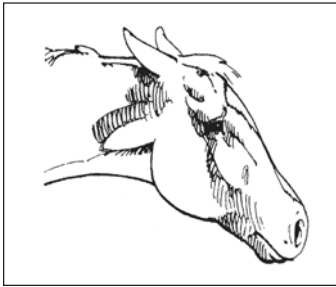


Health

You feed and care for your horse because you want it to maintain a physical condition so that it feels good and will work for you. This seems simple, but there are many factors which play into the well being of your horse.

An important part of health in the horse is to learn what is considered normal. After you learn to recognize normal, it will be easy for you to spot an abnormal health condition. Knowledge of the signs of good health as well as ill health in the physical appearance of the horse, attitude and body functions is important.

Physical Appearance



It is possible to look at a horse to determine its health. The old saying “*bright eyed and bushy tailed*” can easily be applied to the horse.

The **hair and skin** condition can tell us many things. A horse with parasites may have a rough, dull coat. Poor nutrition will also dull the hair and a fever will cause the hair to stand up. A horse in good condition will have a shiny, soft coat of hair. The summer hair coat will lie smoothly.

Skin health will affect the **hair** coat, since the oil that gives the hair its shine comes from oil glands on the skin. The skin should have a slightly shiny appearance with a minimum of dry flaking skin. Dandruff and skin irritations will damage hair in that area of the body.

The skin should also have an **elastic** quality. If you pinch a fold of skin along the neck and release it, it should spring back into place almost immediately. Poor body condition or dehydration can leave a wrinkle that is slow to disappear.

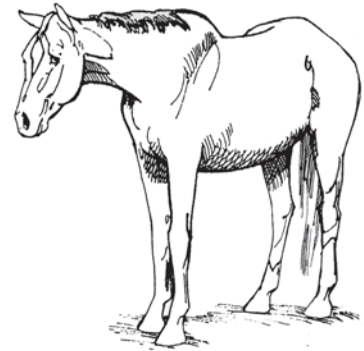
The **ears** should be forward and the **eyes** should have a brightness to them. The membranes surrounding the coloured portion of the eye should have a healthy soft pinkish colour and appear moist. If there is a lack of moisture these membranes become bright pink and inflamed. Poor blood circulation to the membranes (such as during shock) will cause them to appear almost white. During an illness the eyes may appear to sink back into the skull, usually due to dehydration.

Behaviour

The behaviour of the horse tells us how the horse feels. Behaviour will change before other signs of illness are visible for diagnosis. In general, the horse should show an interest in any new activity it sees or hears. The horse should be alert but relaxed under normal conditions. This will vary from horse to horse depending on its disposition.

When an animal is feeling ill, it will change its behaviour. Some deviations from normal behaviour/appearance that may be observed include:

1. Droopy acting and lethargic appearance (head down)
2. Off feed and water. Healthy horses are always interested in feed. A lack of interest is often one of the first visible signs of serious illness.
3. Dull eyes, watery eyes.
4. Coughing
5. Nasal discharges
6. Loss of weight
7. Change in breathing
8. Flared and, or inflamed nostrils.
9. Limping or posturing (standing in an unusual way)
10. Diarrhea or does not pass manure for more than twelve hours.
11. If your horse seems in pain, gets up and down repeatedly, rolls often, kicks at his belly or bites at his side, he may have colic.



The horse is a social animal with a herd instinct. Poor health can change this. It is common for a sick animal to leave the group completely or maintain a distance from the herd. In some cases, the horse will be unable to keep up to the herd and becomes separated. This is different from chronic problems such as lameness or poor eyesight. With these types of problems, horses will often pair off for company.

4 - H Horse Project Manual - Health

The Vital Signs

Normal Vital Signs

Temperature Range:

37.5° - 38.3°C
(99° - 101.5°F)

Pulse:

30-40/minute

Respiration:

8-16/minute

The heart rate, respiration rate and temperature of the horse are taken when a problem is suspected. It is a good idea to take your horse's vital signs when it is healthy and resting and write them down. Use these vital signs as references. Capillary refill time and the skin-pinch test are other helpful vital signs. A 4-H member can do any of these easily.

Respiration

To measure respiration, place your hand on the flank of the horse to feel the movement as the horse inhales and exhales, count one for each inhale and exhale, not two. You can also do the count by watching the flank. In winter, you can count the number of times the horse exhales by watching the warm puffs of air coming from the nostrils. Remember the respiration rate will also be higher after exercise, in warm weather and when the ventilation is poor. Under these conditions the breathing will also be deeper. A rate of 8-16 breaths per minute is normal.

PULSE

Newborn foal:
up to 120

Two week old foal:
up to 100

Four week old foal:
up to 70

Yearling:
45 to 60

Two year old adult:
40 to 50

Adult:
30 to 40

Pulse

The heart rate (pulse) is measured using a watch that gives seconds and, or minutes. Time for 15 seconds then multiply by 4.

The heart rate tells you how fast the heart of the horse is beating. A one-minute timing is used. The pulse rate is affected by air temperature, exercise, excitement and age. The heart rate is faster for a young horse.

The heart rate may be taken in several places. By experimenting on your horse, decide which is the easiest for you. To take the pulse you need to find an artery near the skin surface. Most arteries are located well inside the body to reduce injury but three arteries can be used. They may be found:

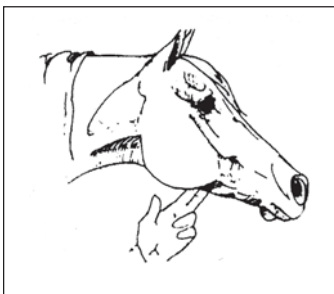
At the margin of the jaw where it comes from the underside.

At the inside of the elbow joint.

Under the tail.

How To Take A Horse's Pulse

Hold your index and middle finger over the artery (if you use your thumb, you risk getting your own reading confused with the horse's). Once you have located the artery, be sure you can feel the pulse clearly and count the beats per minute, or if the horse is not still, you can count for 15 seconds and multiply by 4.



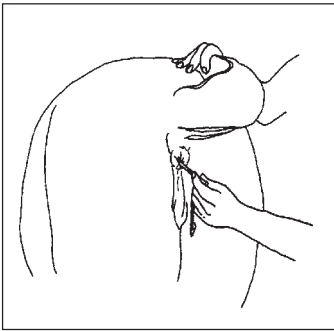
4 - H Horse Project Manual - Health

The Vital Signs

(continued)

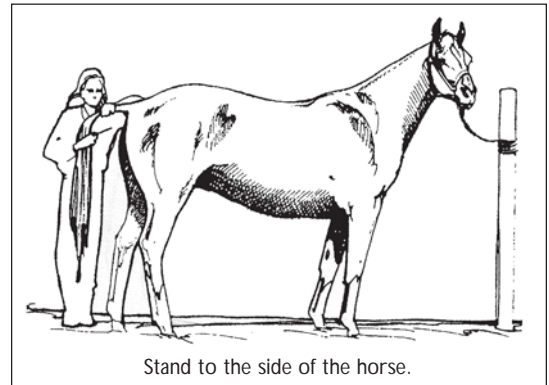
The average pulse rate of an adult horse at rest is about 30 to 40 beats per minute. The age of your horse will affect the pulse rate in beats per minute.

Body temperature is affected by air, age, temperature, digestion and exercise.



Temperature

The temperature is taken using a lubricated (veterinary) rectal thermometer. A digital thermometer is safer and easier to use. To prevent the loss of thermometer into the anus, tie a string to the top end of it and hold it. To insert the thermometer, stand to the side of the horse. Lift the tail with one hand and slowly slide the thermometer into the anus with your other hand once the horse has relaxed. Try to slide the thermometer gently on the top or bottom of the rectal opening, as opposed to down the center of the tract, which may contain feces, which can cause an inaccurate reading. Inserting the thermometer is easier if a lubricant has been spread on it. After a minimum of three minutes the

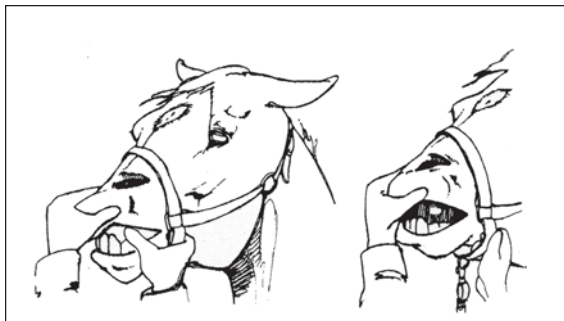


TEMPERATURE	CONDITION
A fever of 39°C (102°F)	mild
39.5°C - 40°C (103°F - 104°F)	moderate
40°C - 41.5°C (104°F - 106.5°F)	high
above 41.5°C (106.5°F)	life threatening

temperature may be read. The average rectal temperature is 38° C (100.5°F), but 37.5° to 38.3° C (99.0° - 101.5° F) is considered normal. An abnormally high temperature reading may be false and should be checked again in ten minutes. Make sure the mercury is shaken down before reusing the thermometer.

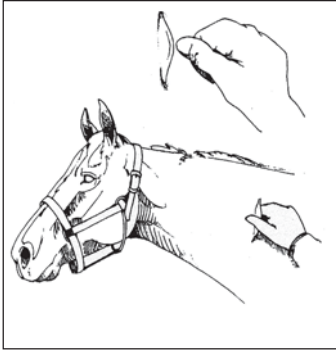


Capillary Refill Time



The capillary refill time is a way of checking if the circulatory system is functioning correctly. Therefore, it is a helpful measure for detecting colic. This is measured by lifting the horse's upper lip and pressing down with your thumb on the gum directly above its front teeth. When you remove your thumb, a white spot will appear. Count two seconds and the white spot should disappear and the depressed spot should look normal. If the spot takes longer than two seconds to return to normal, the circulatory system is slow.

4 - H Horse Project Manual - Health



Skin Pinch Test

This test is done to check for dehydration. Horses require lots of water and dehydration can be fatal. To check for dehydration, pinch the skin on the horse's neck. The pliability and resiliency of the skin is a good indication of the level of hydration. To determine if a horse is dehydrated, perform the pinch test.

To perform a pinch test:






Pick up a fold of skin in the shoulder or neck region and then release it. It should return to its flat position almost instantaneously, within a second or two. If the skin remains peaked for more than two seconds, this is termed a "standing" tent and indicates some degree of loss of body fluid. If the standing tent is 5 to 10 seconds or longer the horse is suffering from moderate to severe dehydration and needs immediate veterinary attention.

Gut Sounds

The abdomen usually produces sounds indicating roughage and fluids are moving in the intestines. If you cannot hear any gut sounds when you press your ear to your horse's abdomen you usually have a problem.

Colour of Mucous Membrane

The colour of the horse's gums, the lining of the eyelids, and the nostrils can provide information about a horse's overall condition and circulatory function.

-  Glistening, pink gums indicate healthy, normal.
-  Very pale or white gums indicate anemia or blood loss.
-  Bright red gums indicate a toxic condition.
-  Gray or blue gums indicate severe shock.
-  Bright yellow gums are linked with liver problems.

Body Functions

Body functions are always affected when a horse becomes ill. It is only after these changes that we are able to diagnose a health problem. Areas affected are the heart, lungs, digestive tract and nervous system.

Digestion

The digestive tract can be affected by any number of problems. Under normal conditions, feces and urine are passed without problems. Neither one should contain blood, mucus or pus. In a horse with a normal digestive system, you should be able to hear the stomach digesting when you place your ear next to its belly. A horse with an internal or digestive problem will often stand with its loin rounded and appear roach-backed.

4 - H Horse Project Manual - Health

The condition of the horse's feces can indicate the health of the horse. Slimy mucous-covered droppings may indicate an irritation in the horse's intestines. Hard droppings may indicate a lack of water, a lack of exercise or too dry or indigestible feed. Very soft or watery droppings may indicate too hard work, too much grazing or a slight irritation of the intestines. Whole grain in the feces may indicate that the teeth may need floating or that the horse eats too rapidly (bolts). The type of feed and water affects the firmness and shape of the feces.

Digestion will also affect the ability of the horse to maintain its body weight when fed a constant volume. Sickness and parasites can cause weight losses or prevent weight gains (when feed is increased) etc.

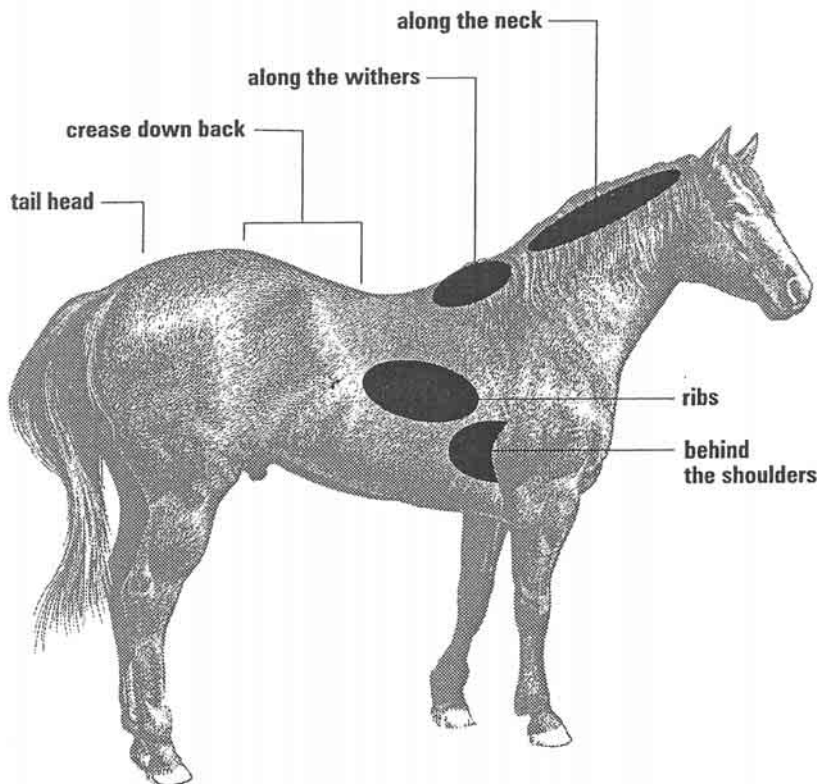
General Condition

It is important to observe animals often to detect changes in their general condition. You use six areas on the horse to determine the condition score of the horse. On the chart following you see the points used. Regulatory bodies use this system North America wide to enforce animal welfare regulation.

Visually observe and/or feel the fat cover on the six body sites. Make adjustments in your feed volume based on the condition score and what you are using your horse for. You should be able to *feel* the ribs, not see

them. The withers will be fairly angular rather than rounded and the neck will not be crested with fat, nor wasting away at the base (ewe-necked).

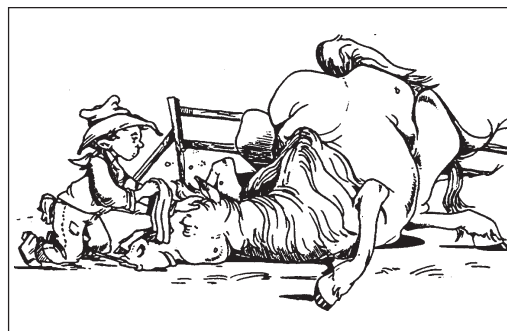
A horse in good condition will have a shiny coat, while a horse in poor condition will have a coarse coat and seem apathetic. When a horse has difficulty shedding out winter hair, this is a sign of poor condition. The healthy winter coat will be thick. On a cold morning the hairs will be standing straight out with the extra-long guard hairs touched with frost.



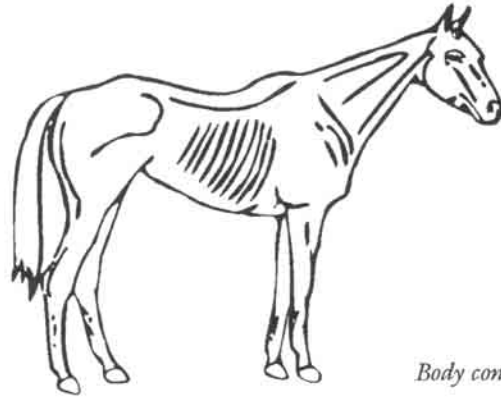
4 - H Horse Project Manual - Health

Working Condition

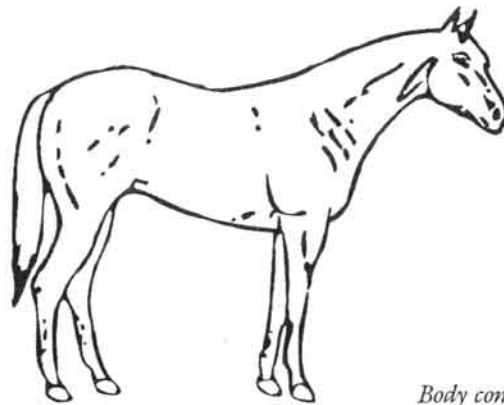
Working condition is part of a horse's general condition. When working your horse, be aware of its breathing. Signs of illness may be extremely laboured breathing or breathing that has a raspy or roaring sound.



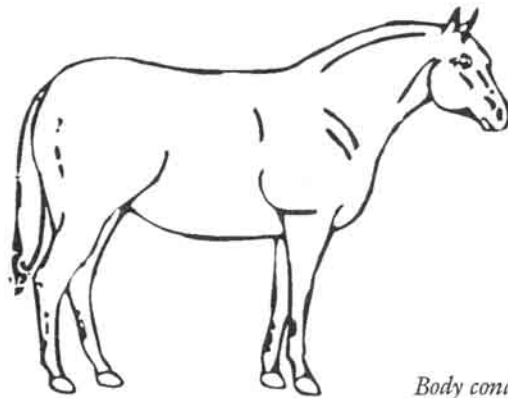
Body Condition Scoring	
Score	Description
1	POOR Horse is extremely emaciated. The backbone, ribs, hipbones and tailhead project prominently. Bone structure of the withers, shoulders and neck easily noticeable. No fatty tissues can be felt. Deep cavity under the tail and each side of the croup.
2	VERY THIN Horse is emaciated. Slight fat covering over vertebrae. Backbone, ribs, tailhead and hipbones are prominent (deep depression under the tail). Withers, shoulders and neck structures are discernable.
3	THIN Fat built up about halfway on vertebrae. Slight fat layer can be felt over ribs, but ribs easily discernable. The tailhead is evident, but individual vertebrae cannot be seen. The hipbones are rounded but visible. Withers and shoulders are emphasized. Neck has thin, flat muscle covering. Depression under the tail.
4	MODERATELY THIN Negative crease along back. Faint outline of ribs can be seen. Fat can be felt along tailhead. Hip bones cannot be seen. Withers, neck and shoulders not obviously thin. The rump is flat on either side of the backbone.
5	MODERATE Back is level. Ribs can be felt but not easily seen. Fat around tailhead beginning to feel spongy. Withers are rounded and shoulders and neck blend smoothly into the body. Croup is well-defined. There is a slight cavity under the tail.
6	MODERATELY FLESHY May have a slight crease down the back. Fat on the tailhead feels soft. A thin layer of even fat over the ribs feels spongy. Fat beginning to be deposited along the sides of the withers, behind the shoulders and along the neck.
7	FLESHY A crease is seen down the back. Individual ribs can be felt, but noticeable filling between ribs with fat. Fat around tailhead is soft and rounded off. Noticeable fat deposited along the withers, behind the shoulders and along the neck (no crest).
8	FAT Crease down back is prominent (forms a gutter to the base of the tail). Ribs difficult to feel due to fat in between. Fat around tailhead very soft and flabby. Area along withers filled with fat. Area behind shoulders filled in flush with the barrel of the body. Noticeable thickening of neck (slight crest which is wide and firm). Fat deposited along the inner buttocks.
9	EXTREMELY FAT Obvious crease down back. Fat is in patches over rib area, with bulging fat over tailhead, withers, and behind the shoulders. A marked cresty neck which is very wide and firm. Fat along inner buttocks may rub together. Flank is filled in flush with the barrel of the body.



Body condition score 1.



Body condition score 5.



Body condition score 9.



Caring for Your Horse's Teeth

Teeth are the first step in the horse's digestive system. The teeth must grind the feed adequately for the digestive system to digest it.

Horses use their back molars for grinding their feed. Grinding is accomplished by side-to-side movement of the lower jaw against the upper.

4 - H Horse Project Manual - Health

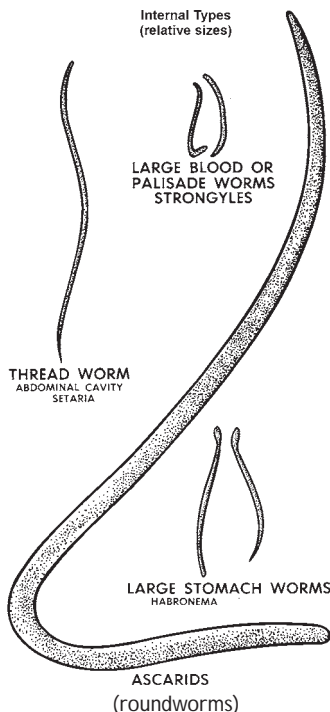
Problems occur when this lateral movement is inadequate or tooth surfaces are uneven. The sharp edges may become unduly long and frequently interfere with the horse's chewing.

Signs that your horse may need some dental work done include:

- U Mounds of partially chewed food are found in the manger.
- U A large number of unbroken oats found in the manure.
- U It will cock its head, spill food from its mouth and obviously have difficulty eating.
- U Not accepting cues from the bit.
- U Tossing the head while bridled

If you notice these signs have your vet examine the teeth. If there is a problem, your vet will recommend having your horse's teeth floated to remove any sharp edges. This filing of the horse's teeth will enable your horse to use the grinding surface more efficiently. Have your horse's teeth examined once a year. A good time to do it is when you are vaccinating or deworming.

Parasites



A parasite is an animal that lives off of another animal (host). The parasite uses the host to provide it with a home and food. It may eat the same food as the host or use fluid from the animal's body (often blood). It is not in the best interest of the parasite to be present in large numbers; this can make the host unhealthy and it may die. If the horse is dying from parasite damage, large numbers of parasites will migrate out of, or off the body of the horse before it dies.

The horse is the host to a variety of parasites. Susceptibility to parasites varies. Young horses from birth to two years old are the most likely to show symptoms. Young horses tend to eat manure and dirt. Older animals usually do not have as much of a problem as young animals unless they are kept in a badly infested area. In older horses more parasites will go through the body, but will not stay.

In order to control parasites we need to be able to recognize parasite infestation. While not all parasites can be seen, they produce changes to the body of the horse. It is important to rid your horse of parasites to prevent irreparable damage to internal organs (lungs, liver, arteries and intestines).

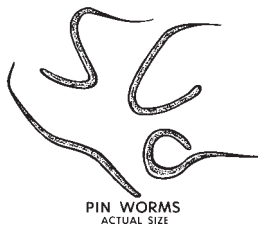
Internal Parasites

Internal parasites (worms) live in the body of the horse. Most of them can be found in the digestive tract, the lungs, the body cavity and in the muscle. The same parasite may be found in several places in the body. This is because they are at different stages in their development (life cycle). There are more than a dozen different kinds of worms. They can produce hundreds of thousands of eggs a day. It is often difficult to recognize when a horse has internal parasites. The changes take place very slowly. Some characteristics are:

- U A rough dull coat
- U The horse sheds out later in the spring than the other horses
- U A thin horse with a potbelly
- U Thin, even though the horse is being fed well and the horse is no longer growing
- U Frequent colic or diarrhea
- U Stunted growth
- U Poor bone and muscle development in young horses
- U Pale membranes of the eyes and mouth
- U Actually finding worms or eggs.



While extremely heavy parasite infestation can cause these visible signs it is the internal damage that you can't see that can kill your horse.



Larvae of the bot fly.

Internal Parasite Prevention and Control

Making the horse a domestic animal has increased the parasite problems. The horse is forced to live in an area of limited size. Since feces are the main source of parasite infection, it is easy to see how the problem increases even in well kept stalls. Pasture rotation, not grazing large numbers of horses in small areas, and not overgrazing the pasture will help control internal parasites. Horses are exposed to new parasites everyday regardless of how clean you keep the stall or pasture. Eggs such as those of the roundworm can remain active in a pasture for up to 10 years.

Most parasites are picked up from the ground but bot flies lay their eggs during summer and late fall on the hair of horses, primarily around the forelegs, shoulders, chest and flanks. When horses lick their hair, the eggs enter their mouths. One way to control the numbers of this parasite in your horse is to scrape the little yellow eggs off the hair of your horse, before it ingests them.

4 - H Horse Project Manual - Health

There are always parasites in the body of the horse, so it is nearly impossible to eliminate them from the environment of the horse. Good deworming practices will help control parasite numbers. Depending on the conditions in which your horse is kept, it may need to be de-wormed every few months. If horses have a lot of space, spring and fall treatments may be enough. In the colder climates, we have an advantage. Freezing temperatures kill most parasites and their eggs during winter. Consult your veterinarian to determine the best deworming schedule for your horse.

If you suspect a large worm problem in a horse, a small dose of dewormer may be given to the horse several days before it is given a full dose. This removes a small number of the worms from the digestive tract. When the horse is then given a full dose of dewormer it is less likely to suffer an impaction. A young horse is more likely to get an impaction from worms because of the smaller diameter of its intestines.

External Parasites

Horses are also the host to a number of external parasites. In many cases “*external parasites*” means that the horse is bothered by insects. Frequent symptoms are irritation, scratching and restlessness, changes in hair and skin conditions. Any time you are out with the horses in the summer, your horse will be bothered as much by the mosquitoes and flies as you are. Unfortunately for your horse there are added problems.

Biting insects spread the diseases Equine Infectious Anemia (Swamp Fever), Equine Encephalomyelitis (Sleeping Sickness) and West Nile Virus. All of these can cause death. These can be detected by blood testing.

Most parasites have many stages in their life cycle. For example the fly is just one stage of its parasite’s cycle. While the flies do not do direct damage, they do bother the horses. Irritation caused by lice can cause hair loss. Mange mites produce a specific contagious disease known as mange (or scabies, scab or itch). These minute parasites live on/in the skin of horses. Horses with lice or mites may have rough coats; poor condition and rub fences etc. due to the irritation. Tick problems are especially prevalent in the foothill and mountain areas. Infestations run in cycles. Use tweezers or needlenose pliers to remove ticks because the ticks have strong mouths that clamp onto the horse.

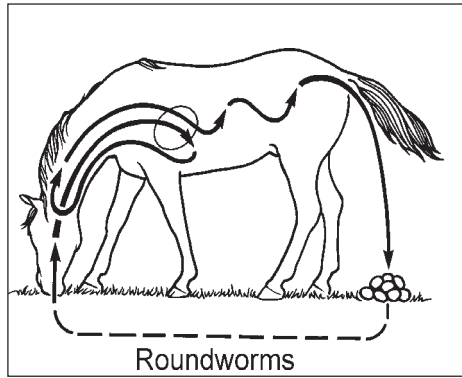
Table 1 - Internal Parasites includes the most common internal parasites (worms) in horses.

Internal Parasites

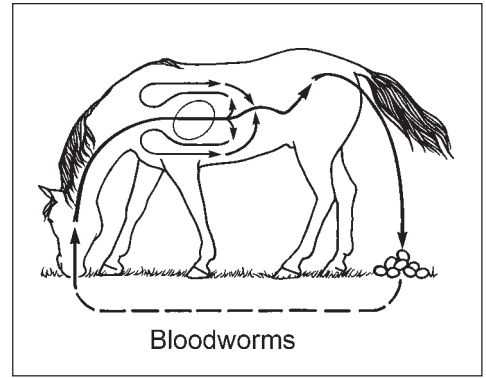
Parasite	Where Found	Size	Number of Eggs	Method of Infection	Location and Lifecycle	Signs
large roundworm (ascarid)	small intestine	5-22 inches	1,000,000 /day	swallowed with feed and water	Eggs - stomach and intestine Larvae - go through gut wall into the bloodstream, through liver, heart and lungs, migrate up the trachea and pharynx and are swallowed	Colic, diarrhea, rough hair coat, pot bellied, retarded growth
bots	hairs of lips, throat, migrate through stomach-lining, rectum	3/4 inch	150-300 eggs	horse rubbing eggs with lips	One year cycle. Larvae enters and grows in mouth. Pass to the stomach and intestines. Pass out with feces. Bots can attach to the rectum for several days.	Yellow eggs are attached to hairs of the horse, generally legs. Colic, digestive upset, excitement, thin, low energy level. Poor coat and loss of condition.
strongyles (large) bloodworms	small intestine, caecum, colon, blood	2 inches	large numbers	swallowed with food and water, on pasture and in pens	Pass through three stages on the ground after hatching. Go through walls of the small intestine, caecum, colon into the arteries and through the circulatory system.	Loss of appetite, diarrhea, rough coat, sunken eyes, colic, anemia. Can cause thrombosis or aneurysms (blockages that may cause death through gangrene or heart failure).
pinworms	rectum, large intestine	very small eggs may be anchored in anus. One species produces live young.		swallowed with food and water	Mature in the colon. Pass out with feces and anchor in the anus.	Tail rubbing, irritation of the anus. Broken hairs and bare patches around tail and buttocks.

Table 1

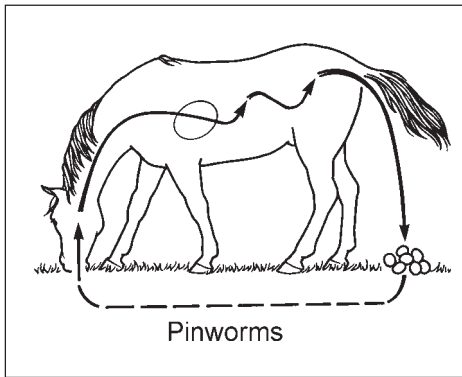
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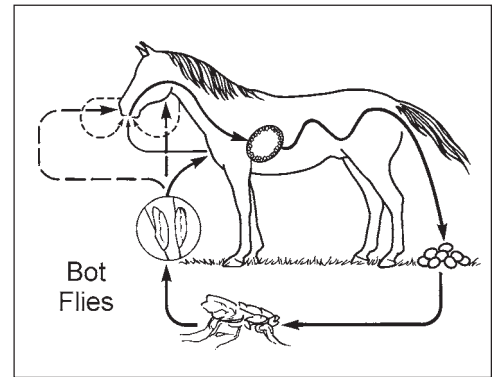
Large Roundworms/Ascarids



Strongyles



Pinworms



Bots

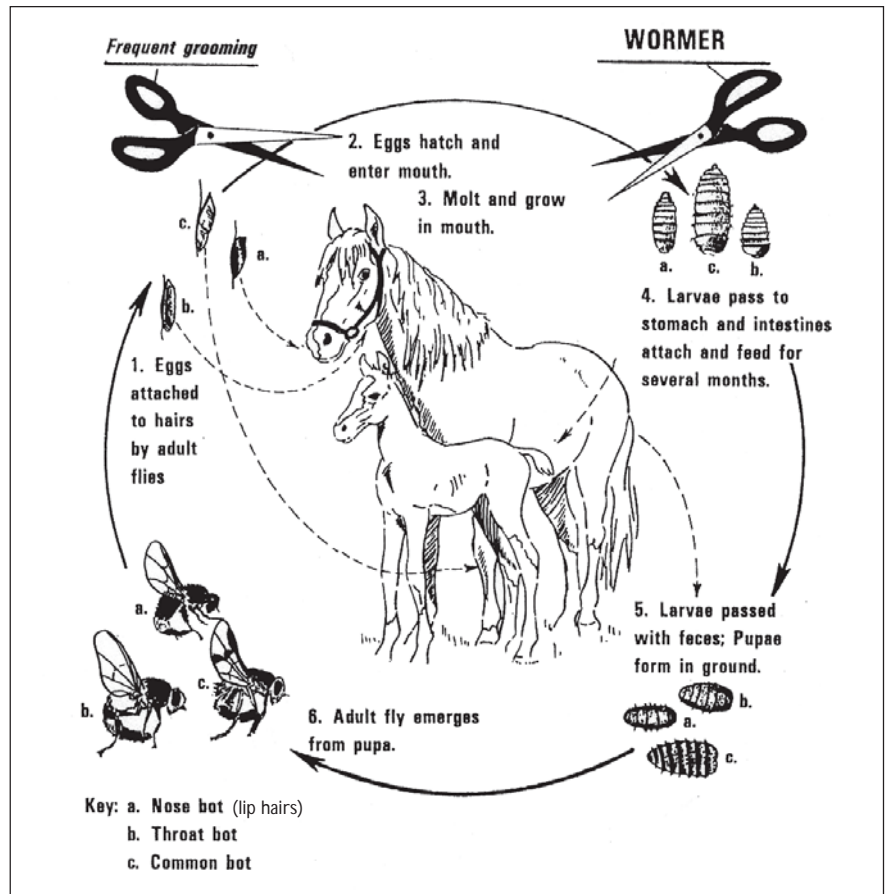


Table 2 - External Parasites lists common external parasites.

External Parasites

Table 2

Parasite	Life Cycle	Symptoms	Location	Treatment
Lice (sucking and biting) (most common external parasite)	1. Eggs attached to hairs, (hatching takes 2 weeks). 2. Lay eggs after 2 weeks and die.	Severe itching. Hair rough and thin, may have scabs. Heavy dandruff. Greasy skin.	base of the tail inside of the thighs fetlock neck and mane shoulders	Consult veterinarian for best treatment.
Mites (4 kinds)	1. Will live 2 or 3 weeks when removed from the body. 2. 15 day cycle to hatching.	Cause a hairless scaly appearance because they feed on cells and lymph. Itching and irritation. Pimple-like eruptions. Dandruff and hair loss.	skin neck withers mane and tail	Consult veterinarian for best treatment.

4 - H Horse Project Manual - Health

Dewormers Dewormers can be given in various forms (paste, gel, powder, granules or liquid). Consult your veterinarian as to what is appropriate for your horse and your location. Deworming is a VERY important part of your horse's health routine.

External Parasites Prevention and Control

External parasites can be controlled with insecticides. There are a number of insecticides that may be used on horses. Most come in spray or liquid forms that can be sprayed or wiped on to the horse's coat. When you are buying an insecticide consider the disposition of your horse. Some horses will not stand to be sprayed from an aerosol or pump type spray container. In this case put the insecticide on a cloth and wipe it onto the horse. Always use a cloth on your horse's face. Never spray near its eyes or nose. Watch skin and hair conditions for reactions to the insecticide. Some horses with sensitive skin cannot tolerate strong sprays. Insect strips or granules can be used to control insects in barns.

Vaccinations

Many horse illnesses are transmitted from horse to horse by shared feed bunks, buckets or watering troughs. Vaccinations for the common diseases are inexpensive and effective and should be administered on a yearly basis.

Vaccines are made from inactive forms of the organism that causes the disease you are trying to prevent. After you vaccinate your horse, his immune system will make antibodies to fight that disease. There are many opinions on how often vaccinations should be given, how long they will remain effective and at what age they should begin.

Remember a horse's immune system takes a minimum of 2 weeks to make the antibodies needed, so try to vaccinate at least 3 to 4 weeks before likely exposure to diseases. The best time for annual vaccinations is in early spring before the insect season starts.

Check with your vet and put your horses on a regular schedule that will work best for you.



REMEMBER:

1. a horse's immune system takes a minimum of 2 weeks to accumulate the antibodies needed.
2. always vaccinate at least 3-4 weeks before likely exposure to a disease.
3. best time for annual vaccinations is in the spring time before insect season starts.

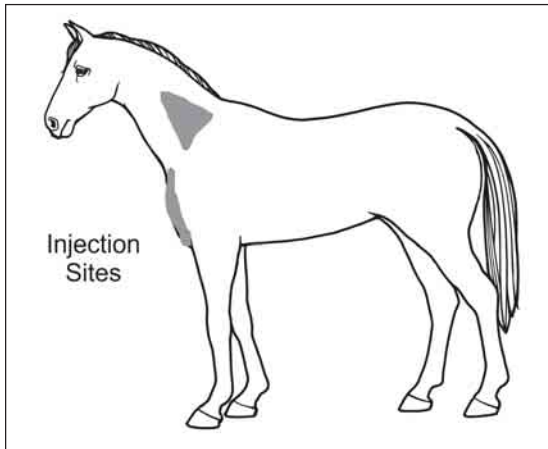
Yearly vaccinations that should be given include:

1. Tetanus
2. Encephalomyelitis (sleeping sickness) Eastern and Western
3. Influenza (last for four (4) months)
4. Rhinopneumonitis
5. West Nile

4 - H Horse Project Manual - Health

Giving Injections

Most vaccinations are given in the muscle (intramuscularly) and are given most commonly in the chest or neck. When giving injections in the neck, be careful not to hit the jugular vein or spine. The ideal location on the neck is in the triangle (as shown in the diagram). Make sure injection site is in a location that will drain if it becomes infected. **After the needle is inserted draw back slightly on the syringe to ensure that you are not in a blood vessel. If blood is seen within the neck of the needle, remove needle and try a new location.**



When using any drug, always follow the directions on the label. Also keep a written record of any vaccines or drugs that are given to your horse

Horse First Aid Kit

All horse owners should keep a basic first aid kit. Most of the items are easy to find at home.

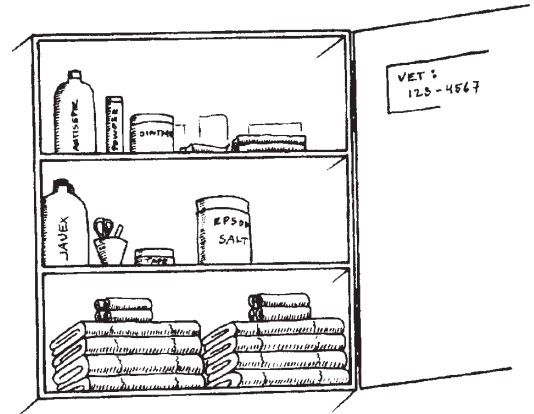
The following is a list of items you may need. Other medications or equipment may be needed under some conditions.

- U Bandages - Various: knit, elastic and self-sticking
- U Cool - Cast Bandages (for swellings - eg. bowed tendons)
- U Liniment
- U Adhesive Tape and Duct Tape
- U Cotton balls
- U Scissors
- U 10, 20 & 60 cc Syringes and 18 & 20 gauge needles
- U Mineral oil
- U Clippers
- U Cotton gauze
- U Antiseptic wound dressing (spray & powder)

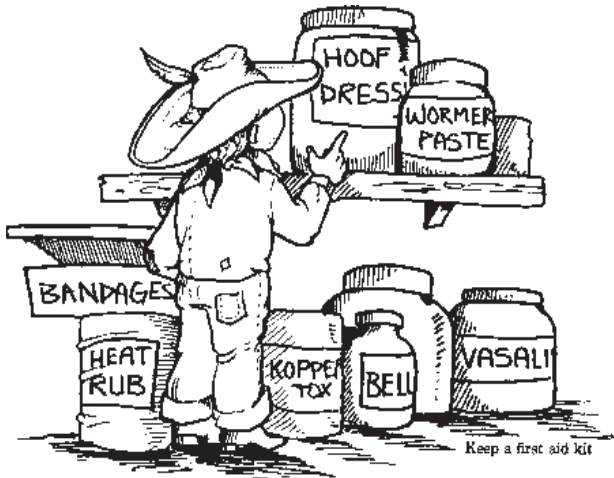


4 - H Horse Project Manual - Health

- ☞ Polysporin Ointment
- ☞ Epsom salts
- ☞ Vaseline
- ☞ Sponge
- ☞ Koppertox or bleach
- ☞ Rubbing Alcohol & Peroxide
- ☞ Germicidal soap
- ☞ Thermometer
- ☞ Disinfectant (sterile solution)



- ☞ Syringe to rinse out deep wounds
- ☞ Boric acid
- ☞ Clean bucket





Whenever there is a serious wound, call a veterinarian. First aid is the treatment given as soon as an injury or illness is observed. This is done to relieve the distress of the animal and prevent further injury while waiting for the vet.

Types of Wounds

Different kinds of wounds include:

- ☞ **Abrasions** - multiple superficial scratches that do not penetrate the full thickness of the skin.
- ☞ **Incisions** - clean cut wounds caused by a very sharp object.
- ☞ **Lacerations** - wounds that penetrates the full thickness of the skin and is caused by a less-sharp object, resulting in both cutting and tearing of skin.

4 - H H o r s e P r o j e c t M a n u a l - H e a l t h

-  **Punctures** - wounds caused by a more or less pointed object (which may or may not remain embedded in the wound).
-  **Avulsions** - wounds characterized by tearing of skin to cause a loose flap.

First Aid Treatment

When a serious wound occurs, the two most important duties, until the vet arrives, are:




1. Stop the bleeding.
2. Prevent infection by keeping the wound clean.

Since wounds are painful, be prepared to restrain the horse before you treat the wound. **Never put yourself in a situation where you risk your own safety.**

You can get a good idea of how serious the injury is by looking at the bleeding. If the blood is slowly oozing it usually means only the outer area is affected. Blood from a damaged vein may be slow or rapid, depending on the injury. Arterial bleeding will be bright red and rapid. Deep wounds involving tendons or exposed bone will often cause moderate to heavy bleeding



Control of Bleeding

-  Try to keep the horse calm.
-  Bleeding may be arterial (the spurting of bright red blood), venous (oozing of dark red blood) or sometimes both. **Do not wipe a wound that has stopped bleeding.** This will dislodge the clot. **Do not pour peroxide on a fresh wound.** This will make the bleeding more difficult to control.
-  If a horse is bleeding profusely from a wound, apply pressure to the wound with sterile gauze or a clean towel (disposable diapers or feminine napkins work great!). Apply pressure with your hand to the wound for 15 minutes to help stop the flow of blood. Large, deep wounds require a veterinary surgeon.

4 - H Horse Project Manual - Health

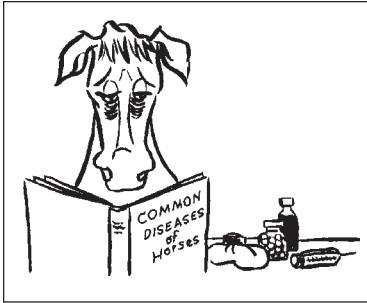
- U Most minor wounds can be treated by their owner. Wash the wound with cold water, unless there will be further blood loss by washing. Cold water hosing of a wound will also help reduce any swelling. Remove foreign objects if it is not a puncture wound. Trim the hair from around the wound. Rinse and dry with sterile gauze. Apply a medication. Once the bleeding has been controlled, apply only mild antiseptic ointments to keep the wound from drying out in case stitches are required.
- U For large wounds apply a towel or lint free gauze to the wound to try and control the bleeding. (You may have to restrain the horse with the help of another person and/or a twitch). Only after the bleeding is controlled **gently** cleanse the wound by flushing with clean water or a sterile saline solution, and try to remove any dirt or contamination if possible. Gently remove any dirt on the surface but *do not attempt to remove any imbedded materials*. Leave this to your vet. Only cleanse the wound if you can do so without causing it to bleed again. Rinse by directing the water **above** the cut and letting it flow gently down over the wound. **Do Not** direct forceful streams at the wound, as this may cause debris to become embedded. **Do Not** apply a wound ointment or first aid spray before the vet arrives. Ask your vet before giving any pain reliever or antibiotic drugs.
- U Wounds can be bandaged or left open, depending on their location. Bandaging provides an advantage of protecting wound from dirt, manure and the constant irritation of flies. Wounds around the head and the upper body are difficult to bandage and do not benefit greatly from being covered. Bandaging is most effective for wounds on the extremities. If you are going to bandage a cleaned and treated wound, first apply a non-stick sterile gauze and close with a bandage. When you wrap a bandage around a treated wound on a leg, you must always wrap the other leg (both front or both rear legs). This is to prevent strain on the uninjured (supporting leg). **Never leave bandages in place for more than 24 hours**, unless otherwise instructed by a veterinarian. To learn more about applying bandages, refer to the “Equipment” chapter.
- U Most wounds heal with minimal scarring if they do not become infected and if they are protected from flies. Monitor wounds daily and keep them clean and keep flies away from them. If a wound becomes infected, cleanse it with a three percent hydrogen peroxide solution or surgical soap. A syringe may be used to flush out a deeper wound.

4 - H Horse Project Manual - Health

Swelling Allow rest and use cold applications (water, cool-cast, etc.) to reduce heat and inflammation. Liniment can also be applied to help reduce the swelling. Do not put liniment on open wounds.

First Aid Conditions

Choke Choke is a frightening experience for the horse and owner because the reaction is so violent. An object getting lodged in the esophagus causes choke. The esophagus is the muscular food tube that begins at the back of the mouth and ends in the stomach. It is not the airway. In the adult horse it is approximately 4 feet long. Depending on the location of the blockage, the horse may shake, gag or retch. Because the horse is unable to swallow, **saliva and food** may come out of the nose and mouth. Partial choke can also happen. Your horse will have raspy breathing, **a drooped head and neck** and will cough in an effort to dislodge the obstruction.



There are several causes of choke. The most common are grains, hay, grass or fruit and vegetables. A greedy or startled horse may swallow some feed before it is fully chewed or swallow large amounts at one time. The feed is not mixed well with saliva, so it is too dry to be swallowed. This dry ball sticks in the esophagus. If choke is left untreated, horses can quickly dehydrate and the obstruction becomes harder to remove. Do not let your horse put anything else in his mouth. Remove all feeds, water and bedding from the area around him.

Most horse owners do not have the experience to deal with choke. If choke is caused by hay, grain or pellets, saliva being swallowed will loosen the blockage. A large object causing the blockage requires veterinary treatment. *Incorrect home treatment can cause pneumonia* (from food and water entering the lungs) *or death*. If pneumonia occurs, the horse will probably develop a fever 24 to 48 hours after choking.

Choke does leave the throat irritated. Be careful feeding the horse after this happens. Take feed away from the horse for three to four hours. If the horse suffered a severe case of choke, feed a bran mash or soaked beet pulp or soaked hay cubes, and avoid dry feed for several days.



4 - H Horse Project Manual - Health

Colic A horse with colic has a severe stomach ache. Colic, a gastro-intestinal disorder, has various causes, some of which are sudden changes of diet, worms or overeating. Colic is the most common digestive problem found in horses. Some horses (often young horses) tend to get colic more often than others. As a horse owner it is important for you to recognize the symptoms of colic in the horse. The symptoms develop slowly, so the earlier it is noticed, the better the chance of treatment. The horse will show signs of discomfort by:

Early Warning signs

- U The horse will be uninterested in food (he won't eat at all or picks at his feed)
- U A change in your horse's attitude (he seems depressed- doesn't greet you or doesn't have any interest in the things around him and doesn't seem to have his usual energy.)
- U A change in the appearance, consistency, and amount of your horse's manure. It may be loose and watery, hard and dry, or altogether absent depending on what's going on in his body.

Signs that colic has arrived:

- U The horse may be alternately listless and restless, first standing apart from other horses, then pacing or lying down and rolling repeatedly.
- U Pawing.
- U Looking at his flank
- U Touching the sore spot with the nose.
- U The horse may bite or kick at its flanks.
- U Kicking at the belly with a hind leg.
- U Sweating
- U Stretching
- U Rolling
- U Lying on the back (cast) - this may relieve the pressure on the digestive tract.
- U Sitting on hindquarters, supported by front legs.
- U The horse's resting heartbeat is consistently higher than 50 beats per minute
- U The respiratory rate is higher than 30 breaths per minute.
- U The horse has either no gut sounds or hyperactive gut sounds.

Colic (continued) The reaction of the horse depends on the amount of pain it has. The stretching, rolling, lying cast or sitting on hindquarters indicate that the horse is in considerable pain.

A common cause of colic is worms. Worms can cause colic by blocking a main blood vessel to the digestive tract. This will affect the health and movement of the digestive tract. Worms can also cause an infection in the digestive tract. Colic can occur when a large number of worms migrate through the digestive tract at the same time because of natural causes or from the application of a dewormer. Consult your veterinarian to determine the severity of the problem and treat the horse.

Colic can also be caused by:

- ⊖ An impaction caused by feed (poor quality, low digestibility, low fibre).
- ⊖ An impaction caused by sand or foreign materials
- ⊖ The gut twisting (may be caused by worms or the gut being displaced).
- ⊖ A length of the gut folding inside itself (intussusception).
- ⊖ Infection of the digestive tract (may be secondary to another illness).
- ⊖ A rupture of the digestive tract, usually from pressure with an impaction.
- ⊖ Eating too quickly.
- ⊖ Gas
- ⊖ Stress

Colic can be fatal. If you suspect colic, check vital signs and listen for gut sounds. Leading the horse around and keeping it from rolling will help to prevent further problems, such as twisting an intestine or injuring itself. If you have a horse with colic, walk it for 20-30 minutes. This will usually help the mild cases. If the horse is not improving, make it comfortable in a box stall and call your veterinarian. Use a blanket to keep warm and prevent shock. Because of the number of causes, diagnosis is difficult even for a veterinarian. Treatment must be done to relieve the visible symptoms and stress on the horse.



4 - H Horse Project Manual - Health

Colic (continued) The veterinarian will check the pulse rate and temperature and listen for normal bowel sounds. A tube may be inserted through the nostril and down to the stomach to check for fluid or gases. Mineral oil or fecal softeners may be given through the tube to help move a suspected blockage. Often the horse will be given antibiotics, muscle relaxants, pain relievers and, or sedatives to make it more comfortable. Other treatments may be done by your veterinarian as well.

The twist or torsion type of colic is most difficult to treat because it has the same early symptoms as the less serious colic. The lack of any gut sounds is often an indication of a twist or complete blockage. It is rarely diagnosed before the horse goes into shock and dies. Surgery is the only way this colic can be treated although the success rate is not high.

The Worst Case Scenario

Deaths are the most common with the twist, torsion and the severe impaction. The horse may die of shock. This is the final stage in a chain of events that take place in the body of the horse. The stress causes the horse to dehydrate (lose water). This causes chemical changes in the cells of the body and keeps it from getting the correct messages. When this happens, the horse will not get enough blood to the brain, heart, kidney and liver. The cells in these organs start to die. Next, the body increases its acid production and the acid level in the blood increases. The pulse rate will increase from 40 beats per minute to 80 or 90 beats per minute. Blood will not be sent to all of the areas that need blood. If you are watching the horse, you will see a loss of pink colour in the membranes around the eyes and the gums. Nothing can be done for the horse at this stage.

Death by blood poisoning may also occur.

Fortunately most colic cases respond well to treatment. After a horse has had colic, it should get special treatment for a few days. Feed the horse a bran mash and good hay and limit the amount of grain. The bran and hay are bulky and are easier to pass through the digestive tract. Make sure that the horse has clean, fresh drinking water. If the horse is watered from a pail, supply fresh water several times a day.

4 - H H o r s e P r o j e c t M a n u a l - H e a l t h

What to do if your horse has broken out of its stall and is gorging itself on grain.

Try to estimate how much grain the horse has consumed. If it's only a normal meal amount, put the horse back in its stall or out in its pasture and observe it for several hours. If the grain consumed has been excessive:

- 1 - remove feed
- 2 - call the vet
- 3 - cool horses feet
- 4 - periodically move horse to stimulate circulation

Treatment is most effective within 48 hours. Laminitis and colic can be likely results of a grain overdose.

Other Injuries & illnesses

Edema

Edema is a buildup of fluid in the body tissues. Normally, fluid passes in and out of the capillaries. With edema, the process is incomplete. Fluid buildup may occur in the peritoneal cavity, scrotum, udder, and legs or around a wound. It may be caused by parasites, nutrition, heart problems, kidney problems or infections.

Horses do not often get edema. It can be seen in the legs of some stabled horses that do not get enough exercise (stocked-up). High protein feeds will sometimes cause edema in the lower legs of young horses and performance horses. (For edema in the lower legs or related to wounds, pressure by wrapping may be used to reduce fluid build-up.)

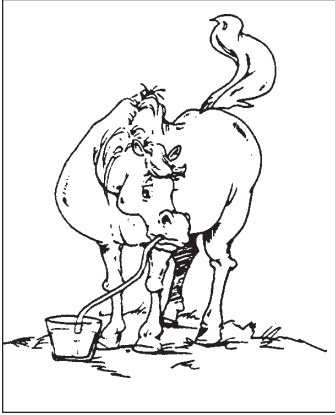
Pregnant mares may get edema. A serious case may include swelling in the legs, the udder and along the underside of the belly. There will be pain in the udder if edema occurs. The problem is increased in this case because milk production has slowed or stopped. A mare that gets edema once may have edema or other problems during future pregnancies because of the stress on the heart and kidney.

Edema can be very uncomfortable for the horse. If the swelling is in the pastern joint, movement may be a problem until circulation increases. Good feeding practices and exercise are helpful. Adding diuretics to the water supply may help remove excess water.



4 - H Horse Project Manual - Health

Equine Infectious Anemia (Swamp Fever)



Equine Infectious Anemia or Swamp Fever is a viral disease found in horses. The disease is most often transferred by biting insects, usually horseflies or deerflies. It has also been spread by repeated use of needles, dental floats or other contaminated equipment. There is no vaccination against or cure for Swamp Fever.

This disease is a reportable equine disease regulated by law for border crossings. The Coggins Test, a blood test, is used to identify infected horses. Infected animals have a very low count of red blood cells.

A horse that tests positive is allowed one retesting. Other illnesses can produce similar results. Foals under 6 months may have a positive test because of the passive antibodies received in colostrum. If the horse tests positive two times, it must be quarantined permanently in a fly-proof area or be destroyed. Other horses at the same location are quarantined until the first results come back. If no other horses test “*positive*” the quarantine is lifted and the herd is tested regularly for the next year.

A horse exposed to swamp fever may show the symptoms 14 days to several months later. The symptoms may last for three to 20 days, and may recur. The mortality rate ranges from 30 per cent to 70 per cent. The disease may be in the acute, subacute or chronic form.

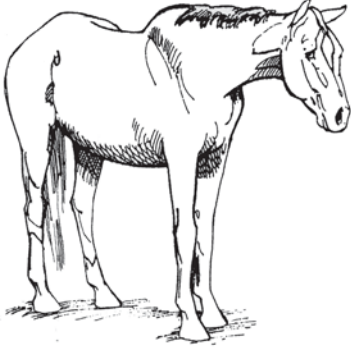
The *acute form* results in the death of the horse during the first attack of the disease. The symptoms are:

- U Rapid onset of fever (104° - 108°F) (40° - 42°C)
- U Weak pulse, irregular heartbeat
- U Thirst
- U Poor appetite
- U Depression
- U Edema (fluid buildup) of the underbelly, legs and sheath.

The *subacute form* is a recurring case. This is what we call a relapse. The horse appears to recover, then gets sick again. Symptoms are the same as for the acute case. The horse may show a gradual weight loss and have pale mucous membranes. The horse may die during a repeat attack.

Equine Infectious Anemia (Swamp Fever)

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The *chronic case* occurs after the main attack. This attack may not be obvious. Anemia may be noticed. Animals who survive the initial attack may go unnoticed and become carriers. They may infect other horses through blood transferred by biting insects (usually horse or deer flies) or by vaccination needles. The virus is not killed by heat, cold, disinfectants, antiseptics or sterilization. There is no vaccination against, or cure for this disease at this time.

- ☞ Do a Coggins Test on all of your horses. Have new horses tested *before* they arrive at your farm/stable.
- ☞ Have autopsies performed on any horse that dies suddenly.
- ☞ Use disposable needles for vaccinations.

Heaves

Heaves is the common name for **Chronic Obstructive Pulmonary Emphysema**. The illness causes chronic coughing, difficulty breathing and exercise intolerance.

Heaves is caused by the air sacs in the lungs losing their elasticity. Problems appear when the horse exhales. The horse inhales the proper amount of air, but is unable to force all of the air out when it exhales. To remove the remainder of the air, the abdominal muscles contract. If you watch the horse's flank, it will appear that the horse exhales twice for each time it inhales. In long lasting cases, the horse may develop a barrel chest because the diaphragm muscles have enlarged. They will develop a heave line, which is a line of extra muscling upwards to flank. The horse can only be used for light riding because it tires quickly.

Heaves has a variety of causes. In some cases it may be an allergy. Since it rarely occurs in pastured horses, dust and mold in dry feed are suspected. **Never feed Dusty or Moldy Feeds.** The use of pelleted, high moisture, and cubed feeds will reduce dust in the rations. Respiratory infections may also be a cause. Heredity may also play a role. Some families of horses appear to have a greater tendency to the problem. This is similar to you having the same allergies as your parents. If the dam or sire of your horse develops emphysema, take precautions with your horse. There is no cure for heaves. Consult your veterinarian for medications to help relieve symptoms.



4 - H Horse Project Manual - Health

Hernia A hernia is a protrusion of normal stomach cavity contents through a natural or abnormal opening in the body wall. Many hernias are hereditary; a few are caused by injury or strain. All hernias should be examined by a veterinarian.

A **reducible hernia** can be gently pushed back into the body cavity. A common reducible hernia is the umbilical hernia, where a portion of the intestines passes through the navel area. Many of these will correct themselves as the horse's intestines grow and it becomes impossible for them to protrude through. Surgery is not needed unless the hole is larger than two fingers in diameter or heat is felt in the areas. Foals often have reducible hernias.

An **irreducible hernia** will not go back into the body cavity because of attachments between contents and the sac surrounding the hernia. A scrotal hernia can be an irreducible hernia. It will not close. These are serious because a portion of the intestine can slip down and become strangled (meaning the blood supply is cut off). If this happens, that section of intestine will become necrotic (die). Membrane infection will occur and the horse could die. This type of hernia requires surgery.

Laminitis (Founder) An acutely painful inflammation of the laminae of the foot, caused by overfeeding of grain, uterine infection, gastrointestinal problems, grazing of lush pastures, and total weight bearing by one leg because the other is lame. Because this condition usually occurs in the front feet, it is characterized by the horse trying to place most of its weight on the hind quarters with the fore feet extended forward. It will be unwilling to walk and unable to trot. The feet and around the coronary band will be hot and a strong pulse can be felt beside the tendon in the pastern.

When you see these symptoms, call a veterinarian immediately. Only rapid treatment will prevent chronic founder. Apply ice packs to the feet or stand the horse in ice-cold water to reduce the temperature, and on a spongy surface to support the sole.

In the chronic stage, the bone loses its attachment to the wall and the sole drops. Distinct lines or ridges appear on the wall. In severe cases the coffin bone will rotate and come through the sole.

4 - H H o r s e P r o j e c t M a n u a l - H e a l t h

Rabies Rabies is not common in horses. They may contract it as a result of bites from infected animals. If animals in your area have had rabies, have your horse vaccinated. Rabies is fatal.

The illness may not appear for 3 weeks to 3 months after the bite. A problem with rabies in horses is that they often become dangerous. They may fall and bite themselves and other objects around them.

Most horses with rabies do not fit our picture of a rabid animal. It can be mistaken for sleeping sickness, tetanus, lead poisoning or botulism.

Rhinopneumonitis (Equine Herpes Virus 1 and EHV IV)

“*Rhino*” is often mistaken for strangles or influenza in the horse. It is an upper respiratory infection which resembles a cold. It usually produces coughing and a nasal discharge and is accompanied by a fever. There may be some loss of appetite and a dullness of appearance. Occasionally silent infections (that show no signs) occur. Because it is transmitted by nasal discharges and in the air, it is very contagious; 96 per cent of the horses exposed will contract it. There will not be any symptoms for seven to ten days after exposure. Once they appear, symptoms will last approximately two weeks. Secondary symptoms such as a fever and swollen glands may appear. The horse should not be worked when it has any of the symptoms.

“*Rhino*” becomes a problem if you have pregnant mares. A mare may show little or no sign of the infection, but the fetus may be damaged. The infection can cause enough damage that the fetus will not be able to function 3-12 weeks after it was exposed. When this happens, the foal is aborted. Abortion in the ninth month of pregnancy is common. Some infected foals will be carried to the end of the pregnancy then die after birth.

As with any other respiratory disease, isolate new arrivals and sick animals. Keep pregnant mares separated from traveling stablemates who may bring home the virus.



4 - H Horse Project Manual - Health

Rhinopneumonitis (Equine Herpes Virus 1 and EHV IV)

(continued)

A less common form of Rhino is the neurological form (EHV 3). It attacks the brain and usually the horse will eventually die. It may occur alone or with the respiratory form.

A vaccine is available for rhinopneumonitis. The vaccine may be given to horses over three months of age. Pregnant mares should be vaccinated at five, seven and nine months. The initial two doses should be given four to six weeks apart. Make sure to use the right vaccine for the type of Rhino you are trying to protect against (or a combination of 1 and 4).

Sleeping Sickness (encephalomyelitis)

Sleeping sickness is a virus carried by biting insects that affects the central nervous system of the horse and man. The horse and man are the final host in the life cycle of the sleeping sickness virus. The virus starts in birds, rodents and reptiles, then it is passed on to biting insects. The number of cases of sleeping sickness that occur each year is affected by the size of the bird and mosquito population.

There are different strains of sleeping sickness. We are mainly concerned with the Eastern and Western strains in Western Canada. People often question the value of innoculating for sleeping sickness. However, the mortality rate for Western Sleeping Sickness is 30 per cent and 80 per cent for Eastern Sleeping Sickness. Horses that do survive may have permanent brain damage, leaving them disabled. Multiple vaccines against both strains are available. They should be given several weeks before mosquitoes become a problem. Immunity is not immediate, so it is several weeks before it will be effective. Because immunity is short lasting in the first vaccination, a second vaccination (booster) is given three weeks after the first vaccination. After that, one vaccination per year is given.

A horse with sleeping sickness will show some of the following symptoms:

- U persistent fever
- U eyesight problems
- U inability to swallow
- U depression
- U paralysis
- U drooping lower lip

4 - H H o r s e P r o j e c t M a n u a l - H e a l t h

- U loss of coordination (may cause circling)
- U pneumonia - secondary infection due to the low resistance level of the horse to infection
- U seizures and/or head pressing
- U coma
- U death

Strangles This is a highly contagious bacterial infection. It is spread by coughing and through nasal discharge. Strangles is more of a problem in young horses. Strangles is very often improperly referred to as Distemper. The Strangles infection can cause:

- U A runny nose
- U Lumps under the jaw
- U High Fever (more than 40°)
- U Coughing
- U Depression
- U Loss of Appetite

Penicillin is only effective if given during the first 24 hours. As the infection continues, antibiotics become less effective and may actually slow the recovery time by limiting the development of natural immunity. Consult your veterinarian for treatment.

There is a vaccination available for strangles. Always administer according to label directions and **never** inject the nasal form.

Tetanus Tetanus is also called “Lockjaw”. Horses can become infected through cuts and wounds. The bacteria that cause tetanus are found in the soil and on rusty metal. This is one reason that wounds can be serious problems.

The infection causes muscle spasms (mostly of the head and neck), contractions and shaking. The horse will often hold its head high with the ears very stiff and upright. The tail will be held straight out behind the horse. As the horse loses other muscle control, it will stiffen and have trouble moving. Symptoms usually appear in 7-14 days. The mortality rate for severe cases of tetanus is 80 per cent. If the horse does recover, it will take one to two months. Even after this length of time most horses are still nervous and sick.



4 - H Horse Project Manual - Health

Tetanus (continued) A vaccine is available for tetanus. It is available as a toxoid, which is given once a year (one shot, plus a booster the first year) or as an antitoxin, which is given after surgery or a wound. Pregnant mares should have a tetanus toxoid vaccination one to three months before foaling to provide the foal with some immunity to tetanus at birth. The antitoxin may be given to three to four month old foals if the mare was not immunized. Tetanus can also be treated with penicillin.

West Nile Virus West Nile Virus is very new to Canada. It is a virus carried by birds (mostly of the crow family - crows, ravens, magpies and blue or gray jays). Mosquitoes bite the infected birds, then pass the virus on. It does NOT spread from one horse to another. It affects the central nervous system (brain) because it causes a brain infection. Symptoms include lethargy, weakness, stupor, ataxia, hypersensitivity to sound, muscle tremors, blindness and seizures, ranging in severity from being extremely mild to severe and often fatal. Only about 25% of infected horses show fever.

Intravenous fluid therapy and physical support (slings) to prevent injury are the current treatment protocol. Antibiotics are not effective. The death rate in horses has been reported as 25-40%. A vaccine for West Nile virus in horses has been conditionally approved in Canada. Initial vaccination is two injections three to six weeks apart then annually prior to mosquito season. You may wish to vaccinate your horse every 6-months if travelling to high-risk areas such as the USA, where mosquito populations survive year-round. Also, stress of travel and competition may compromise some animal's immune systems. Check vaccine instructions prior to vaccinating.

Ringworm Ringworm may also be called girth itch, fungus itch or Spanish itch. Ringworm is a fungus infection. It appears as one or more hairless patches anywhere on the body and is not always round. It may be covered with scaly, grayish skin or be crusted and oozing serum. It may be itchy but usually is not. Ringworm is contagious to other animals and humans by direct rubbing contact. Brushes, and clippers or borrowed cinches, halters or saddle blankets spread it.

To treat ringworm apply iodine, or any fungal medication recommended by your vet to the hairless area and surrounding area. Soak grooming equipment and clipper blades overnight in a 10% bleach solution and wash tack in disinfectant. To prevent ringworm avoid borrowing or lending grooming equipment or tack.



4 - H Horse Project Manual - Health

Warts and Sarcoids

Warts are caused by the body trying to wall off a viral infection. They are most common on the face, lips and inner ears of young horses. A common wart will disappear in about six months.

A wart-like growth that does not go away or spread may be a sarcoid. It begins small but may grow rapidly. It is a non-malignant tumor usually found on the head, shoulders, legs or midline of the horse but can appear anywhere. They can be small and smooth or large and lumpy or scaly. They bleed if bumped or rubbed. They do not hurt the horse but may become infected or interfere with tack or look bad. A veterinarian can remove sarcoids through surgery (freezing, laser or radiation), but they may reoccur.

Medical Terms

At the Beginning of Words	Means	Example
a, an	without, loss of	> anorexia (loss of appetite)
dys	difficult	> dystocia (difficult birth)
hem, hema, hemo	blood	> hemoglobin (part of blood)
hyper	excessive	> hyperthyroidism (excess thyroid secretion)
hypo	deficient	> hypoglycemia (low blood sugar)
myo	muscle	> myocardium (heart muscle)
neuro	nerve	> neuronal (tumor on a nerve)
nephr, nephro	kidney	> nephritis (inflammation of the kidney)



At the End of Words	Means	Example
emia	blood	> anemia (lacking red blood cells)
gram	measure	> cardiogram (measurement of heart activity)
graph	picture	> electrocardiograph (graph of heart activity)
itis	inflammation	> bronchitis (inflammation of the bronchial tubes)
oma	tumor	> melanoma (cancer of the pigment producing cells)
otomy	surgical incision	> desmotomy (the cutting of ligaments)
rhage	discharge, flow	> hemorrhage (bleeding)