

## **2023 ICHO AGM!**

**Saturday, October 14, 2023  
1 pm est**

It will be an electronic meeting for all ICHO members  
on ZOOM.

Our guest speaker is Dr. Mitch Wilkinson

New business items may be added by contacting the  
ICHO office by Friday, October 6, 2023.

# 14 Tips for Feeding & Caring for Horses in Hot Weather – [Summer Guide]

By Kelly Hebner, BSc, (Kin),MSc

With higher temperatures in the summertime, horses are prone to heat stress. This can contribute to an increased risk of colic, ulcers, weight loss, fatigue and dehydration during this time of year. <sup>[1]</sup>

Horse owners should be vigilant for **signs your horse is overheated**, which include excessive sweating, lethargy, elevated breathing and heart rate, and decreased appetite.

If your horse appears **at risk of heatstroke**, contact your veterinarian right away and cool them down with fans and cool water.

You can keep your horse safe and comfortable in hot weather by **ensuring they are drinking enough water**, replenishing electrolytes, avoiding intense exercise during peak heat, and keeping them out of direct sunlight for long periods.

Follow the **14 feeding and management tips** in this article to support your horse's well-being all summer long. Consult with our equine nutritionists for help with formulating your horse's diet through the summer.

## Horses in Hot Weather

Horses are extremely efficient at **producing heat** through digestion and muscular activity. When horses eat forage, microbes in the gut break down cellulose and hemicellulose. This process of microbial fermentation generates heat that needs to be dissipated. <sup>[2]</sup>

The horse's gut is designed to constantly digest plant fibre. But this process can work against your horse in **extreme heat**, compounding the risk of heat stress and associated issues.

Additionally, horses in work generate heat through their **working muscles**. <sup>[2]</sup> This makes it harder for horses to thermoregulate when exercising in hot and humid environments.

# How Horses Stay Cool

For all mammals, core body temperature is maintained in a narrow range by continuously balancing heat production with heat loss. A stable core body temperature is maintained by regulating: <sup>[15]</sup>

- The body's rate of heat production
- The transfer of heat to the external environment
- The efficiency of evaporative cooling

The rate of heat production in the body can be adjusted by increasing or decreasing metabolic rate. However, both extreme cold and extreme heat result in a faster metabolic rate as the body activates various systems to try to regain a normal core temperature.

There are 4 main ways that horses can lose heat to the environment:

## 1) Conduction

Conduction involves **direct contact** between the skin and a cooler surface, such as cool water applied to the skin.

This process is more efficient with greater temperature differences between skin and the other surface. It is impaired by insulating materials such as a thick coat.

## 2) Convection

Convection refers to heat lost to the surrounding air. This process is most efficient if the warmed air is moved and replaced by cooler air which occurs when the horse is running or when they are standing in windy air.

This heat transfer to air can also occur in the **respiratory tract** when they breathe in cool air.

## 3) Radiation

Radiative heat loss refers to electromagnetic radiation emitted or absorbed at the skin. The most common form is a gain of heat from sunlight which can contribute up to 15% of heat gain in a horse exercising in sunny conditions. <sup>[16]</sup>

When a horse's **internal body temperature** increases above baseline, blood vessels in the skin expand (vasodilate) to enable heat to dissipate into the atmosphere via **convection and radiation**.

This **cooler blood** then travels to the internal organs and muscles, reducing internal temperature (continued on page 6).



## 4) Evaporation

This is the **most important form of cooling for horses** and many other mammals that can sweat.

This involves evaporation of sweat from skin and water exhaled from the respiratory tract. The water droplets hold heat which is lost into the surrounding air when the liquid evaporates.

Sweating is activated by hormonal signals (epinephrine) that increase during exercise and stress. It is also activated by increased core body temperature which is **sensed by thermoreceptors** in the skin, abdomen, skeletal muscle and brain.

It is estimated that 1 L of sweat can dissipate 580 calories of body heat which is approximately the amount of heat generated in 2 minutes of high-intensity exercise or 6 minutes of moderate-level exercise. <sup>[15][17]</sup>

Considering that an exercising horse can lose **10 – 15 L of sweat per hour**, sweat provides a major avenue for dissipating heat in the horse.

## Extreme Heat & Humidity

This cooling process becomes less efficient in **extreme heat and humidity**. When temperatures and the humidex are high, sweat cannot evaporate into the air.

The **humidex** is an index of the humidity in the air, measuring the moisture held in the atmosphere. When the air is already holding an abundance of water molecules, water does not evaporate as quickly.

This means that your horse cannot dissipate as much heat through sweating, impairing the cooling systems of the horse and increasing the risk of heat stress.

## Heat Stress in Horses

**Heat stress** (sometimes called heat exhaustion) is an umbrella term for symptoms caused by a sustained high internal body temperature. Signs of heat stress include: <sup>[1]</sup>

- **Profuse sweating** or less sweat than expected
- Rapid breathing
- Signs of dehydration such as loss of skin elasticity, tacky gums, sunken eyes, and reduced urine output
- **Rapid heart rate** that does not resolve with rest
- Muscle weakness, Extremely hot skin, Fatigue or lethargy
- Heatstroke
- Colic, Gastric Ulcers

Some horses are particularly susceptible to heat stress because they cannot **adequately regulate their temperature** in hot weather. This includes young foals, obese horses, older horses with PPID, and horses with anhidrosis (an inability to sweat).

Heat stress is clinically diagnosed by taking the rectal temperatures of the horse. Temperatures above **39.5°C (103°F)** indicate heat stress. <sup>[13]</sup>

Rectal temperatures are typically lower than the horse's actual core body temperature but are useful as a diagnostic tool.

If a rectal thermometer is not available, observing behaviours such as elevated respiratory rate and flared nostrils can be used as indicators of heat stress. <sup>[19]</sup>

If you think your horse is experience heat stress or exhaustion, it is critical to reduce their body temperature **gradually** until their internal temperature is with a normal range (99° to 101°F or 37.5° to 38.5°C) to avoid heatstroke.

## Heatstroke

If heat stress devolves into heatstroke, horses can experience permanent internal organ damage or death. **Signs of heatstroke** include:

- Dehydration
- **Extremely elevated internal temperature**
- Altered behaviour, either listless or panicky
- Thick, dark urine
- Stumbling
- Muscle spasms

Seizures <sup>[4]</sup>

Heatstroke is clinically diagnosed with a rectal temperature greater than **40.5°C (105°F)**. Horses with heatstroke will also have a respiratory rate of greater than 40 breaths per minute and a heart rate of greater than 60 beats per minute. <sup>[13]</sup>

Heatstroke is a **veterinary emergency**. Call your veterinarian immediately and start cooling your horse right away to minimize the risk of long-lasting adverse effects.

## Cooling your Horse

If your horse is experiencing heat stress or heatstroke, you can **cool them down safely** with the following strategies:

<sup>[13]</sup>

- Move the horse indoors or into a shaded area and **out of direct sunlight**
- Use fans or a misting device
- Spray the horse's head, back, and rump with **cool water**
- Use ice water in cases of extreme heat
- Provide fresh, cool water to encourage drinking

While rapid cooling can cause muscle cramping to occur, research shows that applying ice water to the skin can be used safely to cool down a horse. <sup>[13]</sup>

Your horse's veterinarian may also administer **IV fluids and electrolytes** to combat dehydration.

## 14 Tips for Caring for your Horse in Hot Weather

Horses have evolved to live in some of the **hottest regions of the world**. Feral herds of the Namib Desert horse live in Namibia where daytime temperatures in the summer can exceed 45°C (113 °F).

Some horses are better suited to hotter climates (i.e. Arabians and Marwaris) while other breeds are less suited (i.e. Clydesdales and Icelandic Ponies).

Regardless of breed, you can **ensure your horse is comfortable** even in the hottest and most humid environments with the right feeding and management strategies.

Below, we outline **14 tips for caring for your horse in hot weather** to keep them happy and safe from heat stress.

### 1) Encourage Adequate Water Intake

During particularly hot, humid days or intense exercise, horses can produce up to **15 litres of sweat per hour**. If this water loss is not appropriately replaced, your horse can quickly become dehydrated. <sup>[4]</sup>

**Encouraging water consumption** helps to replace water lost through sweat and urination. Drinking water that has a lower temperature than your horse's internal temperature can also help cool the body.

As the famous saying goes, "You can lead a horse to water, but you can't make them drink". However, you can encourage your horse to drink more water by:

- Providing constant access to **fresh, clean water**
- Offering water at a temperature of 45° to 65°F
- Placing water in areas where your horse naturally spends their time (i.e. close to food or their favourite shady spot)
- **Providing multiple water sources** to herds so that even horses low in the social hierarchy have constant access
- Cleaning buckets or water troughs regularly
- Providing water in blue buckets, which have been shown to increase consumption
- Adding safe but tasty additives to water such as apple juice, small amounts of jello powder, or flavoured electrolytes

Giving your horse constant access to fresh cool water is the best way to ensure a happy, hydrated horse in heat.



## 2) Ensure Adequate Salt Consumption

Salt has a number of important roles in the horse's body, but one of the most important is promoting thirst.

In one study, doubling the salt in a horse's daily ration from 50 mg/kg to 100 mg/kg body weight resulted in a **53% increase in water consumption**. <sup>[14]</sup>

Feed your horse 2 tablespoons (30 grams) of salt per day with their feed and provide **plain, loose free-choice salt** at all times.

Loose salt is recommended over salt or mineral blocks because horses do not obtain

## 3) Consider Electrolyte Supplementation

When your horse sweats, they don't just lose water. They also lose **electrolyte minerals** – specifically high levels of sodium, potassium, and chloride. <sup>[5]</sup>

Horse's sweat is **hypertonic**, which means that it has a higher concentration of electrolytes compared to blood. This makes horses particularly susceptible to excessive electrolyte loss in hot weather or with exercise.

If electrolytes are not replaced promptly, your horse can experience:

- **Fatigue**
- Muscle wasting
- Weight loss
- Muscle cramps
- Reduced sweating
- Slow recovery time following exercise

In extreme cases of electrolyte imbalance, horses can experience heart palpitations and seizures. <sup>[6]</sup>

When temperatures are high, and especially when exercising your horse in hot weather, **feed an electrolyte supplement** to replenish levels and restore electrolyte balance.

## 4) Soak Grain, Hay Cubes, and Flaked Hay

**Soaking your horse's hay and grain** is an excellent way to increase hydration, reduce the risk of choke and support your horse's respiratory system during hot, dry seasons.

Horses that are dehydrated **do not produce enough saliva** when chewing (masticating) their food. Saliva is important because it moistens food and provides lubrication for food to travel down the esophagus.

If your horse's feed is not adequately moistened by saliva, it can stick to the interior of the esophagus resulting in choke. Soaking the feed in water greatly reduces this risk and encourages salivation.

One flake of soaked hay can absorb **1 – 2 gallons of water**, significantly boosting water intake while also reducing the inhalation of dust particles.

Extreme heat is also associated with dry spells and low rainfall. This can lead to **dry, dusty ground**, which can cause respiratory issues. Soaked hay is one less source of dust in an otherwise dusty environment.

Hay needs to be soaked carefully in hot weather to minimize mould growth. Soaking can also change nutrient composition of the hay and loss of minerals. Appropriate vitamin and mineral supplementation is requirement to balance soaked hay.

It's recommended to **soak hay in cool water for 30 minutes** to reduce dust particles and support the respiratory system during hot, dry seasons. <sup>[7]</sup>

## 5) Gradually Acclimate your Horse to Hot Climates

If you're moving to a new climate, it is recommended to **gradually acclimate them** to new weather conditions.

The University of Minnesota recommends acclimating horses **over 15 to 21 days**. During this period, exercise intensity should be limited to allow your horse to adjust appropriately. This will improve heat tolerance and exercise performance for horses from cool or dry climates relocating to hot and humid climates. <sup>[13]</sup>

## 6) Avoid Exercising in Extremely Hot Weather

Keep your horse safe by **avoiding training or riding** your horse when temperatures and humidity are high.

As a general rule, when the air temperature (in Fahrenheit) plus the relative humidity percentage is greater than 150, you should not exercise your horse. This threshold may be lower for horses that are not acclimated to hot climates. <sup>[13]</sup>

**Air temperature (F) + Relative humidity (%) = Greater than 150**

In hot weather when the combined air temperature (F) and relative humidity % are **between 130 – 150**, work your horse during cooler periods of the day, such as in the evening or early morning.

## 7) Turnout your horse overnight

Turning your horse out at night can ensure they still have time to **graze in their paddock** while reducing exposure to hot conditions and direct sunlight.

Particularly in regions where there is a big drop in nighttime temperatures, this can help give your horse the chance to express **species-appropriate foraging behaviours** while keeping them cool.

Turnout at nighttime also means fewer bugs, which can improve your horse's comfort.

## 8) Adjust Energy Sources in the Diet

In hot and humid weather, consider switching your horse's feeding program to one that is **high in fat and low in protein**.

Horses in moderate work typically only require **8 – 12% protein** in their diet. Excess protein in the horse's diet gets metabolized in a process called deamination, which breaks down protein molecules into a useable energy source.

Deamination produces **heat and urea as byproducts**. Increased protein breakdown may require more sweating and higher calorie expenditure to eliminate the heat. Removing urea in urine requires water and can contribute to dehydration in the horse.

Fat is an efficient energy source for horses in hot temperatures. Compared to fibre digestion, breaking down fat and using it for energy **produces little heat** in the horse's body. <sup>[9]</sup>

Test your horse's hay to make sure it is not too high in protein and discuss nutrient requirements with an equine nutritionist. <sup>[8]</sup>

## 9) Place Feed and Water in Shady Areas

Horses that live outside most of the time will spend 12 – 14 hours of their day foraging or grazing.

Encourage your horse to **spend time in cooler areas** by placing forage and water sources in locations covered by shade or shelter. This will keep them out of direct sunlight and reduce the risk of sunburns and heat stress.

## 10) Provide Ventilation in Hot Weather

If your horse is stabled or spends most of its time indoors, **providing adequate ventilation** is important for their overall health and well-being.

**Air quality** can deteriorate quickly in unventilated barns when the temperature is high. Increasing airflow also helps to keep your horse cool.

Use fans and open windows to improve ventilation. In very hot climates, consider installing a **stable misting fan** to spray the air and horses with cool water.

## 11) Aim for a Leaner Horse

Fat (adipose tissue) is a highly efficient heat insulator, which can provide an advantage to horses carrying excess body condition in cold temperatures.

However, **carrying extra body fat** works against your horse in hot weather and can make it harder for them to dissipate heat. <sup>[10]</sup>

Regularly monitor your horse's body condition score throughout the year. Body condition is scored on a scale of 1-9, with lower scores representing underweight horses and higher scores representing overweight horses.

To keep your horse comfortable at high temperatures, its body condition should be **maintained at a score of 4.5 – 5**. At this score, your horse will have ribs that are easily felt under a layer of fat, and there will be little to no crease of fat running down the length of their back. <sup>[11]</sup>

Keeping your horse at a lean body condition score ensures they have enough fat deposits to store energy and protect the organs, but not enough fat to trap excess heat in their body. <sup>[11]</sup>

## 12) Make Diet Changes Slowly

Hot weather can increase your horse's susceptibility to digestive upset. If you decide to change your horse's diet, make sure to do so gradually.

Sudden changes in feed can alter the gastrointestinal environment and induce colic symptoms. When introducing a new feed or forage, it is best to follow these **guidelines for gradual introduction**: <sup>[12]</sup>

1. Replace 25% of the old feed with new feed for 3 days
2. Replace 50% of the old feed with new feed for 3 days
3. Replace 75% of the old feed with new feed for 3 days

**On the 10<sup>th</sup> day, 100% of the feed portion should be the new feed**

## 13) Provide Protection from Sunburns

Horses can become sunburned when they are **in direct sunlight** for long periods of time without protection. Light-coloured horses are particularly vulnerable, but any horse can develop a sunburn on pink areas with exposed skin around the head and feet.

**UV turnout sheets** or fly sheets with UV-protective material can help to protect your horse's skin but should be avoided when temperatures are really hot as they can make it harder for the horse to dissipate heat. There are also UV-blocking face masks that can be used to protect the head.

You can also buy **sunblock make specifically for horses** or use sunscreens intended for children. Your veterinarian can help you find the right product for your horse.

If your horse develops a sunburn, keep them out of sunshine until the skin heals to prevent further damage. Appropriate topical creams can be used to help soothe irritations and promote healing.

## 14) Keep your Horse Cool When Travelling

Transportation is a major source of stress for horses, which may be exacerbated in hot weather. Only travel when necessary and avoid long trips if temperatures are high.

It is recommended to travel early in the morning when temperatures are cooler. Use a trailer that provides adequate ventilation and **keep the windows open**. Give your horse plenty of water with electrolytes prior to travelling and as soon as you arrive at your destination.

## Unique Challenges for Exercising Horses

When a horse is not exercising it can easily maintain a normal core body temperature by regulating heat production vs heat loss, especially in cooler climates.

However, in comparison to other mammals, horses are more prone to exercise-induced heat stress. This is due to several unique features of the horse including: <sup>[15]</sup>

1. **Greater use of muscle for exercise:** In fit horses, skeletal muscle represents 50% of their total bodyweight compared to 30-40% in other large animals such as cows. They also engage more of their muscle during exercise and therefore generate more heat through muscle contraction than other animals.
2. **Lower surface area for dissipating heat:** The horse has a 50% lower surface area to body mass ratio than humans. This means they have less opportunity to dissipate heat through their skin.
3. **Respiratory coupling to locomotion:** When a horse is running their breathing rate is coupled to their stride so they can not increase their breathing rate independently to allow more heat transfer through respiration

Horses have adapted somewhat to these limitations by **adjusting their tolerance** to an elevated core temperature. For example, humans choose to stop voluntary exercise when their core body temperature reaches 40°C. In comparison, horses will continue to exercise past this and will choose to stop voluntary exercise when their core body temperature reaches 42°C or higher.

Above these levels, **heat stress** would be highly likely and damaging to many tissues including the brain. In response, the brain activates several systems including coordinating blood flow to the skin, activating sweating and stopping exercise. <sup>[18]</sup>



# Key Points for Hot Weather Care

**Dealing with heatwaves** can be stressful for you and your horse, but with a bit of preparation, you can ensure that your horse is comfortable during the summer heat.

The care and management practices discussed in this article will support even the most sensitive horses in **hot and humid conditions**. Remember to:

1. **Encourage water intake**
2. Feed salt and use electrolyte supplements
3. Soak grain, hay cubes, and hay
4. Provide shade and protection from the sun
5. **Exercise your horse responsibly**
6. Monitor body condition and reduce protein intake

Speak to a nutritionist for additional ways to optimize your horse's feeding program for summer heat. You can [submit your horse's information online](#) for a complementary diet balancing by our university-trained equine nutritionists.

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This informative publication features important information for horse owners when evaluating the overall health of their horses.

# How to Take Your Horse's Vital Signs

Penn State Extension

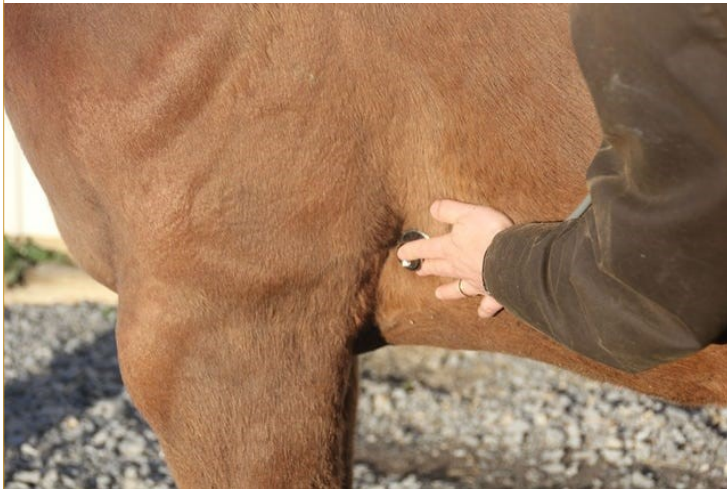


Photo by Andrea Kocher.

When evaluating a horse's health status, its vital signs should be taken, assessed, and recorded. Evaluation should occur both when the horse is healthy, to establish baseline measurements and monitor overall health, and when the horse appears to be sick, to determine if there is a deviation. Regular practice taking vital signs can help you become comfortable with the tasks and desensitize your horse to it. Temperature, pulse (heart rate), and respiration (breathing rate), also referred to as TPR, are three key vital signs that should be assessed. In addition, the horse's gums (a mucous membrane) should be evaluated to assess dehydration and tissue blood flow.

Below is a table listing the vital signs typically taken, the normal ranges of those signs when a horse is healthy, and the items you will need in order to take measurements. The values listed are for adult horses at rest. Horses recently exercised would have higher values. Additionally, rate may vary based on the horse's size, with larger horses often having lower rates and smaller horses often having higher rates. Always assess the individual horse, establishing what that horse's averages are before illness is suspected.

Vital Sign Assessed	Normal Range for Healthy, Adult Horse	Items needed
<b>Temperature</b>	99-101.5°F	Thermometer, lube, and timer (some thermometers may have one built in).
<b>Pulse</b>	28-44 beats per minute	Timer, stethoscope (if preferred).
<b>Respiration</b>	10-24 breaths per minute	Timer
<b>Skin pliability</b>	1-3 seconds for skin to return	No items needed
<b>Mucous membranes</b>	Wet, pink, shiny gums	No items needed
<b>Capillary Refill</b>	1-2 seconds for color to return	No items needed

*Note.* Values from the American Association of Equine Practitioners.

## Temperature, Pulse, and Respiration

### How to Measure a Horse's Temperature

To take your horse's temperature, you will need either a digital or mercury thermometer and lube. The thermometer should be covered in lube, inserted into the rectum, and held there for an allotted time (anywhere from fifteen seconds to three minutes depending on the thermometer—see device instructions). When inserting the thermometer, be sure you are in a safe position, with the left side of your body directly beside/against the horse's hip. Be sure to gently lift and shift the horse's tail for insertion (Figure 1).

Hold the thermometer in place until the thermometer reading is complete, then remove it to look at the displayed temperature. If using a mercury/glass thermometer, you should clip it to the tail to prevent shattering if the thermometer were to fall to the ground from being pushed out. Using a digital thermometer is the safer and easier method.



Figure 1. Measuring a horse's body temperature. Photo credit: Mary Swoyer-Larson

## How to Measure a Horse's Pulse/Heart Rate

A horse's pulse can be taken two ways: by listening to the heartbeat with a stethoscope or by palpating (feeling) an artery. Most find it easier to use a stethoscope and listen to the heartbeat, but palpation is also a viable option if a stethoscope is not available.

To use a stethoscope, place the earpieces into your ears with the earpieces pointing forward. Then place the chest piece (diaphragm) behind the horse's elbow on its left side (Figure 2). Listen closely for a "lub-dub" sound and count how many times you hear this sound for thirty seconds. Each "lub-dub" counts as one. Multiply the number by two to identify how many beats per minute.



Figure 2. Measuring heart rate with a stethoscope. Photo credit: Andrea Kocher .

If you prefer to palpate an artery to check the horse's heart rate, you may feel one of three arteries: the maxillary artery (under the jawbone), radial artery (on the inside of the knee), or the digital artery (just below the fetlock). You will need to place your middle finger and either the index or ring finger on one of these arteries ensuring you can feel the "pulse" of blood flow. Count how many times you feel this pulse over a period of thirty seconds. Multiply the number by two to determine how many beats per minute. If the horse won't stand still during the assessment, you can shorten the measurement time to fifteen seconds and multiply by four instead. While this is not ideal, it is a viable option if needed. Be patient when assessing the horse's pulse/heart rate. You may not feel/hear it at first as it is significantly slower than you might expect.

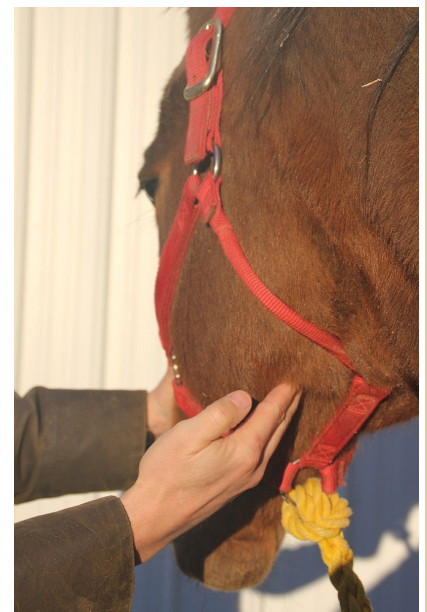


Figure 3. Measuring pulse feeling for artery under the jaw. Photo credit: Andrea Kocher



# How to Measure a Horse's Respiration Rate

Respiration is determined by counting the breaths the horse takes in one minute. It is best to look at the horse's flank when evaluating this, counting how many breaths the horse takes in and out over a thirty-second period and multiplying it by two. It is not recommended to look at the nostrils to assess breathing rate because it is difficult to see and movement from smelling may easily be mistaken for breath.

## Mucous Membranes and Capillary Refill Tests

Looking at a horse's gums, which are mucous membranes (tissues lining an area that secretes mucus), can help determine the horse's hydration and tissue blood flow. To do this you can run your fingers across the horse's gum to ensure they are wet and smooth rather than dry and tacky. Also, look at the color of the gums, which should be pink (Figure 4). Pale or dark red gums are abnormal, and a veterinarian should be contacted.



Figure 4. A horse with healthy gums. Photo credit: Andrea Kocher.

A capillary refill test should be done to evaluate tissue blood flow and hydration. To do this, place your thumb on the horse's gum, applying slight pressure to make the color disappear from underneath the finger (about three seconds). Release and count how quickly the pink color returns (Figure 5). In a healthy horse, this will occur within 1–2 seconds. Anything slower than this could indicate that blood circulation is delayed because of a health issue.

Figure 5. The circle that will form on the gums immediately after pressing down on the gum. In a healthy horse, this circle should turn pink again in 1–2 seconds. Photo credit: Mary Swoyer-Larson.

Safety is important when evaluating the horse's gums. Be cautious that the horse does not bite you while you are performing this evaluation. The horse may raise its head and move backwards to avoid having its mouth examined, so select a safe location (perhaps a stall or wash rack) to maintain control of the horse.





# Skin Pliability

You can also tent the horse's skin to check for dehydration—this is known as a skin pliability test. To do this, pinch a fold of skin on the horse's shoulder or neck up into a "tent" shape (Figure 6). When you release the skin, the skin should return back to normal, flat against the body, within about 1.5 seconds. If the skin takes longer than four seconds to return to normal, the horse is dehydrated and you should contact your veterinarian.



Figure 6. Skin pliability test on a horse. Notice the tented skin on the neck. Photo credit: Andrea Kocher.

## Conclusion

Assessing your horse's vital signs is a relatively simple process and should be done regularly. You do not need many items to take these measurements and most can be evaluated within a minute. Be safe and cautious while taking measurements and keep record of these values for each horse.

*The content of this presentation, including text, graphics, and images, is educational only and not intended to be a substitute for veterinary medical advice, diagnosis, or treatment. Always seek the advice of a licensed doctor of veterinary medicine or other licensed or certified veterinary medical professional with any questions you may have regarding a veterinary medical condition or symptom.*