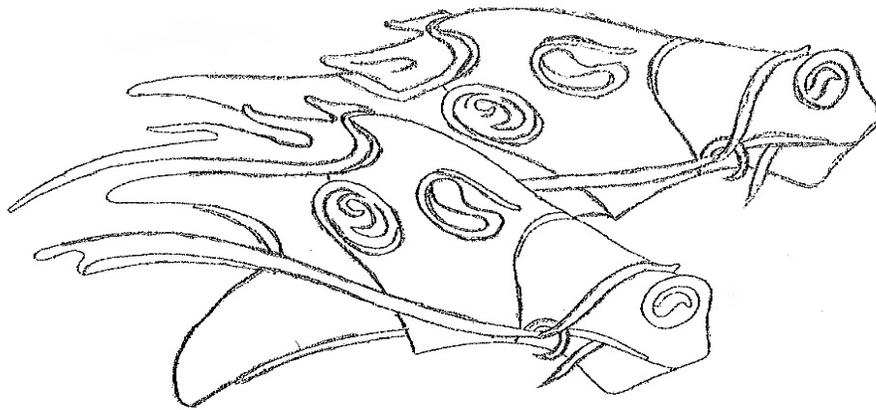


OREGON RACING COMMISSION TRAINER'S TEST STUDY GUIDE



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TRAINERS TEST STUDY GUIDE

Provided by the
Oregon Racing Commission

The purpose of this handbook is for you to use as a guide and as a reference for general horse care and information. Some of the information will be used on the Trainer's test examination. Always consider your state veterinarian as a source for answers and information regarding any of your equine health questions and ORC regulations. Our Stewards are here to help you with all racing and rules questions.

SECTION 1 – BASIC HORSE CARE

This section contains basic categories of horse care that are included in good horse management. There are many ways to develop a program that best fits your facility's particular needs and situation.

Normal Heart Rate : 30-42 beats per minute resting

Normal Respiration : 12-20 breaths per minute resting

Normal Rectal Temperature : 99.5 to 101.5 F

After a work or race, fit horses will regain normal vital signs within 5 minutes.

A. VACCINATIONS:

Vaccinations are an essential part of a Healthy Horse Program. There are many commonly used vaccination schedules which take into consideration geographic factors, use of the horse and risk of exposure. Veterinarians and horsemen select vaccine types and schedules that will best protect their horses.

Knowledge of the types of viruses and bacteria that we vaccinate for, risk of disease and benefit of prevention will help you to develop a vaccination protocol that best suits your management style. Discussing your farm's particular needs with your veterinarian will be valuable to find the best cost solution while providing high quality care for your horses. Control of infectious diseases can be as important as vaccination itself. Vaccination is no guarantee that the animal will not contract disease. However, careful and thoughtful use of vaccines can decrease incidence and severity of diseases. Maximizing health, limiting exposure and a good working knowledge of how diseases are spread and the signs that indicate disease are important components of good management practices.

Equine Encephalitis (Sleeping Sickness) - Eastern, Western and Venezuelan Types (EEE/WEE/VEE)

Equine Encephalitis is a mosquito-borne viral disease that is transmitted from birds and rodents that are natural reservoirs of the disease via mosquitoes to horses and humans. Horse to horse and people to people transmission from mosquitoes is unlikely because the amount of virus harbored in humans and horses is too low for transmission. EEE is the most devastating type with a 90% mortality rate and WEE has a mortality rate of about 50%. Risk of exposure varies with the mosquito and reservoir population.

EEE virus occurs in the eastern and southeastern parts of the United States. Outbreaks of WEE have mainly been in the West and mid-west and VEE in South and Central America. Because of the high mortality rate, EEE is regarded as one of the most serious mosquito-borne diseases in the United States. Clinical signs include loss of appetite, fever and neurological signs such as head pressing and blindness.

Vaccination with a 3 dose series is recommended starting at 6 months then 1 year and then annually in the spring. Unvaccinated adults should have an initial 2 dose (4-6 weeks apart) series and then annually in the spring. Pregnant mares should be vaccinated 1 month prior to foaling to give the foal the best passive immunity possible.

Equine Influenza

Equine Influenza or better known as "Flu" is one of the most common respiratory diseases of horses. It is found throughout the world. Horse density and movement around the country increases the risk and spread of infection. It has been shown that quarantine of newly arriving animals and the use of vaccination can dramatically reduce the risk of infection. Horses that are between 1 and 5 years are most susceptible to Influenza and it is highly contagious and spreads rapidly through coughing, contaminated buckets and other equipment.

Clinical signs include nasal discharge, fever, lethargy, dehydration, anorexia, cough and soreness. Secondary bacterial pneumonia is possible. The incubation period is 1-3 days and infected horses are contagious for up to 10 days. Immunity from the vaccine is short lived so prevention includes every 2-3 month vaccination. Vaccination can also be used to boost immunity in the face of an outbreak.

As with human "Flu" strains, equine Influenza strains mutate over time causing the vaccination composition to change. The manufactures of vaccines are required to keep up with the viral changes but, development of the new types take time and is very expensive. For this reason, the Influenza vaccinations do not afford the horse optimal protection, so frequent boosters are recommended.

Vaccination of foals is recommended to start no later than 9 months and should be at 3 dose intervals 4-6 weeks apart. Pregnant mares should be vaccinated 4-6 weeks prior to foaling. Young horses, depending on exposure should be vaccinated every 3-6 months.

Tetanus

Tetanus is an often fatal disease caused by a toxin released by the bacteria, *Clostridium tetani*. These bacteria are present and can live for many years in the environment and in the intestinal tract and feces of horses and other animals including humans. Tetanus is not a contagious disease, it cannot be transmitted from animal to animal. The animal develops the disease when a wound, surgery site or exposed tissue is infected with the *Clostridium* bacteria. Tetanus toxin causes rigid paralysis and muscle spasm. Respiratory paralysis and dehydration can lead to death.

All unvaccinated adult horses should be vaccinated against tetanus using the tetanus toxoid in a two dose series 3-6 weeks apart and then annually to induce and maintain immunity. These vaccines are safe and induce long lasting immunity. Since the passive immunity in colostrum from the mare is unpredictable, mares should receive a booster 1 month prior to foaling. Foals born to vaccinated mares should receive their first dose of tetanus toxoid at 6 months and 2 more doses 4-6 weeks apart and then annually. Foals born to unvaccinated mares should receive one dose (1500 IU) of tetanus antitoxin.

Any animal that has become injured and has not had a booster within 6 months should be administered a booster at the time of the injury.

Equine Herpesvirus (Rhinopneumonitis)

Equine herpesvirus type 1 and 4 (EHV-1 and EHV-4) can each infect the respiratory tract causing signs from mild to severe including fever, lethargy, anorexia, nasal discharge and cough. Infection is common in babies and young horses in training especially when new horses are brought in.

Equine herpesvirus type 1 also causes abortion (last trimester) in infected pregnant mares or the birth of weak nonviable foals. The placenta and all fetal remains and fluids are able to spread infection.

EHV-4 primarily causes respiratory disease in young horses. Like all other herpesviruses, these viruses can remain latent (infections without causing clinical disease) in the majority of horses, which do not show clinical signs but may later show signs and shed the virus when stressed. For this reason, it is hard to control this disease and outbreaks occur in closed populations of horses.

The use of vaccines is primarily to prevent abortion in mares and the respiratory form in foals and other young horses that are at high risk. Consistent vaccination appears to reduce the frequency and severity of disease. All pregnant mares should be vaccinated at least at 5, 7 and 9 months of gestation and 1 month prior to foaling. Primary vaccination of foals is started at 4-6 months of age and consists of a 3 vaccination series 3-4 weeks apart. Young horses should be vaccinated every 3-4 months.

West Nile Virus (WNV)

Equine West Nile Virus was isolated in 1999 in the US. It is maintained in reservoir hosts (primarily birds) and transmitted to horses by mosquitoes. WNV occurs mostly in the late spring and summer months. Horses appear to be the dead end hosts meaning they cannot transmit the disease.

Clinical signs include lack of coordination, stumbling, anorexia, muscle twitching, partial paralysis and neurological signs such as head pressing, inability to stand, convulsions and death. Supportive care is the only treatment.

Vaccination is recommended 1 month prior to mosquito season in a 2 dose series 3-6 weeks apart. 2-3 vaccinations per year are recommended. Elimination of standing water and use of insecticides will also help decrease the mosquito population and spread of the disease.

Rabies

Rabies is an infrequently encountered neurological disease which occurs when horses are bitten by an infected wild animal. Although the incidence of Rabies is very low in horses, it is a fatal disease and a public health issue. Wildlife animals are a natural reservoir for the rabies virus which causes a fatal encephalitis. Clinical signs include fever, hyperresponsiveness to touch weakness, incoordination, lameness, inability to swallow, blindness and convulsions. Death typically follows within 3-5 days. Any horse suspected of contracting rabies should be handled with utmost caution; humans can contract rabies through the saliva of the horse.

All horses kept where rabies is endemic in the wildlife population are at risk and should be vaccinated. Foals born to unvaccinated mares can be vaccinated at 3 months and then again at 1 year and then annually. Foals born to vaccinated mares should begin their vaccinations at 6 months.

Adult horses are vaccinated yearly after the initial vaccination.

Strangles-Streptococcus Equi

Strangles also known as Distemper is highly contagious and caused by the bacterium *Streptococcus equi*. It usually affects young horses and is transmitted by direct contact with pus and infected fluid from another horse. It also can be transmitted by tack, water troughs, stalls, trailers etc. It can survive in the environment for at least 3 months. The bacteria can be ingested or inhaled.

The horses infected show a severe inflammatory response to the bacteria which causes upper respiratory discomfort, anorexia, and copious mucopurulent nasal discharge. They also have pus filled enlarged lymphnodes that can make breathing difficult. Horses generally have a fever (102 to 106) and are lethargic before the abscesses drain. Most horses recover but some may develop internal abscesses (bastard strangles).

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Vaccination appears to reduce severity and incidence by 50% during outbreaks. Reaction at the site of vaccination is common. Intranasal vaccination is available and should be given only after other injectable vaccinations to prevent contamination of the Strangles vaccine into the skin.

Vaccination is not routinely recommended except where horses are at high risk or where there is a persistent Strangles problem. Foals at high risk can be vaccinated starting at 4 months and in a series 3 given 4-6 weeks apart. Adults can be vaccinated with an initial vaccination and 1-2 boosters given 2-4 weeks apart. All vaccinated horses should be revaccinated every 6 months.

Following vaccination or natural exposure, certain individuals can develop purpura hemorrhagica, an acute, non-contagious syndrome caused by immune-mediated, generalized vasculitis. The signs include hives with pitting edema and subcutaneous hemorrhages. Immediate medical attention should be sought for horses suspected of developing purpura hemorrhagica.

Potomac Horse Fever-PHF (Equine Monocytic Ehrlichiosis)

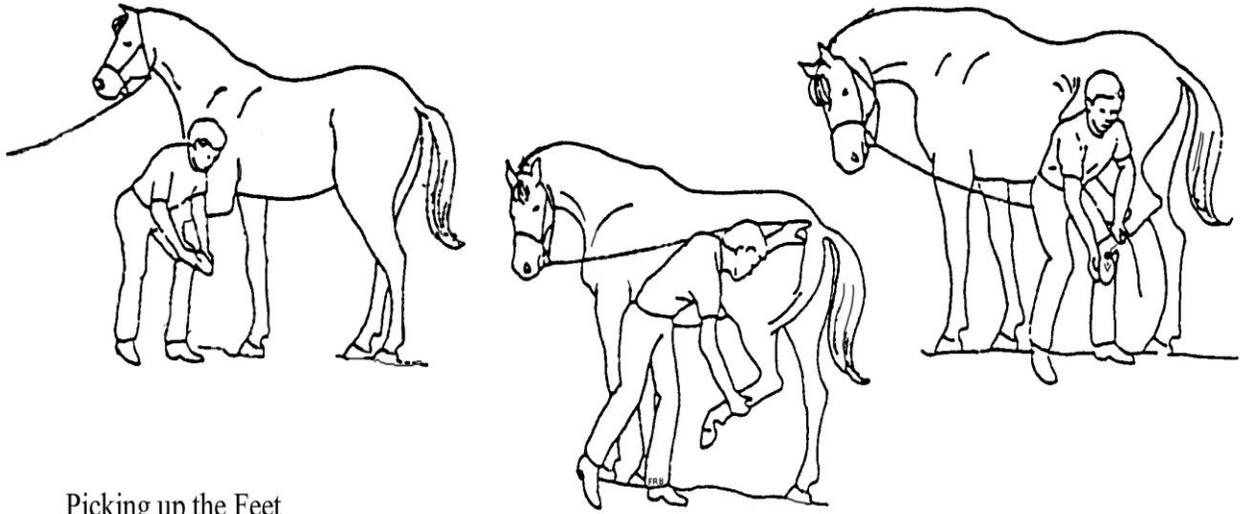
Potomac Horse Fever is caused by *Ehrlichia risticii*, a bacteria that lives in a parasite of freshwater snails and is transmitted by the parasite, not by horse to horse contact. The disease is seasonal during late spring and early fall in temperate areas. The disease is primarily along the waterways in the Northeast but has been found in other areas of the USA and Canada. The clinical signs include fever, lethargy, anorexia, abnormal gut sounds, diarrhea, colic (colitis), dehydration and laminitis.

Vaccinations are recommended in endemic areas or high risk animals. A 2 dose series 3-4 weeks apart and then every 3-4 months is recommended due to the short lived immunity.

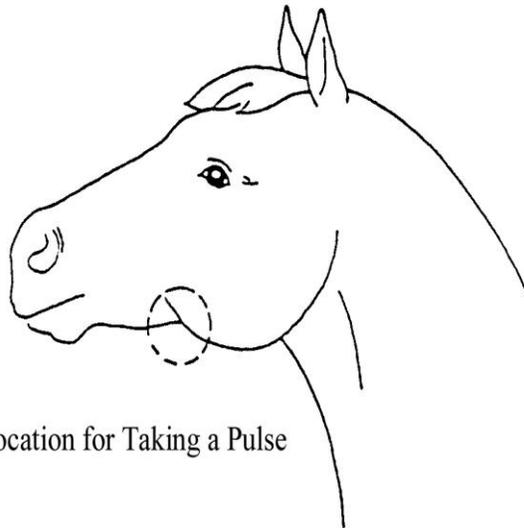
Foals are at low risk of acquiring the disease and it is recommended to wait until the foal is at least 5 months old to start vaccinating.

Treatment consists of antibiotics and supportive therapy including IV fluids. Keeping horses away from freshwater streams and ponds can aid in the prevention of PHF.

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Picking up the Feet



One Location for Taking a Pulse

B. DENTAL CARE

Routine dental care is essential to your horse's health. The domestication and confinement of horses has led to changes in their eating patterns, food types and natural selection for optimal anatomical configuration. So, now more than ever, periodic examinations, corrections and regular maintenance are especially necessary in order for your horse to be comfortable, utilize its feed more efficiently, perform better and live longer.

Horses have 2 sets of teeth, baby teeth or deciduous and adult or permanent teeth.

Permanent teeth continue to "grow" or erupt until the horse reaches his 20's. The front teeth or incisors are used for shearing off forage. The canine teeth or Bridle teeth are located behind the incisors. Wolf teeth are the horse's first premolars. If not removed, wolf teeth interfere with the bit and cause the horse pain when the bit knocks against them. The cheek teeth or premolars and molars are used to grind the food before swallowing.

Due to the horse's particular anatomy (for example parrot mouth or sow mouth), the fact that the upper jaw is wider than the lower jaw, and since the teeth continue to erupt some surfaces become more worn than others. The results are the common problems that we see for example enamel points, hooks, uneven bite planes, long teeth, poor alignment and subsequent gum disease. Some key signs of horses with dental problems include pain or irritability, difficulty chewing, dropping feed from their mouths, excessive salivation, undigested feed in manure, head tilting and poor performance. They may also have a foul odor to their breath, facial swelling or traces of blood in their mouths. Some horses do not show a sign of teeth problems which is a main reason for periodic exams and maintenance.

Preventive maintenance starts in the young horse at 2 or younger depending on the horse's dental conformation or problems. Maintenance includes removing baby cheek teeth or caps, removing wolf teeth, reducing the sharp edges from canines, maintaining proper bite planes for the horse's conformation and smoothing the chewing surfaces by evening out the hooks, ramps and points on the cheek teeth. "Floating" teeth is a term used to describe filing the teeth. Complete dental includes "floating" in addition to grinding the biting surfaces and maintaining natural alignment. To insure that your horse is receiving good dental care, talk to your veterinarian or veterinary dental specialist.

As the horse ages there are various maintenance issues that arise. Young horses are losing teeth and often those teeth do not fall out on their own. This can cause problems with the adult tooth trying to erupt and cause problems for the adult teeth as well as discomfort to the horse. These caps should be removed. Older horses can suffer from gum disease and loose teeth. Since horse's teeth erupt for many years a lost tooth will allow the opposing tooth to erupt into the space of the missing tooth. This will stop the horse from chewing by blocking the chewing motion.

A good dental maintenance program can help you avoid major dental problems as well as other systemic problems that can arise from poor dental health such as colic and other digestive issues.

A HORSES AGE

To tell the age of any horse
Inspect the lower jaw of course.

Two middle nippers you'll behold
Before the colt is two weeks old.

Before six weeks two more will come;
Twelve months the corners cut the gum.

At two the middle nippers drop;
At three the second pair can't stop.

At four years old the side pair shows;
At five a full new mouth he grows.

The side two pairs at seven years,
And eight will find the corners clear.

The middle nipper, upper jaw,
At nine the black spots will withdraw.

At ten years old the sides are light;
Eleven years finds the corners white.

As time goes on the horsemen know,
The oval teeth three-sided grow.

They longer get, project before,
'Til twenty when we know no more!

~~~~Author Unknown~~~~



2 Weeks



6 Weeks



8 Months



3 YR



4 YR



5 YR



6 YR



7 YR



8 YR



9 YR



10 YR



11 YR



15 YR



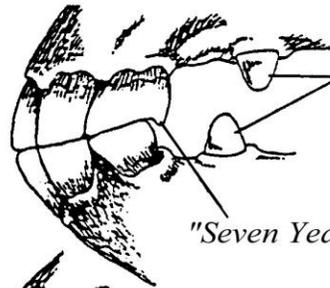
21 YR



30 YR



Young Horse



Tushes

"Seven Year Hook"

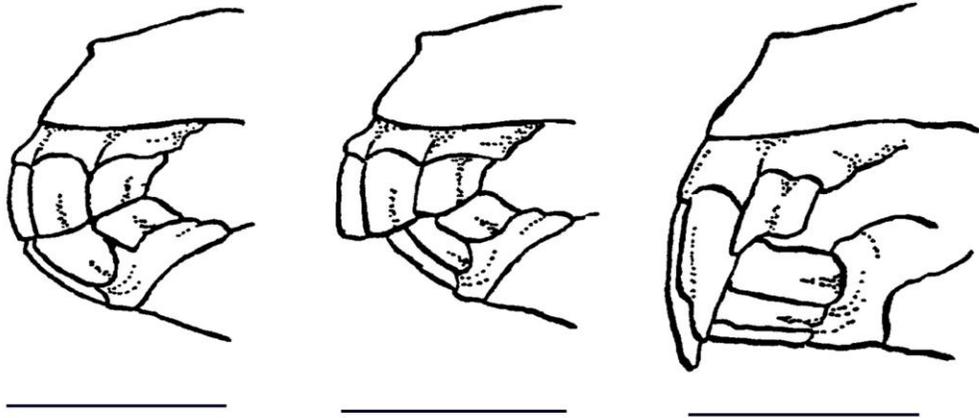


Old Horse



Galvayne's Groove

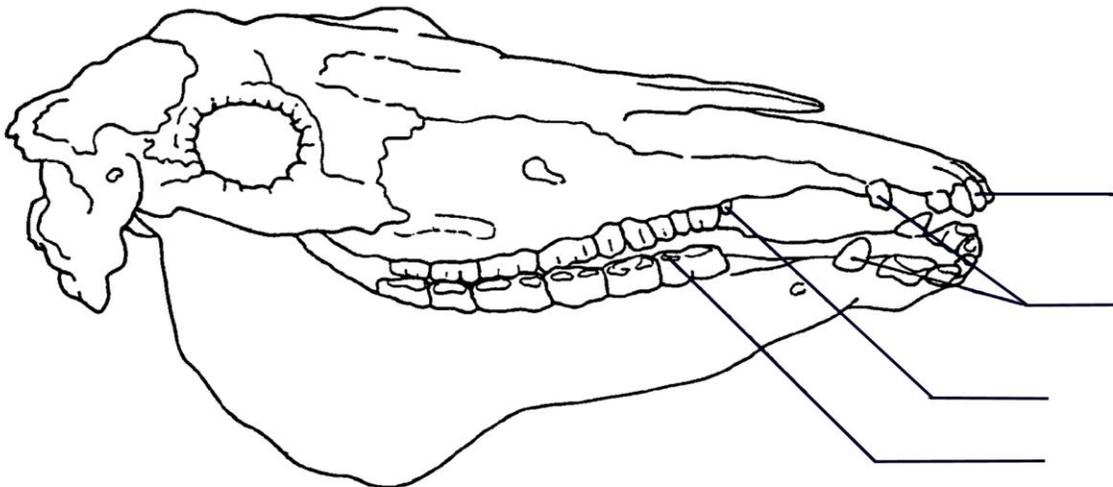
## The Equine Mouth



Match the description with the correct structure.

- A. Over-Bite Mouth
- B. Parrot Mouth
- C. Normal Mouth

- 1. Bridle Tooth or Tush
- 2. Wolf Tooth
- 3. Incisors
- 4. Molars



## **C. DEWORMING**

Internal parasites are the silent killers. They cause extensive damage without you even knowing that your horse is heavily infected. Signs of infestation include dull hair coat, unthriftiness, anemia, poor growth, colic and death. They also decrease the horse's resistance to infection and disease, decrease the horse's ability to maximize nutrition and cause permanent damage to internal organs. A good deworming program is as important as providing clean and high quality feed and water!

There are many deworming protocols. The important factor is exposure and consistency. You can have your veterinarian perform a laboratory test to determine the type and worm load in your horses by doing a fecal egg count and identification. The current recommendations include every 2-3 month paste or liquid deworming or using the continuous low dose in the feed products.

It is important to understand that most of the damage by intestinal parasites is caused by the migration through the organs by the immature forms of these worms called larvae.

The larvae of the large and small strongyles migrate through the blood vessels and cause scarring in the intestinal blood vessels. This damage can lead to loss of blood supply resulting in organ death. One of the more common surgical problems seen in horses-Colic is often caused by larval migration resulting in damaged and dead bowel.

Clean stalls and a clean water supply cuts down on recontamination. Using feeders off of the ground, keeping foals and weanlings separate from older horses will decrease exposure, composting manure away from pastures and keeping a high acre to horse ratio will help in decreasing the contamination. Frequent deworming with a broad spectrum dewormer will eliminate a majority of parasites.

### **Types of Internal Parasites**

The most important parasites in terms of health risks are the large and small strongyles, ascarids and tapeworms. Most worms have an egg that is picked up from the environment, swallowed and mature into an immature form called larvae inside the horse. The immature forms will often migrate out of the intestine cause damage and then migrate back to the intestine as adults, produce eggs and the eggs are eliminated by the horse in the feces. The cycle then starts again.

Large Strongyles also called bloodworms or redworms, as larvae penetrate the bowel and migrate along the blood vessels that supply the intestines. A small number can cause extensive damage.

Small Strongyles do not migrate through the tissues. They tend to burrow into the intestinal lining and remain dormant or "encyst". Encysted larvae are not affected by most of the dewormers. When large numbers of encysted larvae emerge, they cause severe damage and the horse suffers severe colic and diarrhea. Ascarids also called round worms are a problem in young horses. The adults which are several inches long can cause blockages in the intestine (impactions). The larvae also migrate through the lungs and cause pneumonia. Colic in foals over 3 months is common as is a pot belly appearance and rough coat.

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Tapeworms cause both surgical and medical colics. The horse eats the tiny mite that lives in the grass, hay or grain and the tapeworm resides inside the mite. Treatment for tapeworms involves seasonal timing and specific dewormers.

Other internal parasites include lungworms that cause coughing and donkeys are the natural host meaning that they do not show signs. Pinworms lay eggs on the skin around the anus and causes irritation and tail rubbing. Bots can cause damage to the stomach and mouth lining. Bot eggs are laid on the horse's skin by the bot fly and are licked up by the horse. Threadworms are mostly a problem in young foals causing diarrhea.

### **External Parasites**

Flies are the most common external parasite and cause not only a nuisance but spread disease. Mosquitos and lice also cause irritation and diseases in the horse. Good manure management and the use of pesticides help in controlling pest populations. The use of fly predators is an alternative method. Standing water invites mosquito breeding, control of standing water is helpful in decreasing mosquito populations.

## **SECTION 2 – ANATOMY AND CONDITIONS OF THE HORSE**

### **A. DISEASES**

#### **EPM-Equine Protozoal Myeloencephalitis**

This is a difficult disease to diagnose because the signs mimic other equine diseases and the signs can be mild to severe in nature. More than 50 % of horses have been exposed to the *Sarcocystis neurona* protozoal parasite that causes EPM. It is not a contagious disease, it is spread by the definitive host the opossum which acquires the organism from scavenging carcasses of cats, raccoons, skunks, armadillos, seals and sea otters. Only a small percentage of horses exposed to the protozoa will develop signs. Most horses will mount an immune response and combat the disease before it has a chance to get a foothold. Stressed horses can quickly succumb to the disease while others can harbor the infection only later to develop signs of the disease. The infective stage of the organism, the sporocysts, are passed in the opossum's feces. The horse comes in contact with the infective sporocysts while grazing or eating contaminated feed or water. The sporocysts get into the blood stream and enter the brain where they attack the horse's central nervous system.

Clinical signs depend on the area of the brain that has been affected and include: incoordination, spasticity, abnormal gait or lameness, muscle atrophy, paralysis of facial muscles, difficulty swallowing, abnormal sweating and seizures. Horses may show a worsening of weakness when going up or down slopes or when the head is elevated. They also may show a head tilt or lean against walls for support.

The progression of the disease depends on the number of organisms ingested, how long the horse has had the disease before treatment, where the damage has occurred in the brain and spinal cord and the general stress in the horse's life.

The diagnosis involves a thorough physical exam by your veterinarian, blood and CSF (cerebrospinal fluid) analysis. Treatment is best begun as early as possible. There are several treatment regimens available.

Prevention includes keeping feed in a closed and sealed container, use feeders that minimize spillage or contact wild animal access, feed heat treated feeds, keep waterers clean, maintain optimal health and fitness and schedule regular appointments with your veterinarian.

#### **EVA-Equine Viral Arteritis**

EVA is a contagious respiratory and abortion disease of horses. Standardbreds seem not to show clinical signs but act as carriers. Other breeds including Thoroughbreds do not seem to carry the disease but, show fulminant signs when infected. The virus is of special concern because it can cause abortion in pregnant mares, death in young foals and establish a carrier state in stallions. Outbreaks are difficult to diagnose because the signs are similar to clinical signs in other diseases such as Rhinopneumonitis, Influenza and EIA. Fevers, loss of appetite, depression, skin rash, diarrhea and edema are common. Aerosolized virus can be transmitted from horse to horse. Carrier stallions can transmit the virus to mares either through natural breeding or artificial insemination.

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As with other viral infections, rest, supportive therapy and antibiotics for secondary bacterial infection are the most common treatments.

In the mid 1980's a large outbreak of EVA prompted the development of a modified-livevirus vaccine. Horses must be negative for the virus prior to vaccination. Vaccination of stallions and mares is a safe way to control the disease.

### **EIA-Equine Infectious Anemia (Swamp Fever)**

EIA is a disease that threatens the world's horse, donkey and mule populations. Eventhough there are excellent testing and eradication methods in place more than 500 new cases are identified each year. There is no cure for EIA and most horses show no symptoms yet they remain contagious for life. For this reason the USDA requires euthanasia or strict lifelong quarantine for horses testing positive for EIA.

Equine Infectious Anemia is a potentially fatal viral disease that attacks the immune system. It causes inflammation to vital organs and secondary infections like pneumonia.

EIA has 3 forms: Acute seen within 4 weeks of exposure, Chronic horses are those that survive the acute phase and show fever, weight loss, depression, hemorrhages in the mucous membranes with repeated flare-ups and Inapparent which are carriers for life and serve as a source for infection for other horses.

EIA is transmitted by blood or placental transfer. Blood sucking insects such as flies and mosquitoes, contaminated needles and instruments, semen and milk can transmit the disease.

The way to accurately determine if a horse is infected with the EIA virus is through a blood test called The Coggins Test. A negative Coggins test means that there are no detectable antibodies and the horse is clear. A positive test indicates that a horse is a carrier and is infected. It is up to the State Veterinarian to determine the course of action for a positive test.

The USDA requires that any horse being imported from a foreign country have a negative Coggins Test. Each state has its own requirements regarding interstate movement and EIA testing. By law, EIA is a reportable disease and all positive cases must be filed with the state veterinarian and the Federal Animal and Plant Health Inspection Service (APHIS).

Since there is no cure and there are very few options should your horse test positive, prevention is crucial. All new horses should be quarantined, use only disposable needles and syringes, sterilize all instruments, test all horses yearly, test any horse at a prepurchase examination, require any new horse in your barn to be negative.

### **Botulism**

The soil-borne, spore-forming bacteria *Clostridium botulinum* causes 3 forms of botulism. Shaker foal syndrome results from the action of the toxins released by spores of the ingested bacteria or through entry of spores via the umbilical cord. "Wound Botulism" is caused by toxins of these spores acquired through a contaminated wound. Forage botulism is caused by the ingestion of toxins present in decaying plants or animals in the feed. Botulinum toxin is the most

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potent biological toxin known as acts by blocking nerve impulses leading to weakness, inability to swallow, stumbling, muscle tremors and frequently death.

Shaker foal Syndrome is a significant problem in Kentucky and the mid-Atlantic seaboard states in foals between 2 weeks and 8 months. The vaccine (toxoid) is used to prevent this syndrome by vaccinating pregnant mares.

Horses with clinical signs of Botulism can be treated with an anti-toxin and antibiotics. The anti-toxin is not effective on toxin that is already inside the nerves, so clinical signs may persist until the toxin has acted at the end of the nerves.

### **Anthrax**

*Bacillus anthracis* causes a serious and rapidly fatal infection that enters the blood stream via ingestion or wound contamination. Vaccination is only indicated for horses that live in endemic areas. There is no vaccine licensed for use in horses but, the cattle strain is used and there is evidence that suggests it affords the horse protection.

### **Rotavirus**

Equine rotavirus causes a foal diarrhea that accounts for about 50% of all foal diarrheas. It is transmitted via fecal-oral contamination and damages the small intestine resulting in maldigestion, malabsorption and diarrhea. Vaccination of pregnant mares has shown to decrease the incidence of disease in foals that have nursed from those mares.

## B. DIAGRAMS

### The Head and Neck

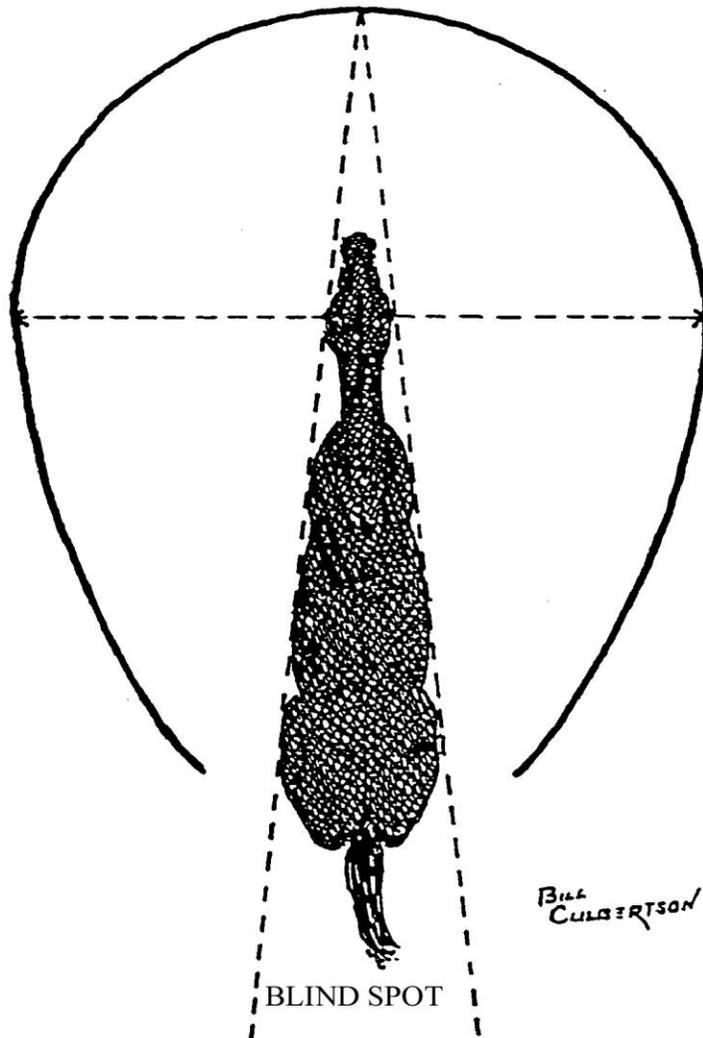
The head and neck serve the same purpose on the horse as on other animal species. So far as behavior is concerned the most important feature of this portion of the horse's physical make-up is the eye.

The eyes of the horse are rather large and are set wide apart on the sides of the head. This gives the horse monocular vision or the ability to see separate objects with each eye at the same time. The horse can also see anything behind it that is not narrower than its body. The horse does not have binocular vision except when interested or excited enough to lift its head and point its ears forward. In such case, the object must be some distance away and not closer than four feet. Likewise, the horse cannot see directly downward and, therefore, can't see what it's eating. Neither can a high-headed horse see the ground in front of it.

The horse, because of its abilities to make a quick getaway, has no need for acute vision, as does man. However, its ability to see objects on either side at once, and to the rear, is a prime feature of its ability to survive.

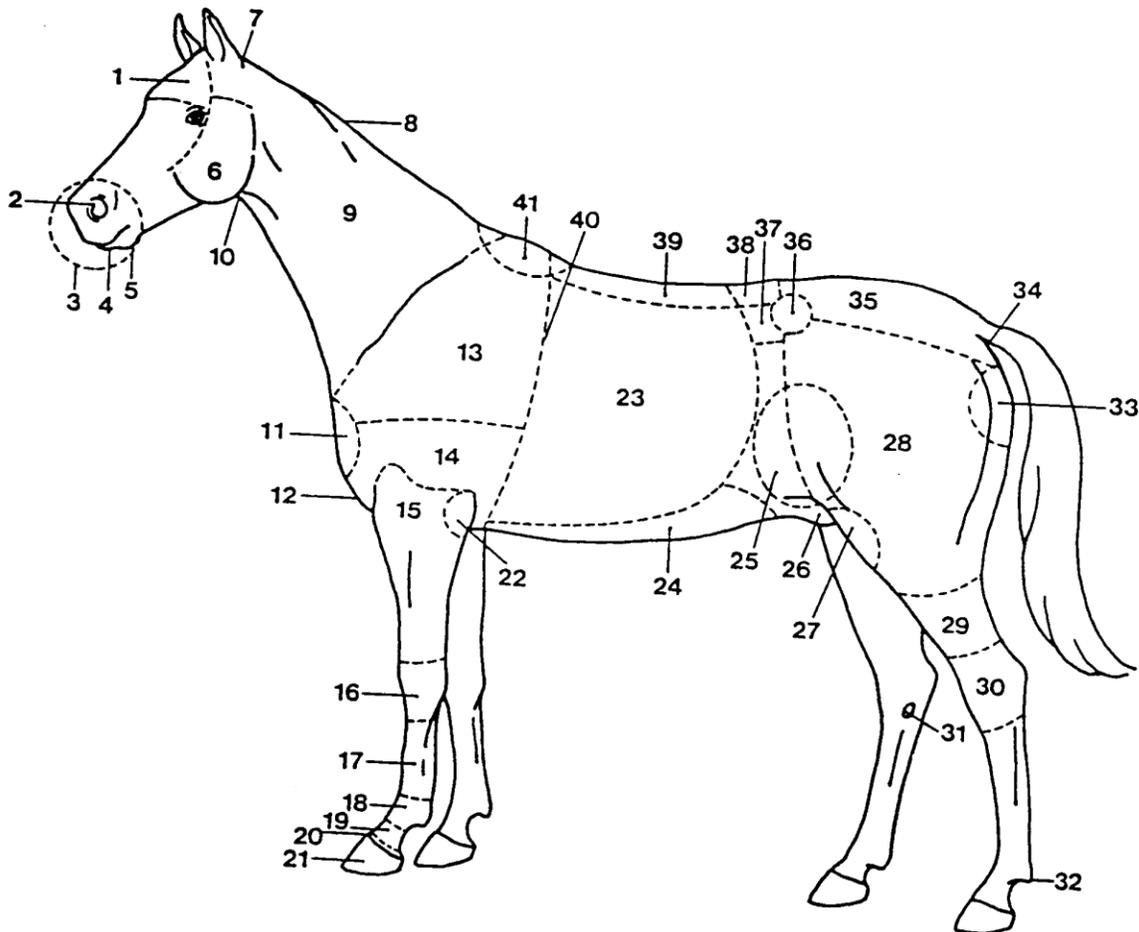
It is believed that horses do not all have perfect eyesight. No doubt poor eyesight may have an effect on the behavior of certain horses. Shying at unfamiliar objects may be the result of faulty vision.

By reason of being ever alert to danger, the horse, through its eyesight, is very sensitive to quick movements. Any training procedure involving quick motions such as roping or polo must, therefore, be started slowly and speeded up only after the horse has become familiar with the motion.



Range Of Vision Of The Horse

## Parts of the horse



### Parts of the horse

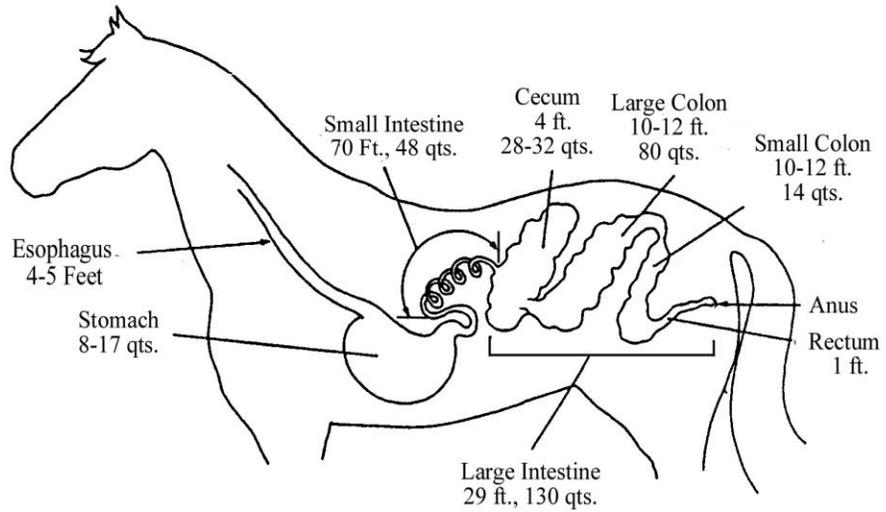
1. Forehead
2. Nostril
3. Muzzle
4. Lower Lip
5. Chin
6. Cheek, Jaw
7. Poll
8. Crest
9. Neck
10. Throatlatch

11. Point of Shoulder
12. Chest
13. Shoulder
14. Upper Arm
15. Forearm
16. Knee
17. Cannon
18. Fetlock Joint
19. Pastern
20. Coronet

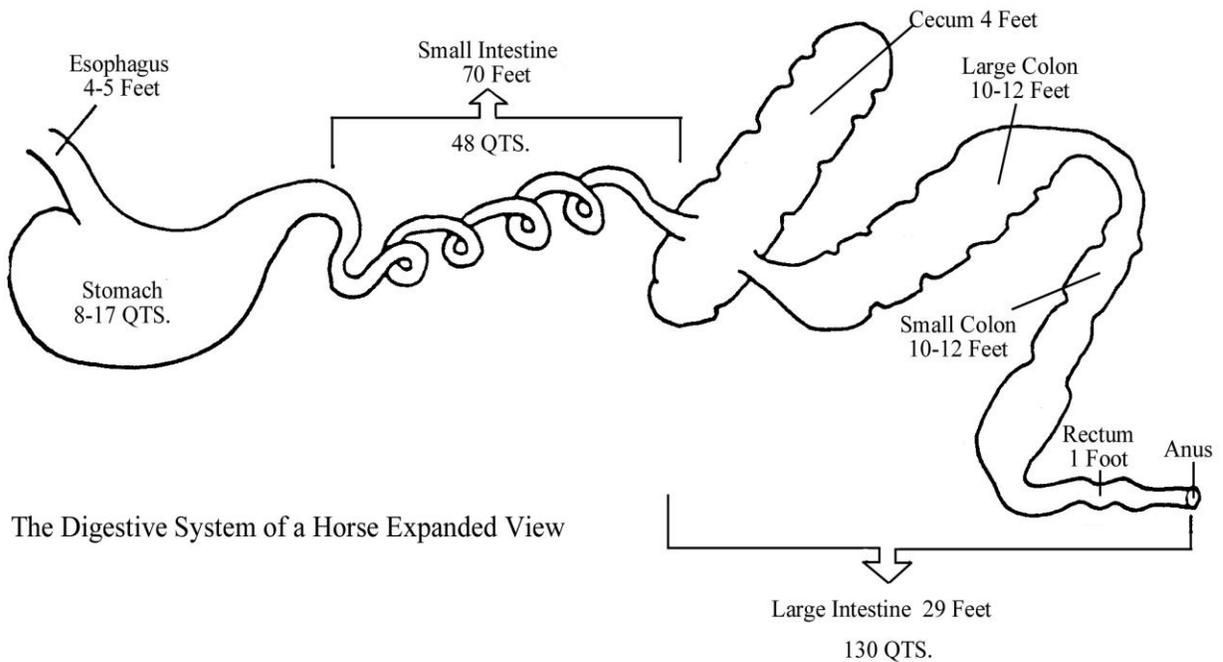
21. Hoof
22. Elbow
23. Barrel
24. Belly
25. Flank
26. Sheath
27. Stifle
28. Haunch
29. Gaskin
30. Hock

31. Chestnut
32. Ergot
33. Point of Buttock
34. Dock
35. Croup or Rump
36. Point of Hip
37. Coupling
38. Loin
39. Back
40. Heart Girth
41. Withers

## Equine Digestive System

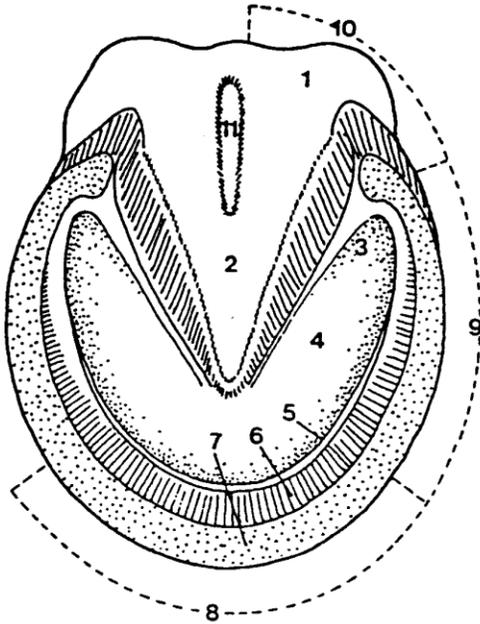


The Digestive System of a Horse



The Digestive System of a Horse Expanded View

## The Equine Foot

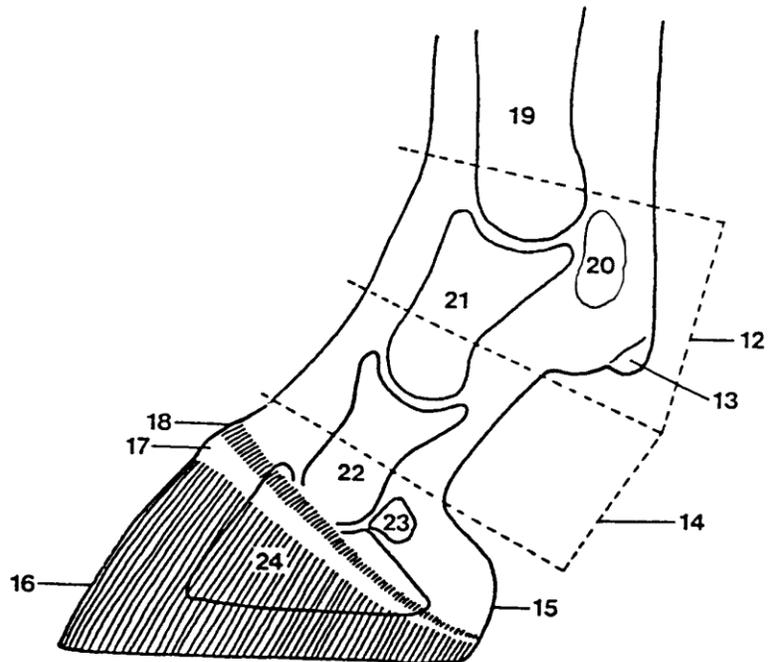


### Parts of the Hoof

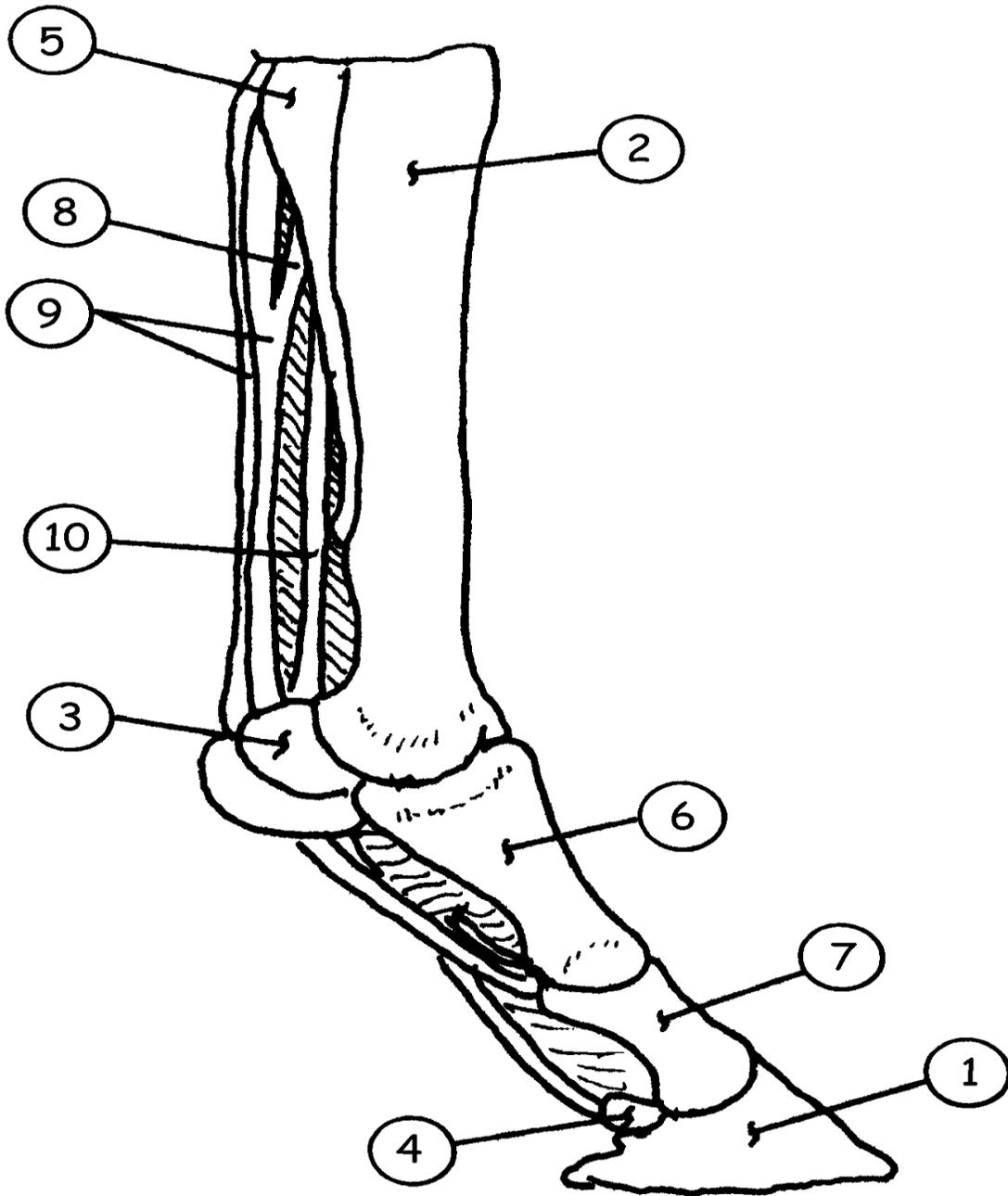
1. Bulb of Heel
2. Frog
3. Bars
4. Sole
5. White Line
6. Laminae of Wall
7. Wall
8. Toe
9. Quarter
10. Heel
11. Cleft

### Parts of the Lower Leg

12. Fetlock
13. Ergot
14. Pastern
15. Heel
16. Wall
17. Periople
18. Coronet
19. Cannon Bone
20. Proximal Sesamoid
21. First Phalanx
22. Second Phalanx
23. Navicular
24. Coffin Bone

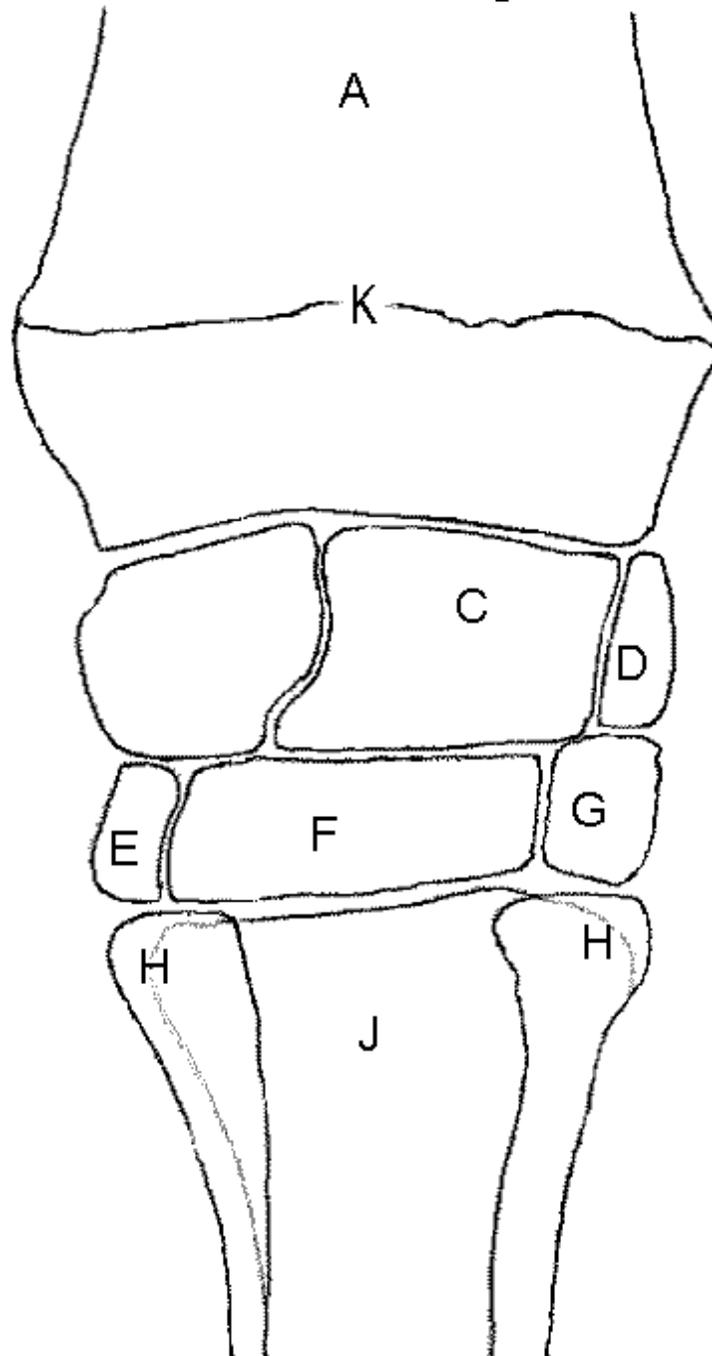


## The Equine Distal Forelimb Structures



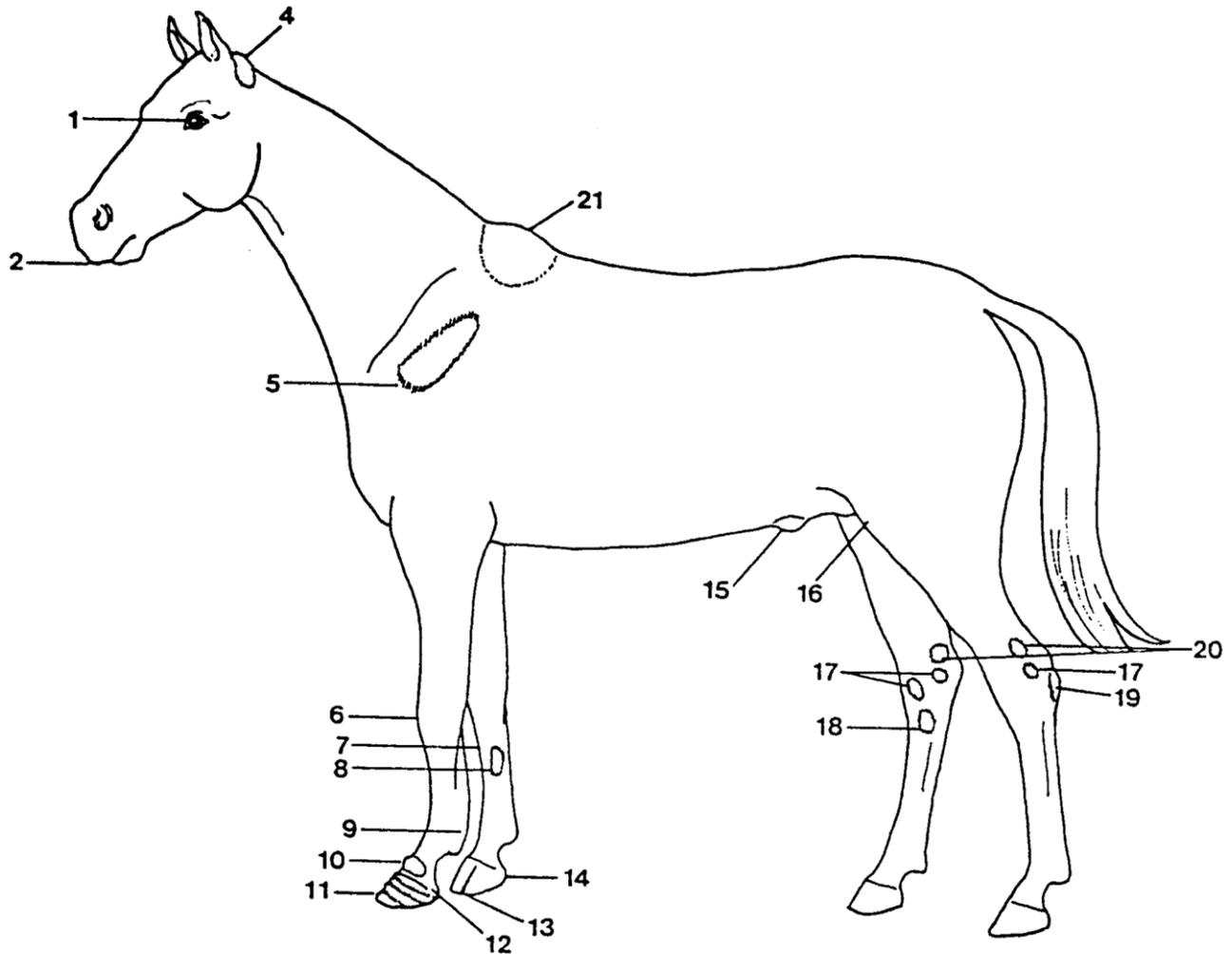
- |                                        |                                        |
|----------------------------------------|----------------------------------------|
| 1. Coffin Bone                         | 6. First Phalanx (Long Pastern Bone)   |
| 2. Cannon Bone                         | 7. Second Phalanx (Short Pastern Bone) |
| 3. Sesamoid Bone                       | 8. Check Ligament                      |
| 4. Distal Sesamoid bone                | 9. Back Tendons (Superficial and Deep) |
| 5. Small Metacarpal Bone (Splint Bone) | 10. Suspensory Ligament                |

## Bones of the Horse Carpus (Knee)



- |                             |                       |
|-----------------------------|-----------------------|
| A. Radius                   | F. Third Carpal Bone  |
| B. Radial Carpal Bone       | G. Fourth Carpal Bone |
| C. Intermediate Carpal Bone | H. Splint Bones       |
| D. Ulnar Carpal Bone        | J. Cannon Bone        |

# Unsoundness in the Horse



## Unsoundness in the Horse

- |                              |                     |                        |
|------------------------------|---------------------|------------------------|
| 1. Blindness                 | 8. Splint           | 15. Hernia             |
| 2. Parrot Mouth              | 9. Bowed Tendon     | 16. Stifle             |
| 3. Undershot Jaw (not shown) | 10. Ring Bone       | 17. Bog Spavin         |
| 4. Poll Evil                 | 11. Founder         | 18. Bone Spavin        |
| 5. Sweeney                   | 12. Sidebone        | 19. Curb               |
| 6. Bucked Knee               | 13. Quarter Crack   | 20. Thoroughpin        |
| 7. Calf Knee                 | 14. Contracted Heel | 21. Fistula of Withers |

## **SECTION 3 – EQUIPMENT**

### **Halters and Leads**

Halters and Leads are available in several materials and at various prices.

Rope halters are inexpensive and come in many sizes. They are difficult to keep clean, may rot and mildew and sometimes shrink when wet. If they shrink, they may cause pain or choking. A similar type is made of nylon rope, which is easily cleaned and not affected by dampness. The size adjustment may slip, so check the fit periodically

Nylon web halters are made like leather halters but are cheaper, last longer and are easy to clean. Matching leads come with (or without) a short length of chain. A flat nylon lead, even when tied with a quick release knot, may be very difficult to untie and the edges may cut bare hands.

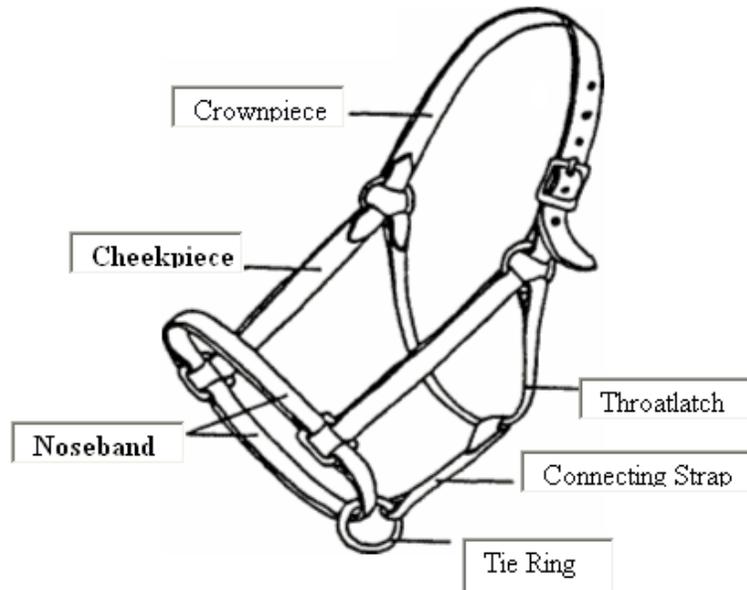
Leather halters have many adjustments for proper fit. They require more care and must be inspected and cleaned regularly.

Halters are constructed in many sizes according to age, type or weight of the horse. The noseband of the halter should be about two inches below the bony point of the cheek. If it is too high it may rub against the cheek and irritate it. If the noseband is too low it may restrict breathing or the halter may slip off. The noseband should not be so loose that it fails to give good control. Never leave a halter on a loose horse as it may catch on something. If the horse catches a foot in a halter it could die in a short period of time.

Halter ropes should be at least ½ inch in diameter and 6 to 10 feet long with a heavy-duty snap. Nylon ropes are stronger than cotton or manila. A lunge line allows the horse to be exercised or trained in a circle without a rider while the handler stands in the center. The rope or nylon line should be about 40 feet long.

### **Measuring Height**

Mark a 6-foot stick in inches, with every 4 inches being a "hand." Stand the horse square on level ground with the head lowered. Hold the stick vertically beside the horse's shoulder. Place another short stick horizontally across the withers to the vertical stick. Read the mark under the horizontal stick. If it is 62 inches the horse is 15-2 hands (15 hands and 2 inches).



## **Shoes**

The old adage still holds true, “No foot, No horse.” Feet are a very important component of the horse’s anatomy and the ability of the horse to remain sound. Balanced shoeing for the particular horse and his conformation are essential for the sound performance horse.

There are various thoughts on the types of shoes that best suit the horse for the different footings on tracks and training areas.

Bar Shoes are used for heel support for horses with heel problems such as navicular disease. Because of their increased surface area, they can be slippery and decrease traction.

Toe Grabs are used for added traction on running surfaces. They can cause an imbalance to the foot which results in tendon and ligament problems.

Chalks area used for added traction and can cause excessive pressure on the wall resulting in cracks and bruises.

### **Types of Shoes:**

- “Front”: a standard plate fashioned with a toe and used on a fast or dry track. Also called a “plain.”
- “Outer rim front”: a variety of the front shoe. It has a grab around the outer rim to keep a horse standing level and to reduce the hoof shock. It can be used on either the turf or the dirt.
- “Jar caulk”: a shoe used on the front hooves for muddy and sloppy tracks.
- “Mud caulk”: a plate with a toe and a sharp sticker on the heel which gives the horse a better grip or tread on a muddy track.
- “Blocked heel”: a shoe constructed with a raised block behind and used to prevent horses from running down on their heels and to prevent slipping.
- “Inner rim front” and “inner rim block heel”: used to keep a horse standing level at all times. These are excellent plates on the grass.
- “Block heel sticker”: a plate that prevents a horse from running down and at the same time incorporates the features of the “mud caulk.”
- “Bar”: a shoe with a bar across the heel with or without stickers and used primarily for protection against quarter cracks.

## **SECTION 4 – DEFINITIONS**

- Anemia:** A blood condition where the number of red blood cells or the amount of hemoglobin or both are below the normal limits.
- Arthritis:** Inflammation of a joint.
- Azoturia:** A serious disease of horses manifested by: degeneration of muscles, particularly the large muscles of the hindquarters, a dark brown colored urine (myoglobinuria), lameness, severe pain and frequently death. It has been called Monday Morning disease because it often occurs in horses that have been rested for a day or so, such as after a weekend.
- Bleeder:** Any horse known to have bled from its respiratory track during a workout or race, and so designated by the commission veterinarian, or any horse that has internal bleeding that is observed by the commission veterinarian through scoping within one hour post race or within one hour post exercise.
- Blister:** A chemical ointment or liquid which, when applied to a limb, causes an acute inflammation. It is used to treat chronic conditions such as osselet, ring bone, bowed tendon, etc.
- Blood spavin:** Swelling of the large vein that passes over the bog spavin.
- Blood worms:** Blood worms are recognized to be one of the most dangerous of all internal parasites that are found in a horse. The adults live in the large intestine and the larvae migrate in the arteries causing a thickening of the blood vessels and sometimes a local stoppage of blood flow.
- Bog spavin:** A chronic distention of the joint capsule of the hock that causes a swelling of the front-inside aspect of the hock joint.
- Bone spavin:** A bony enlargement on the lower portion of the inside of the hock joint. It usually is associated with lameness in the affected leg.
- Bots:** Internal parasites that, in the larval form, live in the stomach of the horse and can interfere with digestion. The small yellow eggs are laid on the legs and face of the horse during autumn. Adults look like bees and are seen during the fall, darting at the horse and laying their eggs.
- Bowed tendon:** A traumatic injury to the flexor tendons behind the cannon bone as a result of severe strain in which there is tearing and stretching of tendon fibers. This gives a bowed appearance to the tendons externally.

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- Brittle feet:** Feet that have lost too much moisture and have become dried out and contracted. Certain horses have a predisposition to this condition, while other horses acquire it as a result of dry weather and poor grooming. Dry feet are prone to quarter cracks, bruises and the like.
- Broken wind:** An all-inclusive term used to describe any abnormality that causes difficult breathing. It is often used to describe a horse with heaves (emphysema) or a roarer.
- Bucked shin:** A painful swelling on the front surface of the cannon bone caused by injury to the membrane (periosteum) that attaches to the cannon bone.
- Calf kneed:** A conformation fault of the forelegs where the knee is seen to bend backwards when viewed from the side.
- Canker:** A chronic, moist deterioration of the frog of the hoof. Most frequently seen in horses that stand in bedding soaked with urine and feces or mud, and whose feet do not receive regular attention.
- Capped hock:** A swelling found at the point of the hock and caused by a bruise. It usually stems from kicking in horse vans or in stalls.
- Cocked angle:** Usually in hind feet, horse stands bent forward due to contracted tendons.
- Colic:** A term used to describe any abdominal pain in the horse. Most often such pain is associated with digestive upsets.
- Contracted feet:** Abnormal contractions of the heel.
- Corn:** A bruise under the sole of the hoof. It usually comes from stepping on a stone or some other hard object.
- Counter-irritant:** Blister.
- Cow hocks:** A conformation fault where the hocks are very close together while the rest of the rear legs are widely separated and toed out.
- Cracked heels,  
(greased heels/scratches):** A weeping, moist dermatitis found on the back of the pastern just above the quarters.
- Cribbing  
(stump sucking):** An incurable vice or habit largely learned by imitation. The cribber closes its teeth on any convenient surface (manger, gate, part of the stall partition, etc.) extends its neck and swallows a deep draft of air with a grunting sound.

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|                             |                                                                                                                                                                                                                                                                  |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Crowding:</b>            | When a horse consciously crowds the handler against the wall. This can be cured by bracing a pointed stick against the partition and letting the animal put its weight against it.                                                                               |
| <b>Cryptorchid:</b>         | A male horse in which one or both testicles are retained in the abdomen.                                                                                                                                                                                         |
| <b>Curb:</b>                | Hard swelling on the back surface or rear cannon about four inches below the point of hock.                                                                                                                                                                      |
| <b>Dehydration:</b>         | The excessive loss of body fluids such as would occur in severe diarrhea.                                                                                                                                                                                        |
| <b>Dropped hip:</b>         | The condition where the point of the hip is knocked down. It is due to either a fracture of the point of the hip or to the muscles being torn off the cartilaginous attachments in the area.                                                                     |
| <b>Epipisyitis:</b>         | An abnormal enlargement of the epiphysis (the horizontal growth line at the end of long bones) in young horses. It is often called "big knees" because of an enlargement over the knees.                                                                         |
| <b>Firing:</b>              | An old method of treating chronic pathologies found in the legs. It consists of inserting red hot points through the skin (pin firing) over the area involved. Line firing consists of burning in a bar inflammation which is said to hasten healing.            |
| <b>Fistula of withers:</b>  | Inflamed swelling of the withers.                                                                                                                                                                                                                                |
| <b>Founder (laminitis):</b> | Inflammation of the laminae or the inner part of the foot.                                                                                                                                                                                                       |
| <b>Gimpy:</b>               | A term describing a horse that is slightly lame.                                                                                                                                                                                                                 |
| <b>Grunting:</b>            | The noise most "roarers" make when they tense their abdomens. It is heard when they jump fences, roll in their stalls and make any quick moves.                                                                                                                  |
| <b>Heat exhaustion:</b>     | A condition caused by overexertion in hot, humid weather. The animal so affected stoops sweating, becomes listless, runs a high fever and is a very sick horse. Salt and electrolytes in a horse's ration will usually prevent this condition during hot months. |
| <b>Heaves (emphysema):</b>  | A lung disease in which air is trapped in the lungs and cannot be sufficiently expelled. It is manifested by coughing and shortness of breath.                                                                                                                   |
| <b>High flanker:</b>        | A condition where one or both testicles are found in the inguinal canal rather than in the scrotum.                                                                                                                                                              |
| <b>Hip down:</b>            | Fracture or prominence of hip falling away.                                                                                                                                                                                                                      |

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|                                                  |                                                                                                                                                                                                                                     |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Joint mice:</b>                               | Small pieces of bone or cartilage floating free in a joint.                                                                                                                                                                         |
| <b>Knee spavin:</b>                              | A bony growth at the back of a horse's knee on the inner side.                                                                                                                                                                      |
| <b>Knees sprung<br/>(sprung at the knees):</b>   | A conformation fault where the knees are bent forward when viewed from the side and are unsteady.                                                                                                                                   |
| <b>Lampas:</b>                                   | A swelling of the hard palate just behind the upper incisor teeth.                                                                                                                                                                  |
| <b>Monorchid:</b>                                | A term describing a male with but one testicle in his scrotum.                                                                                                                                                                      |
| <b>Moon blindness<br/>(periodic ophthalmia):</b> | This is a disease of the eyes where recurrent attacks usually cause blindness. The condition is not contagious.                                                                                                                     |
| <b>Navicular disease:</b>                        | A frequently painful, progressive inflammation and degeneration of the navicular bone of the foot.                                                                                                                                  |
| <b>Neurectomy:</b>                               | An operation in which the sensory nerve is severed with the idea of permanently eliminating pain that arises from that area.                                                                                                        |
| <b>Digital neurectomy<br/>(heel-nerved):</b>     | An operation performed on the digital nerve between the fetlock and the foot. Horses that have had their nerves removed can run at most race tracks.                                                                                |
| <b>Volar neurectomy<br/>(high-nerved):</b>       | An operation performed on the volar nerve that lies between the bottom of the knee and the fetlock joint. Horses that have been high-nerved are barred from most race tracks.                                                       |
| <b>Nerve:</b>                                    | To remove a nerve, usually in a horse's leg, to deaden pain. Nerving horses is forbidden in some jurisdictions.                                                                                                                     |
| <b>Osselets:</b>                                 | A swelling of the front part of the fetlock joint. The swelling may be due to an arthritis of the fetlock joint or to a bony growth.                                                                                                |
| <b>Over reaching:</b>                            | When the rear toe strikes the quarter of the front foot on the same side as the horse is in motion. Another name for "grabbing his quarters," this usually happens when a horse stumbles upon breaking away from the starting gate. |

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- Pawing:** Most yearlings are inclined to paw the stable floor when first confined and may continue when not exercised for long periods. The habit is destructive to a horse's bedding and may result in serious trouble with the feet. In some cases, it may be a symptom of pain and warrants a thorough examination. The vice is most easily discouraged by a hard packing of dirt in the stall. Loose dirt is an open invitation to the habit.
- Pin worms:** Small thread-like worms that live in the rectum of the horse. They cause the horse to rub its tail and stamp its hind legs.
- Poll evil:** A swollen infection found on the top of the head between the ears. It is usually caused by a bruise.
- Popped knee:** A knee with a distended joint capsule that protrudes between the row of carpal bones. The swelling is soft and contains an excess of synovial (joint) fluid and is caused by inflammation within the joint.
- Proud flesh:** An overgrowth of granulation tissue in a wound that protrudes above the skin as a tumor-like mass.
- Quarter crack:** This is a crack found in the wall of the hoof in the area of the quarter. It often runs from the bottom of the wall up to the coronet.
- Quittor:** An infection involving the cartilage of the coffin bone that drains through cracks at the level of the coronary band.
- Radial paralysis:** An injury to the radial nerve causing the horse to have a partially paralyzed foreleg. When this occurs, the horse has great difficulty bringing the affected leg forward.
- Ridgling (rig):** A lay term used to describe either a monorchid or cryptorchid. Monorchid: a male horse of any age that has only one testicle in his scrotum. Cryptorchid: a male horse of any age that has no testes in his scrotum but was never gelded.
- Ring bone:** A bony enlargement seen in front and on both sides of the pastern. If it is under the top of the hoof, it is called a low ring bone. If it is found halfway up the pastern, it is called a high ring bone.
- Roarer:** A horse with paralyzed vocal cords. The condition causes a fluttering noise when the horse inhales and a grunt when the horse makes a quick move. It interferes with the horse's ability to race, especially in distance races.
- Round worms (ascarids):** Long, white, round worms that live in the intestines of the horse.

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- Rupture (hernia):** Protrusion of abdominal organs, mainly the intestines through an abnormal opening in the body wall.
- Sand crack:** Cracks in the hoof wall. These cracks are identified as toe, quarter or heel cracks depending on their location in the hoof wall.
- Scalping:** The toe of the front hoof hits the pastern of the rear foot on the same side when the horse is in motion.
- Sesamoiditis:** The sesamoids are two pyramid-shaped bones found at the rear of the fetlock joint and act as a pulley for the flexor tendons. When they become arthritic and coated with mineral deposits, the condition is known as sesamoiditis.
- Shoe boil:** A large, soft, tender swelling at the point of the elbow usually caused by bruising from the hoof when the horse is lying down.
- Side bone:** An ossification of the lateral cartilage located just above the quarters of the hoof. It is generally considered a disease of old horses.
- Sinusitis:** An infection of one or more sinuses of the head.
- Splints:** An enlargement over the splint bone about three inches below the knee.
- Stall walking:** A nervous habit of older horses in which there is constant walking round and round in the stall.
- Stifle out:** A condition where the patella locks causing the leg to remain in the extended position.
- Strangles:** Disease primarily of young horses caused by a streptococcus organism and manifested by a fever and upper respiratory tract infection. Later it causes abscesses in many areas of the body but chiefly under the jaw and around the throat.
- String halt:** A condition found in one or both hind legs where the leg is snapped upward prior to moving forward when the horse is walked or jogged.
- Suspensory ligament strain:** The suspensory ligament is a broad ligament that lies behind the cannon bone and splits into two branches a few inches above the fetlock joint. It attaches to the outside of the sesamoids and ends in front of the pastern as a part of the extensor tendon. It supports the fetlock joint. When strained, the suspensory ligament becomes thickened and inflamed.
- Sway back:** Faulty conformation.

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|                     |                                                                                                                                                                                                                                                                                     |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Sweeny:</b>      | Atrophy (wasting away) of the shoulder muscles due to paralysis of the nerve supply.                                                                                                                                                                                                |
| <b>Thoroughpin:</b> | Puffy swelling which appears on the upper part of the hock and in front of the large tendon.                                                                                                                                                                                        |
| <b>Thrush:</b>      | A degenerative condition of the frog.                                                                                                                                                                                                                                               |
| <b>Tying up:</b>    | Severe muscles spasms, analogous to a charlie-horse in man, that chiefly affect the large muscles of the hind legs following a period of vigorous exercise.                                                                                                                         |
| <b>Vices:</b>       | Undesirable habits acquired by a horse, such as wind sucking or stall walking.                                                                                                                                                                                                      |
| <b>Weaving:</b>     | A more tense form of stall walking, weaving in a constant back and forth movement, from side to side, of head, neck and body, with the forelegs always lifted and put down in the same place. Like stall walkers, weavers are extremely nervous horses who are usually bad feeders. |
| <b>Whistling:</b>   | This describes a wheezing sound made by the horse as it runs when it is suffering from an inflammation of the respiratory tract.                                                                                                                                                    |
| <b>Wind puff:</b>   | A puffy swelling occurring on either side of the tendons above the fetlock or knee.                                                                                                                                                                                                 |
| <b>Windsucker:</b>  | A horse who places its upper incisor teeth on a ledge, presses down and swallows air at the same time.                                                                                                                                                                              |
| <b>Wobbler:</b>     | A disease of young horses caused by damage to the spinal cord in the neck and characterized by an unsteady or wobbling gait.                                                                                                                                                        |