

HEALTH GENERAL KNOWLEDGE STUDY GUIDE

Vital Signs:

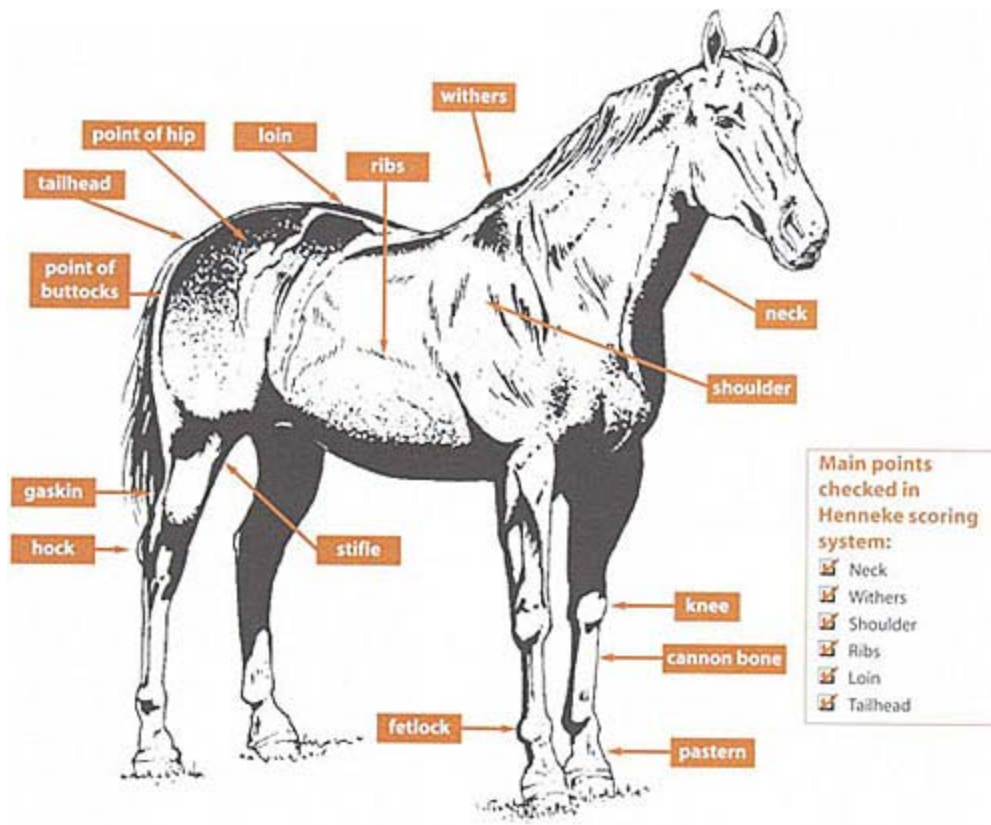
- **Temperature:** The temperature of an average horse is 100 to 101.5 F; temperature of foals is higher than adults. Factors that may cause temperature variation are time of day, sex, age, ambient temperature, wind, precipitation, intensity of activity and disease state. Can be taken with a rectal equine thermometer.
- **Pulse and Respiration rate:** The normal pulse rate is 32 to 48 beats/minute for the adult at rest. The normal respiration rate is 8 to 16 breaths/minute. Fitness of the horse will have an effect on these rates. Inversion is when the respiration rate is higher than pulse rate which indicates a serious problem with the horse. To observe the respiration rate, look at the barrel of the horse and count for one minute how many times the barrel expands. To determine the pulse, place your fingertip under the lower jaw, apply pressure, and count the heartbeats.
- **Mucous Membranes:** Include inner eyelids, inside of nostrils, inner lips, gums and vulva of mare. Should be bright, moist and have a clear pink color. Should not be pale, sticky, or dry.
- **Capillary refill time:** Press your thumb against the upper gum for a couple of seconds and then release pressure. The area should appear white but immediately return to its normal color within 2 seconds. If it takes longer than 3 seconds, continue examination to determine if any other vital signs are abnormal.
- **Skin pliability:** To look for signs of dehydration, pinch the skin on the side of the neck with your thumb and forefinger and hold for a couple of seconds. Skin should feel pliable, not leathery and show no sign of folding 3 seconds after release of the pinch. If there is a fold, the horse may be dehydrated.
- **Bodily Fluids:** Feces, urine, tears, sweat and saliva are all additional parameters to consider when evaluating a horse's health.
- **Teeth:** A complete set of teeth in horses is 44 total, although this is rarely seen. They have 12 incisors with half on top and half on the bottom. Canines are found usually in males between the incisors and cheek teeth with 2 on top and 2 on the bottom. There can be 4 premolars on both sides at the top and bottom for a total of 16. The first premolars are often called wolf teeth and are pulled to prevent interference with the bit. Premolars can also be called the cheek teeth. Horses have 3 molars on each side of the mouth at the top and bottom for a total of 12. Teeth of young horses are often shed but still require inspection and should be floated to remove sharp points.

Body Condition Score: Evaluates the balance between intake and expenditure of energy. It can be affected by a number of factors such as food availability, reproductive activities, weather changes, performance, parasite control, dental problems, and feeding practices. Use body condition score to evaluate body fat. Methods include:

Henneke scale (range of 1 to 9)

Condition	Neck	Withers	Shoulder	Ribs	Loin	Tailhead
1 Poor	Bone Structure Easily Noticeable	Bone Structure Easily Noticeable	Bone Structure Easily Noticeable	Ribs protruding noticeably	Spinous processes projecting prominently	Tailhead, pinbones and hook bones projecting prominently
2 Very Thin	Bone structure faintly discernible	Bone structure faintly discernible	Bone structure faintly discernible	Ribs Prominent	Slight fat covering over base of spinous processes transverse processes of lumbar vertebrae feel rounded spinous processes prominent	Tailhead prominent

3 Thin	Neck Accentuated	Withers Accentuated	Shoulders Accentuated	Slight fat cover over ribs. Ribs not easily discernible	Fat buildup halfway on spinous but easily discernible. Transverse processes cannot be felt	Tailhead prominent, individual vertebrae cannot be visually identified. Hook bones feel rounded but still easily discernible pin bones not distinguishable
4 Moderately Thin	Neck not obviously thin	Withers not obviously thin	Shoulders not obviously thin	Faint outline of ribs discernible	Negative (Peaked appearance) crease along back	Prominence depends of conformation fat can be felt hook bones not discernable
5 Moderate	Neck blends smoothly into body	Withers rounded over spinous processes	Shoulder blends smoothly into body	Ribs cannot be visually distinguished but can be easily felt	Back is level	Fat around tailhead feels somewhat soft
6 Moderately Fleshy	Deposited fat faintly discernible along neck	Deposited fat faintly discernible along withers	Deposited fat faintly discernible behind shoulders	Fat over ribs feels spongy	May have slight positive crease (groove) down back	Fat around tailhead feels soft
7 Fleshy	Fat deposited along neck	Fat deposited along withers	Fat deposited behind shoulder	Individual ribs can be felt with pressure but noticeable fat filling between ribs	May have positive crease down back	Fat around tail head is soft
8 Fat	Noticeable thickening of neck	Area along withers filled with fat	Area behind shoulders filled in flush with body	Difficult to feel ribs	Positive crease down back	Fat around tail head very soft
9 Extremely Fat	Bulging fat along neck	Bulging fat along withers	Bulging fat behind shoulder	Patchy fat over ribs	Obvious crease down back	Bulging fat around tailhead



<http://www.lser.org/images/HennekeHorse.jpg>

Movement:

- The horse should move in a cadenced manner without jerky or stilted movements.

Coat condition:

- Coat should feel and look healthy, have a noticeable shine, and not be dull or greasy. Bald spots can indicate a problem. All aspects of feeding programs including supplements can be connected to coat problems.
- Parasitized horse will have a poor and/or dull coat.

Hoof Care:

- Hooves can be used to observe past nutrition, care, and disease states. They should be hard with a slick, shiny and slightly waxy appearance. They should be free of cracks or rings.
- **Coronary band** should not be dry and leathery, should contain enough moisture to feel and appear resilient. No heat should be present in the coronary band or hoof.
- **Frog** of hoof should be firm and slightly pliable and appear intact. Frog should not appear ragged or spongy especially in the groove (sulci) along either side of the frog. No odor or discharge.
- **Sole** should be firm and thick and not give to excess thumb pressure.
- Must be picked out every day as well as shoes checked for loose nails. Also keep hooves trimmed (every 6 to 8 weeks).
- **Hoof score:** 1: dry, cracked, misshapen hoof with fever ring, 5: slick, shiny, moist, waxy looking hoof free of fever rings.

Deworming:

- Horses should be dewormed as needed in response to fecal flotation results. Consult a veterinarian to determine the best deworming schedule and products for your specific needs. Generally young horses should be dewormed 2 to 3 times a year depending on their parasite load, including in winter.

Avoiding Hyperthermia:

- **Hyperthermia:** Overheating of the horse especially in the summer must be avoided. Also known as heat exhaustion, heat cramps, or heat stroke. Results from hot weather, high humidity, poor stable ventilation, prolonged exposure to direct sunlight, over exercising, transportation and obesity. Strenuous exercise should be limited to cooler times of the day or season. Good stable ventilation is needed and blankets should be removed during extreme heat. Clean fresh water should be available at all times. Replacement of body salts or electrolytes is crucial. Do so by providing ad-lib salt blocks or adding an electrolyte mix to grain.

Winter Care:

- **Keeping Warm:** Winter coats trap body heat between hair fibers to retain heat. Horses grow a winter coat in response to the shortening of the day. If a horse has a body clip during the winter months, it is important to provide cover with an appropriate blanket. Putting a blanket on a horse with a winter coat will compress the insulating hair.
- **Good Hay:** This is the most important winter feed, hay should be cut at early stage of maturity, have fine stems, be leafy, lack dust, be free of weeds, free of rain damage, and not moldy. Moldy hay can result in colic and allergic reaction such as “heaves” or chronic airway obstruction. Hay should be the basis of a winter diet because it provides bulk, is a source of carbohydrates and causes fermentation in the gut that produces heat.
- **Water:** Must be easily available, and kept at 45 degrees F to prevent freezing.
- **Hoof Care:** Snow can build up under hooves causing pain so it is recommended to either pull shoes and keep hooves well-trimmed, or use traction additions like snowball pads or borium.

Disease control:

- Mares and foals should be kept away from weanlings, yearlings, and horses in training and visiting mares. Visiting mares should have a negative Coggins test for EIA. Vaccinations should be given as well as boosters which are generally required every year.
- Knowledge of how your horse normally behaves and acts will aid in spotting clinical signs of different diseases.

Feeding:

- Should be fed according to their nutrient requirements to maintain proper body condition. Hay and grains should be palatable. Avoid moldy or dusty hay. Use pasture in spring, summer and fall, and provide ad-libitum salt/mineral blocks

Behavior Disorders:

- Important to know your own animal’s normal behavior. Can be caused by confinement or restriction of exercise.
- **Weaving:** Sustained movement of the upper and lower body and head from side to side or occasionally backward and forward.
- **Cribbing:** Occurs when horse grasps an object with their incisor teeth, arches their neck and depresses the tongue while pulling backwards and attempting to swallow air or swallowing air. Horses can also chew wood out of boredom.
- **Wind sucking:** Same habit as cribbing but the attempt is successful.

Colic :

- Any abdominal pain, not a specific disease but a sign of disease, there are many types of colic:
- **Spasmodic:** Muscular spasm of GI tract, pain is mild to severe, not life threatening. This is most common caused possibly by over excitement or sudden dietary changes.
- **Impaction:** Blockage of foreign material in the GI tract. Blockage can be due to a number of things such as intestinal stones, enteroliths, sand, rubber and string. Surgery is nearly always required.
- **Incarceration:** A loop of intestine that has become entrapped within a normal or abnormal structure within the abdominal cavity. The most common cause is strangulated hernia. Blood supply could be blocked off causing necrosis of surrounding tissue.
- **Displacements:** Portion of the intestine has become twisted or caught in an abnormal position. Volvulus-torsion (twist) of the large colon can be fatal and requires swift treatment. Can be strangulating or non-strangulating displacements.
- **Excessive Fermentation:** Excessive gas and fluid buildup causes distention of the stomach and/or intestine. The most dangerous is gastric dilatation where the horse ingests excessive amounts of grain causing distention of the stomach.

Signs of Colic: Horses sweat, paw with feet, kick at abdomen, yawn, crouch, lie down or roll.

Treatment: Veterinarian should be called out right away, the sooner the better.

Prevention: Preventative management such as sensible feeding, avoiding sudden change in types or amounts of food and providing enough drinking water.

Common Horse Diseases

Disease	Transmission	Causes	Clinical Signs	Diagnosis	Treatment	Prevention	Zoonotic
Equine Influenza	Multiplies in epithelial cells of upper respiratory tract. Dispersed by aerosol droplets when coughs or exhales	Two viruses: equine-1 (H7N7) and equine (H3N8)	Incubation period of 1 to 3 days. Fever of 102.5- 105.0 F). A frequent dry cough for several weeks. 'drippy' nose w/ discharge, secondary bacterial infection.	Clinical signs, isolation of influenza virus from nasopharyngeal and/ or large rise in antibody titer in equine-1 or 2 serum	Stall rest. For each day a horse has an elevated temp it should be rested for one week. Keep in dust-free environment	Vaccine- two primary injections 2 to 4 weeks apart then booster w/in 6 months, intervals of 12 months.	No
Equine Rhinopneumonitis (EHV-1, EHV-4)	Inhale virus, contact with abortion fluids	Equid herpesvirus 1, Equid herpesvirus 4	Secondary bacterial infection, Abortion, Fever of 106, clear nasal discharge, cough, rare signs: incoordination, neurological signs	Clinical signs, tissue culture and demonstration of a four-fold rise in antibody titer, virus isolation (nasal swab plus tissue)	No antiviral treatment, antibiotics given for secondary bacteria infection.	Vaccine and good management. Virus can be killed by disinfectants	No
Strangles Common disease of young horses < 5 yrs	-Contagious among horses - contact with shared food and water buckets	<i>Streptococcus equi</i>	2to 14 days incubation. Fever (104 F), depression, loss of appetite, unwilling to swallow. Enlarged, hot, painful lymph nodes (abscesses). Will stand with neck stretched and head pointed forward	Clinical signs, high titer of <i>S. equi</i> antibodies	Treatment depends on stage of disease in animal. Early diagnosis- antimicrobial treatment. Isolation from other non-infected animals and proper cleaning of common tools -Lymph node abscesses, drain + flush, antibiotic		No
Equine Viral Arteritis Can be a problem in race horse industry	Airborne respiratory tract secretion, indirect contact with virus-contaminated objects	Equine arteritis virus (EAV) ²	3-14 days incubation period. Respiratory illness, fever (up 106 F), limb edema esp. hind limbs, depression, anorexia, swelling around eye, nasal/ ocular discharge, skin rash, swelling of scrotum and prepuce in stallion.	Clinical signs, virus isolation and/or corroborative serological or histopathological data. Nasopharyngeal, conjunctival swabs, citrated blood samples, semen	No antiviral treatment, symptomatic treatment, rest	Vaccine , Only Kentucky and New York have implemented measures to control spread in thoroughbred population	No
Eastern, Western, and Venezuelan Encephalomyelitis -inflammation of the brain -recovery of unvaccinated	Insect contact Rodents, birds and reptiles act as reservoir host (living quarters) -mainly mosquitos	Group of viruses called Togaviradae	-Incubation of 1- 3 days -High morbidity and mortality WEE and EEE: Mild to severe fever, poor appetite, stiffness -Depression,	Clinical signs, presence of associated epidemiologic features. Serology (serum antibodies), necropsy	No treatment	-Insecticides, repellents, getting rid of standing water, in an endemic area environmental insecticide	Zoonotic but is rarely spread from horse to human

animals is rare			aggression, excitability, head pressing, blindness, circling, head tilt, facial fasciculation, paralysis of pharynx, larynx, tongue, recumbency, death. VEE: diarrhea, severe depression, recumbency, death before neurological signs			application and screened stalls -vaccination	
Equine Infectious Anemia -Life time infection -Severity depends on the dose and virulence of virus -Acute and Chronic -Can affect donkeys and mules	Carried by horseflies, horse to horse and hypodermic needles	Virus	-Fever, anemia, jaundice, depression, edema, and chronic weightloss - Internally: damage to kidney, liver, spleen, lymph nodes, bone marrow and brain	Clinical signs, Coggins test to detect antibodies	-No treatment -Positive animals are a danger to other horses -Positive animals in most states must be euthanized -No vaccine	-Control of protecting negative animals from infected animal -Negative Coggins test to enter all states for either show or trade -Positive animals must be reported to state and federal agencies.	No
Tetanus	Deep puncture wounds	Bacteria <i>Clostridium tetani</i> (gram positive) found in the soil	-2 days to 1 month incubation -Hyperresponsiveness to light, touch or sounds, prolapsed of third eyelid, gait stiffness, neck stiffness, fever, elevation in heart rate, elevation of respiratory rate, muscle spasms, erect ear, trismus(lock jaw)	Clinical signs, No laboratory blood work, Based only on wound history and clinical signs	-Treatment right away, Penicillin to destroy vegetative form of bacteria, antitoxin to get immediate passive immunity lasting 7-14 days.	-Vaccination	No
Potomac Horses Fever (Related to horses that dwell within 5 miles from a river)	Insect (tick) or arthropod to horse, not horse to horse	Bacteria <i>Ehrlichia risticii</i>	-Profuse, watery diarrhea, low grade fever, depression, shock, and laminitis	Clinical signs, Blood test, look for high antibodies, short term diagnosis is best made on the basis of response to treatment with Tetracycline	- Tetracycline (antimicrobial) to kill the infection and supportive treatments IV fluids and anti-inflammatory drugs for laminitis	-Vaccination esp. for horses in endemic areas -Vaccinate once then vaccinated twice afterwards, 3 to 4 weeks apart -Booster every spring and mid-summer each year after	No
Borreliosis (Lyme Disease) (Seen in summer in the Northeast,	Deer tick (<i>Ixodes</i>) bites, the longer the tick feeds on the	Bacteria <i>Borrelia burgdorferi</i>	-Lameness, arthritis, joint swelling neurological disease, uveitis (an eye	-Clinical signs and blood test to look for elevated antibody titer. However this	-Treat with antibiotics, some animals might need prolonged therapy.	-No vaccine -Avoid tick infested areas such as woods and high	No but ticks can cause Lyme

Midwest and Northwest regions of the US)	host the greater the probability the infection will be transmitted.		disorder), dermatitis, death of foals. -Arthritis is the most commonly reported clinical sign	test only indicated that the horse has been exposed to <i>Borrelia burgdorferi</i> -Rule out other diseases	-Tetracycline and ampicillin may be the best antibiotics -Length of treatment is guided by clinical response (10 to 30 days)	grass, careful grooming	disease in humans as well
Equine Salmonellosis (Most common cause of infectious enterocolitis in adult horses)	-Fecal-oral route from contaminated feed (soil or feces contaminated) -Risk factors: transportation, change in diet, antimicrobial treatment, surgery. -Hard to find source of infection	Bacterial species of <i>Salmonella</i> -Will grow in GI (Colon and Cecum most common) tract, invade the intestinal epithelium	-Diarrhea most common, due to malabsorption, leakage of fluids between intestinal cells. Green to black feces. -Colic, lethargy, anorexia - Can develop without diarrhea	-Clinical signs, Low white blood cell count, Microbiologic culture of feces, tissue or body fluids, Polymerase chain reaction (PCR).	-Supportive care, fluids (electrolyte and water) -Flunixin meglumine (Banamine, Scheing Plogugh) -Dietary management of diarrheic horse.	-No vaccine, id source of infection, sick horse should be kept isolated from other. Humans should wear boot covers, gloves, masks and protective clothes to control the spread of infection. -Removal of feces, disinfection of foaling areas	Yes, can be spread between horses and people
West Nile Encephalitis -Infected birds are the reservoir host of West Nile, Mosquitoes feed on these birds, then infect a horse by biting it.	-Mosquito-borne	-Virus, infects the central nervous system -Incubation is about 5 to 15 days	-Encephalitis, loss of appetite, depression, fever, weakness of hind limbs, paralysis of hind limbs, impaired vision, ataxia, head pressing, head tilt, aimless, wandering, convulsion, inability to swallow, circling, hyper excitability, or coma	-Clinical signs, but rule out other disease first such as rabies, botulism, Equine protozoal myeloencephalitis (EPM), Eastern, Western, and Venezuelan equine encephalitis. - Positive diagnosis of West Nile can only be made by examination of blood	-No treatment, weakened and impaired horse should be protected from injuring themselves, Fluids and nutrient supportive therapy may also be required.	-Vaccine (series of two doses given 23 to 4 weeks apart). Horses vaccinated against Eastern, Western and Venezuelan equine encephalitis are not protected -Important to implementing pest control measures such as keeping horses stable during dusk and dawn, prohibiting birds from roosting in stables, examine property for dead birds (crow esp.), get rid of breeding growing for mosquitoes, cleaning water troughs twice a week	-Not shown but use caution with handling blood, spinal fluid, or nervous tissue from suspect animals

Games:

Health Check up:

Go to a stable and observe several horses and check for the following: Temperature, Pulse, Respiration, Capillary Refill Time, Skin Pliability, Mucous Membranes, Body Condition Score, Coat Condition and Hoof Condition.

Measure	Horse 1	Horse 2	Horse 3	Horse 4	Your Horse
Temp					
Pulse rate					
Respiration rate					
Body Condition Score					
Capillary Refill time					
Skin Pliability					
Mucous Membrane					
Coat condition					
Hoof condition					

What's up with this horse?

Look at the following picture and answer the following questions:

- 1: Where would you check the vital signs on this horse and how would you go about this?
- 2: What would you say to justify the statement "this is a healthy horse?"
- 3: Are there any improvements that you see that could be made?



<http://i6.photobucket.com/albums/y219/aBreeze005/HorsesHome/Maxi/profile.jpg>

Horse # 1:



www.blacksterlingfarms.com

Horse #2: