

The Physical Exam includes the following:

A) Palpation/Evaluation of the Musculoskeletal system

The following steps are performed:

- 1) Palpate the forelimb proximally to distally with the limb bearing weight then distally to proximally picking up the limb or with it not bearing any weight.
- 2) Palpation of the hind limbs is done in the same way as step 1 but close attention must be paid to the medial aspects of the stifle and tarsus.
- 3) The back and axial skeleton are palpated last because some horses become agitated with manipulation of the back.

B) In examination of the foot:

- 1) The size and shape of the foot on the lame limb should be compared to its opposite member.
- 2) Look for asymmetry in the foot size, abnormal hoof wear, hoof ring formation, heel bulb contraction (this is often a symptom and not a cause and it is from non-weight bearing on the limb), shearing of the heels and quarters, hoof wall cracks, coronet swellings, and foot imbalances.
- 3) Asymmetry in foot size may be a result of trauma, lack of weight bearing leading to contraction, and congenital or developmental defects.
- 4) To examine the heel bulb contraction, one should be standing or squatting near the flank and looking at both right and left heel bulbs at once.
- 5) Asymmetry in heel bulb height (sheared heels) is most frequently due to improper trimming and shoeing.
- 6) Hoof wall cracks may or may not be associated with lameness but should be ruled out with hoof tester examination and in some cases nerve blocks. Hoof tester examination of the feet is usually performed after the entire musculoskeletal system has been palpated or after watching the horses go.

The steps below demonstrate how/where the palpations should be done:

- Palpation of the heel bulbs to identify heat, pain, and swelling that may be associated with subsolar abscesses shown below.



- In general, the limb with the smallest foot is usually the lame limb. Hoof wall ring formation can be unilateral (trauma) or bilateral (selenium toxicosis, laminitis, or

systemic disease) and is not always associated with lameness. For example, in the picture below:

- Concavity of the left front foot in a horse with chronic laminitis. This horse was most lame in the left forelimb.

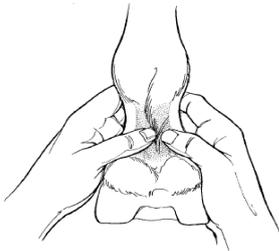


C) Examination of the Pastern

- The dorsal, medial, and lateral surfaces of the proximal interphalangeal (PIP) joint should be palpated for enlargement and heat, which may suggest high ringbone. With the limb off the ground, the distal sesamoidean ligaments and flexor tendons (superficial and deep digital flexors) are palpated deeply for pain, heat, and swelling.

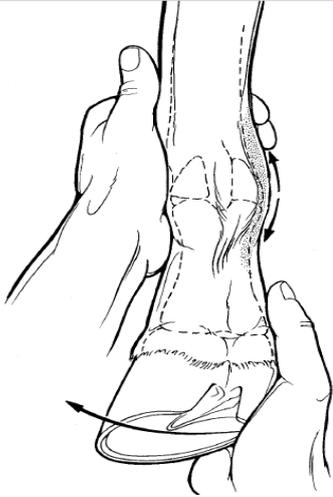


This picture shows palpation of the pastern.



Palpation of the distal sesamoidean ligaments, branches of the SDFT, and the DDFT in the palmar/plantar aspect of the pastern.

- Tension is applied to the collateral ligaments supporting the fetlock and interphalangeal joints (pastern and coffin) to identify pain as shown in the picture below.

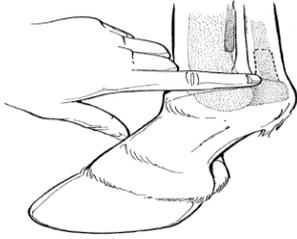


D) Fetlock

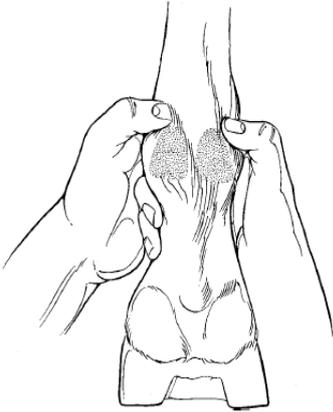
- The dorsal and palmar/plantar joint pouches of the metacarpophalangeal/metatarsophalangeal(MCP/MTP) joint should be palpated for swelling, effusion, or thickening of the joint capsule.
- In the picture below, the finger marks the palmar recesses of the fetlock joint capsule. Distention at the site results from synovial effusion.



- Palpation of the digital flexor synovial sheath around the superficial and deep digital flexor tendons is performed behind the branch of the suspensory ligament shown below.

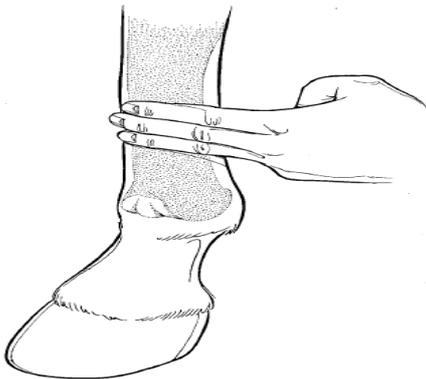


- Digital pressure applied to the apical sesamoid region to detect pain, heat, and asymmetry.
- Palpation of the midbody and basilar aspects of the bones also should be performed as shown below.



D) Metacarpus/Metatarsus (MC/MT)

- Palpation of the dorsal aspect of the metacarpus should be performed, especially in racehorses. Firm pressure applied with the fingertips often elicits a painful response in horses with dorsal metacarpal disease (buck shins). Heat and swelling over the dorsal middle third of the metacarpus also may be present.



E) Hip

- The hip should be examined for asymmetry, swelling, and atrophy of associated muscle groups.

Pelvis

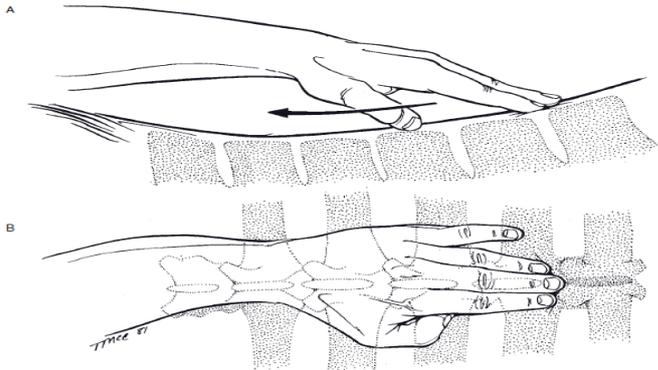
- Visual identification of asymmetry of the bones and musculature of the pelvis is an important aspect of examination of the pelvis.
- This includes the tuber coxae, the tuber ischium, the tuber sacral, and the gluteal muscles on each side.
- Asymmetry of the bony pelvis often suggests a pelvic fracture, subluxation of the sacroiliac region, or fracture of the specific bony prominence.
- Gluteal muscle atrophy often accompanies chronic pelvic fractures but can be seen with any chronic hindlimb lameness as shown in the picture below.



F) Back

- Visual assessment of the horse's back includes observing the muscle contour from the side and axial alignment from the rear.
- The dorsal spinous processes should be palpated for axial alignment, protrusion or depression, and interspinous distance.
- Any muscle swelling, atrophy, or asymmetry in the epaxial musculature should be noted.
- Palpation is usually best performed with firm fingertip pressure using both hands simultaneously.
- Alternatively, the palm of the hand can be used to apply downward pressure to the epaxial muscles.
- Palpation of the epaxial muscles lateral to the dorsal spinous processes along the entire length of the back should be performed.

- The picture below shows: (A) Palpation of the summits of the dorsal spinous processes to identify depressions or protrusions that may indicate subluxation or fracture. (B) Palpation of the axial alignment of the dorsal spinous processes.



G) FLEXION TEST

Flexion Test	Image
<p>The fetlock flexion test is performed by extending the carpus and flexing the fetlock joint. One hand is placed on the dorsal aspect of the pastern to flex the fetlock without flexing the interphalangeal joints</p>	
<p>The distal limb flexion test, in which the interphalangeal (pastern and coffin) and fetlock joints are flexed simultaneously.</p>	
<p>Palpation of the medial (axial) surfaces of the small metacarpal bones. The fetlock can be flexed to relax the suspensory ligament to permit easier palpation.</p>	
<p>The dorsal articular margins of the carpal bones can be palpated after the carpus is flexed to identify pain within the individual carpal bones.</p>	

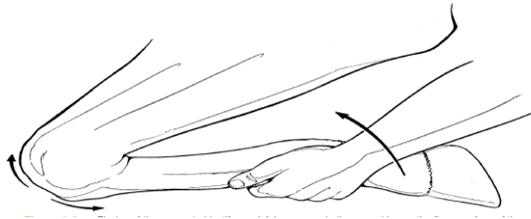
Flexion of the fetlock joint can be performed by placing one hand on the dorsal Metacarpus and pulling up on the pastern with the opposite hand. Flexion of just the phalangeal joints is performed by maintaining fetlock extension by placing one hand on the pastern while flexing the phalanges by pulling up on the toe with the opposite hand



Hand and limb positioning to perform distal limb flexion (phalangeal and fetlock joints) of the hindlimb



Flexion of the carpus to identify a painful response. In the normal horse, the flexor surface of the metacarpus approximates that of the forearm.



Elevating the limb into extension to flex the elbow joint extends the shoulder and increases the tension on the triceps brachii tendon at its insertion on the olecranon process shown below.



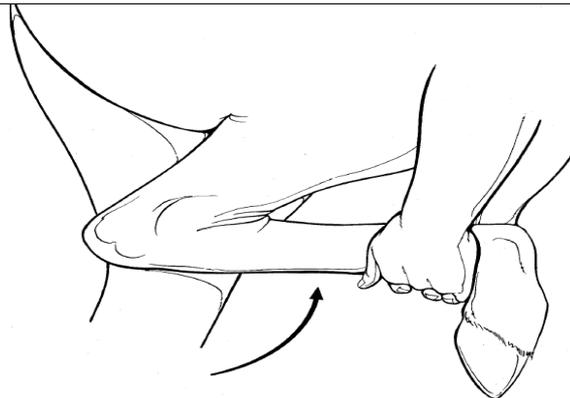
Upper limb flexion test in which the limb is pulled cranially and upward to “stress” the shoulder region.



Flexion of the upper forelimb can be performed by grasping the antebrachium and foot and pulling the limb caudally.



Hock or tarsal flexion (spavin) test. The hindlimb is flexed so that the metatarsus is approximately parallel to the ground. This test is not specific for the tarsus because it flexes both the stifle and the fetlock to some degree.



Positioning to perform hock or tarsal flexion of the hindlimb, with the limb held by the hoof.



Flexion of the stifle is performed by pulling the hindlimb caudally and lifting up on the distal tibia.



- ❖ After flexing the joints/limbs (after each flexion), the horse is trotted off. As in the video below stated, do not over flex the limb. If the horse seems unsteady during the flexion, this can indicate pain. A positive flexion is when the animal is trotted off, noticeable lameness can be observed in the affected limb.

Instrument	Description	Image
Hoof tester	<p>A hoof tester is an instrument that permits deep palpation of the sole, frog, and wall of the hoof.</p> <p>It helps to identify and localize hoof sensitivity. Normally horses should be able to withstand a fair bit of hoof tester pressure without showing signs of discomfort. The hoof tester can be used at the lateral or medial angle of the sole and continue hoof tester pressure at 2 - to 3 - cm intervals until the entire surface of the sole is checked. This is followed by applying pressure to the frog (caudal, central, and cranial) from both the medial and lateral heel. The tester is then applied to the hoof wall across the heels; it can then be applied diagonally from the medial heel to the dorsolateral hoof and then from the lateral heel to the dorsolateral hoof.</p> <p>True sensitivity is identified with the hoof tester by repeated intermittent hoof tester pressure that results in persistent reflexive withdrawal (flexing the shoulder) with hoof tester pressure. Varying amounts of hoof tester pressure are applied to elicit a response, and this depends on</p>	  <p>https://www.youtube.com/watch?v=7Hv7TXPXJug</p> <p>This video link gives an explanation of the physical examination of the entire limb of the horse including the use of the hoof tester to diagnose lameness after remove debris with the hoof knife.</p>

	<p>sole thickness and the painfulness of the condition.</p> <p>A hoof tester or a hammer also can be used to strike the hoof wall. A painful response may suggest laminitis, gravel, or a painful hoof crack (most common in the toe and quarter).</p>	
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H) NAVICULAR WEDGE TEST

- The navicular wedge test can be performed in two different ways.
- A wedge (usually a block of wood) may be placed beneath the frog of the affected foot while the opposite limb is held up. It is thought to apply direct pressure to the frog area, similar to hoof testers.
- The test is usually performed for one minute, after which the horse is trotted off.
- Alternatively, the toe is forced into an elevated position in relation to the heel by placing a wooden wedge under the toe.
- This serves to increase the tension on the DDFT and increased pressure over the navicular bone.
- The wedge also may be applied to the medial or lateral aspect of the foot to manipulate the soft tissues of the digit.
- The opposite limb is elevated for one minute, and the horse is trotted off.



Navicular wedge test - 60 sec