

Equine Physical Examination and Restraint Review

Notes Courtesy of VEM 5201: Introduction to Physical Diagnosis – Equine Section

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Some helpful details regarding each point include the following:

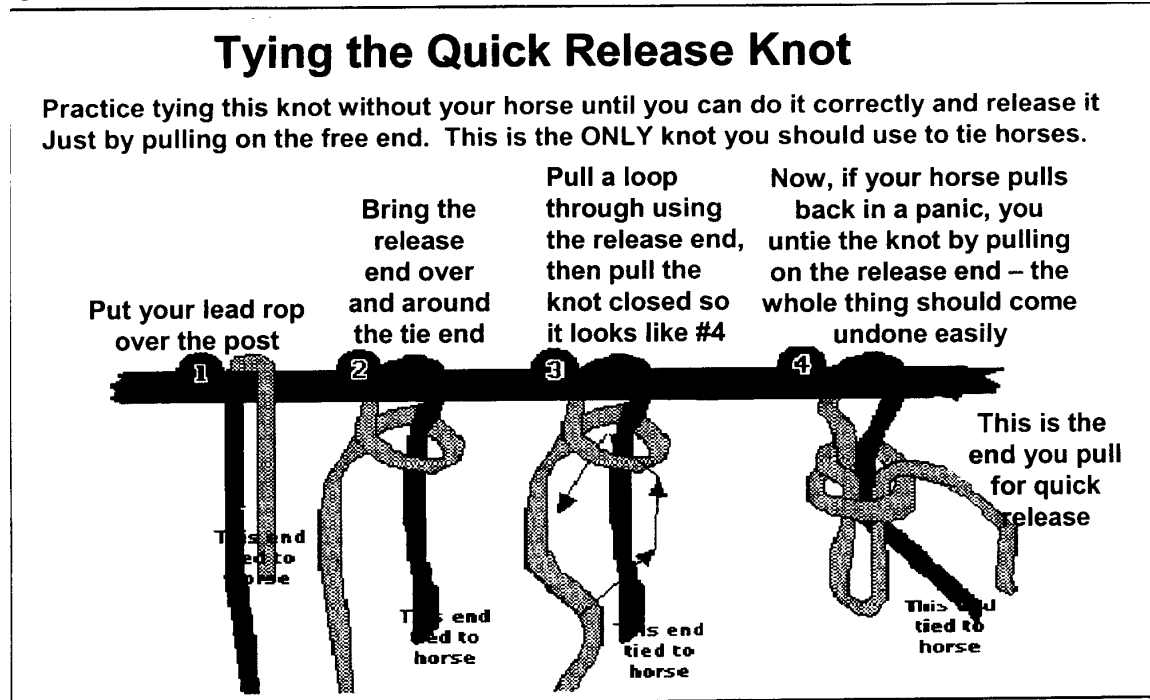
1. Catching a horse
 - a. Adults in a small paddock: Horses are innately nervous and suspicious animals that are quick to detect nervousness and lack of confidence in anyone approaching them. They are apt to misinterpret any abrupt actions and become excited. On the other hand, a direct and confident approach tends to calm them. Whenever possible one should approach a horse on the near side (left) as this is the side they are used to being approached. Once in hand, the lead rope should be applied confidently and deliberately.
 - b. Catching a foal - Foals should be approached quietly with a second person holding the mare. One arm should hold the foal in front of the chest and the other arm should hold behind the rump. The base of the tail can alternatively be used. Whenever possible the foal should be allowed to follow the mare. When restraining young foals, it is extremely important to hold or lift the foal in front of the chest and behind the rump. Foals should never be lifted or restrained by applying pressure to the thorax or abdomen directly. It is also important to know that foals and mares should always be moved together, even for very small distances, as separation will result in extreme anxiety.
2. Placing a halter - From the near (left) side the handler should first restrain the horse by placing the lead rope around the neck. Once this is accomplished, the halter is opened up and with the right arm placed around the neck (holding the long strap of the halter in right hand) and the halter is applied.
3. Types of restraint - Use the least amount of restraint possible in a given situation and don't become overconfident with the restraint procedure
 - a. Lead rope – Many procedures, including physical examination, can be performed with simple restraint. The person holding the horse should always be located on the same side of the horse as the person performing the procedure.
 - b. Skin twitch – The loose skin in the lateral neck region (just in front of the shoulder) is grasped and rolled forward.
 - c. Nose twitch (using chain or rope twitch) - handler should stand at the horse's side and in a position that reduces the chances of injury if the horse were to strike out. Pull the horse's head toward you and apply the twitch. Handler should be on same side of horse as person performing procedure
 - d. Ear twitch - the ear is grabbed and squeezed - afterwards it is rubbed. This will facilitate reapplication. This procedure is used infrequently for adults.
 - e. Various uses of chain shank for restraint
 - i. Over bridge of nose. Young racehorses and stallions are frequently led using a chain over the nose.
 - ii. Lip chain. Very commonly used in Thoroughbreds. The instructor will demonstrate, but a lip chain should only be used by individuals

comfortable with this method of restraint. A steady but very minimal amount of pressure is applied.

4. Examination of Feet: This is useful for basic examination and daily care and is required for most lameness examinations in the horse.
 - a. Front feet - pinch the suspensory ligament, which will result in the horse shifting its weight off of the desired limb. The foot is lifted and placed between the handler's legs just above the knees. The handler should be facing towards the horse's hind limbs. Clean the frog with a hoof pick.
 - b. Hind feet - pick up and support the limb on top of the handler's leg closest to the horse. The horse's hind limb should not be placed between the handler's legs.
 - c. Apply hoof testers to one foot as directed by an instructor.
5. Rectal temperature: Stand on the lateral side of the rear limb, lift the tail with one hand and advance the thermometer (lubricated) with the other.
6. Pulse rate - pulse rate should be counted for at least 30 seconds. Normal pulse rate is 28-40 per minute. Location of easily palpable external arteries include the following:
 - a. Facial artery - most frequent – overlying the ventral border of the ramus of the mandible
 - b. Transverse facial artery - ventral to the facial crest.
 - c. Digital artery – over the palmar/plantar and lateral or medial aspects of the fetlock or pastern
7. Auscultation of the heart: Auscult the heart primarily on the left side, behind the elbow of the horse. Further detail is provided in the section on physical examination.
8. Respiratory system:
 - a. Respiratory rate - taken while animal is at rest. Normal respiratory rate is 12-18 breaths/min
 - b. Auscultation - normal breath sounds. For adult horses, proper thoracic auscultation requires application of a rebreathing bag. This will be demonstrated.
 - c. Percussion - normal lung boundaries

Knots:

Quick release knot



More specifics for the equine physical examination

Signalment: Age, Sex, Breed

Why are these important?

These factors can increase an animal's risk of disease. Knowing those diseases associated with signalment will increase efficiency of diagnosis. The following are examples of diseases associated with a particular signalment. Please note that these are examples only.

Age

Young: septic arthritis, osteochondrosis, angular limb deformities

Old: heaves

Breed

Arabian: severe combined immunodeficiency

Paint: Overo lethal white syndrome

Sex

Inguinal hernias, cryptorchidism in males

History

The cause of many primary owner complaints can be identified from a thorough history and physical examination. Many of your questions should pertain to the clinical problem at hand, but certain information should be obtained from the owner or trainer of all horses.

1. How long have you owned (or managed) this horse?
2. What is its intended use?
3. What is the schedule for deworming? Vaccination? Shoeing/trimming?
4. What is the housing status of the animal? (stall, paddock or pasture; if in pasture, individually or in a group)

5. What is the horse fed? (including amount and frequency of hay, grain, and any nutritional supplements or medications)

Other questions that pertain to the problem at hand:

1. What is the current problem? (including the signs your horse is showing)
2. When did you first notice this problem?
3. Has the problem gotten better or worse since it was first observed?
4. If it happens intermittently, what is the frequency of occurrence?
5. Has your horse been examined previously for this problem?
6. What treatment has your horse received for this problem?
7. Has your horse had any other problems recently or previously?
8. Is the problem isolated to the individual, or are other horses on the farm affected?

Physical examination: This is a general examination. Specific, organ based or problem based examinations will be taught in appropriate clinical settings. When performing any exam, it is important to develop an order or approach then to stick with it!

Observation: Always stand back and look at the horse, assessing such parameters as:

Body weight: Is the horse over or under conditioned?

Symmetry: muscle, abdominal shape etc.

Is there muscle mass loss?

Is the horse bloated?

Stance: Does the horse stand normally?

Attitude and behavior: Evidence of depression, mental status, hyperaesthesia? Presence of

pain: Is the horse agitated, pawing, restless, etc.

External Physical Examination

Head: Check nares for symmetry and air flow. Smell the air that exits from the horse's nostrils. Examine the mouth by applying light pressure to the upper corner incisor teeth for capillary refill time. Roll the lips away, examine the incisors. Open the mouth by applying pressure to the top of the hard palate. Grab the tongue and pull it to the side. Percuss the maxillary and frontal sinuses. If dull, this may indicate fluid or soft tissue in the sinuses. Examine the eyes for corneal scars, conjunctivitis, cataracts, etc. Perform quick menace and pupillary light responses. Evaluate color and vasculature of the sclera and conjunctiva. Feel the pulse of the facial artery as it passes along the ventral border of the ramus of the mandible. Palpate submandibular lymph nodes.

Neck: Palpate the jugular grooves, the tracheal rings and the crest of the neck for any heat or swellings. Palpate the neck for any muscular or bony protrusions, indentations, or pain.

Limbs: The fore and hind limbs are examined for any signs of swelling heat or pain. Pay particular attention to joints: knee, fetlock, ankle, pastern and coffin for the front limbs. Stifle, hock, ankle pastern, and coffin should be evaluated for the hind limbs. Examine the udder, the inguinal area, penis/sheath, rectum, and perineum of the horse.

Objective data (normal values for adults):

Body Temperature:	99-101.5 F
Heart rate:	32-40 beats per minute
Respiratory rate:	12-40 breaths per minute
Peripheral pulses:	strong, synchronous with heart
Capillary refill time:	< 2 seconds
Mucous membranes:	pink, moist

Auscultation of the thorax:

Auscultation of the heart: As with small animals, one should pay particular attention to rate and rhythm. In addition, if a murmur is detected, it should be characterized. This includes timing in the cycle, point of maximum intensity, and intonation. Sounds over each valve can be heard in the following approximate locations:

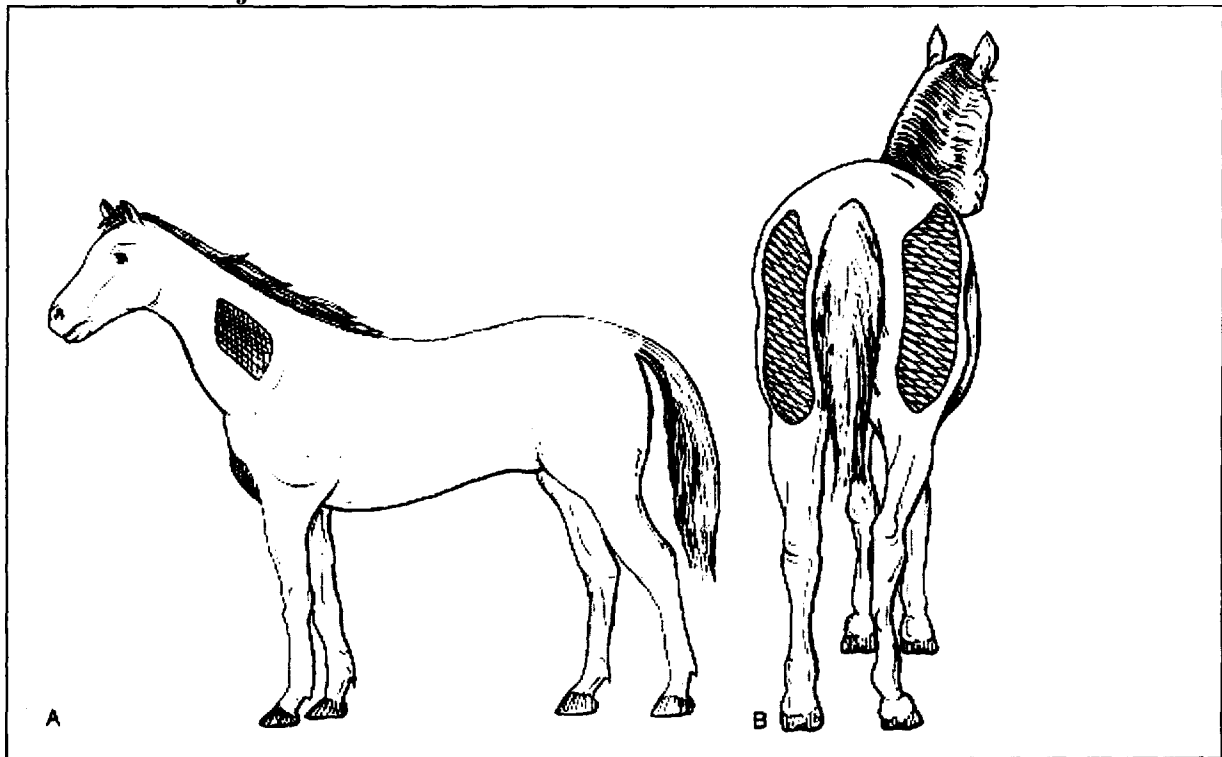
1. Pulmonary (L - 3rd) space at costochondral junction
2. Aortic (L - 4th) space just below level of shoulder
3. Left AV (L - 4th) space at level of olecranon
4. Right AV (R - 3-4th) space between olecranon and costochondral junction

Lung sounds of the horse are of low intensity. Breath sounds can be increased by the use of a rebreathing bag. Essentially the horse's nostrils are enclosed in a large plastic bag. This increases the CO₂ inside the bag so the horse breathes deeper in response to the increased inspired CO₂ which in turn causes the horse's blood CO₂ to rise. It is important to use a bag large enough to hold multiple times the horse's tidal volume and not to simply hold off the horse's nostrils briefly. Otherwise, one cannot completely evaluate the complete lung fields bilaterally. Normal horse lungs should have no crackles or wheezes with very minimal breath sounds. The cranial and dorsal borders of the lung are the shoulder and epaxial muscles. The caudoventral border is a line extending from the 17th intercostal space at the level of the tuber coxae to the 11th intercostal space the point of the shoulder.

Auscultation of the abdomen:

Stomach/small intestinal contractions usually not detected. The cecum and large colon have both mixing contractions and propulsive contractions. Mixing contractions are weak, low to moderately pitched and last 10-20 seconds. These sounds are present at any one site and have been described as equal to 10 contractions every 3-5 minutes. Propulsive contractions are large, deeper sounding contractions that occur less frequently. Abnormal sounds include 'pings', increased, frequently high pitch sounds, complete lack of sounds, and rubbing sounds. In general, trends in sounds are more important than a slight increase or decrease at any point in time, with the exception of a complete lack of sounds.

Intramuscular Injection sites:



1. Neck: Both sides. Ventral border is the dorsal aspect of the vertebral bodies, dorsal border is nuchal ligament, caudal border is the cranial aspect of the scapula.
2. Pectoral muscles
3. Semi-membranosus/semi-tendinosus muscles.

The jugular vein is used most commonly for venipuncture and intravenous injection. The cranial 1/3 of the vein should be used, distal to the bifurcation. Alternative sites include the transverse facial vein, lateral thoracic vein, cephalic, and femoral veins. The pros and cons to each site will be discussed.