

## The 411 on the Basic Lameness Exams

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Equine lameness is an important and prevalent area of equine medicine. Whether solving a hoof abscess or diagnosing a meniscal tear in a stifle, the basic fundamental principles of a lameness work up apply. This article will cover the basic first steps of a lameness evaluation in addition to a few of the most common nerve blocks your veterinarian may perform.

When assessing a horse with a lameness, it is important to proceed with an approach that is methodical as well as cost effect. For this reason, many veterinarians begin with basic palpation and baseline lameness examination. On palpation, your veterinarian is looking for areas of heat, swelling, joint or tendon sheath effusion, increased digital pulses, or any areas that are sensitive or reactive to palpation. Depending on the degree of lameness, horses are trotted in straight lines and circles on hard ground and soft footing for the baseline lameness assessment. The variation in lameness depending on the surface can help determine soft tissue origin or bone, as soft tissue pathologies are often accentuated in the soft footing. The degree of lameness is evaluated on a scale set by the American Association of Equine Practitioners (AAEP). This is a scale of 0-5 with 5 being the most severe lameness.

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### Grade degree of lameness (on 5)

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| 0 | Lameness not perceptible under any circumstances   |
| 1 | Lameness is difficult to observe and is not consistently apparent, regardless of circumstances   |
| 2 | Lameness is difficult to observe at a walk, or when trotting in a straight line, but consistently apparent under certain circumstances |
| 3 | Lameness is consistently observable at a trot under all circumstances  |
| 4 | Lameness is obvious at a walk  |
| 5 | Lameness produces minimal weight bearing in motion and/or at rest or a complete inability to move                                      |

After achieving this baseline lameness, flexion tests can be performed based on the baseline lameness findings. A flexion test is when specific joints or regions of a limb (lower versus upper) are flexed for several seconds and then the horse is trotted off immediately. An increase in lameness after flexion helps to narrow down the region of interest to be the source of the pain. Additionally, hoof testers may be used to check for sensitivity in the foot. By squeezing the hoof capsule in several areas and evaluating the horses' response perform this test, the areas of sensitivity can be determined if the horse tugs his leg away from the stimulus. Depending on the location of sensitivity, further diagnostics can be used to focus on these areas.

After identifying the affected limb(s) with a lameness evaluation, your veterinarian may decide to proceed with regional nerve blocks. These blocks are typically performed starting distally, or lowest on the limb, and working up the limb as the blocks desensitized everything below where the needle is inserted. There are various local anesthetic drugs that can be used for nerve blocks, however the most popular is Carbocaine (mepivacaine). This medication takes approximately 10-15 minutes to begin working and has a duration of action of approximately 2 hours. After allowing the block to begin taking effect, the horse is trotted again to evaluate the effect of the nerve block. An improvement in the lameness indicates the block desensitized the source of pain. Below is a list of common nerve blocks starting from the block lowest on the limb.

**Palmar Digital Nerve block (PDN):** This block is performed just above the heel bulbs on the inside and outside palmar/plantar digital nerves. The following structures are desensitized:

- Caudal third to two-thirds of the sole, including the heel bulbs
- Navicular bone and bursa
- Palmar coffin and pastern joints
- Distal sesamoidean ligaments, deep digital flexor tendon and sheath
- Frog corium and digital cushion
- Wings of the coffin bone

**Abaxial Nerve block:** Performed just below the fetlock joint on the inside and outside of the limb, this nerve blocks desensitizes the dorsal and palmar branches of the palmar nerve. In addition all of the areas affected by the PDN block, the abaxial block desensitizes the following major locations:

- The long pastern, short pastern, and coffin bones
- Entire corium and sole
- Dorsal branches of the suspensory ligament
- Digital extensor ligament
- Possible diffusion into the fetlock joints and proximal sesamoid bones

**Low 4 Point:** This block requires instillation of block in four different locations above the fetlock joint. The palmar and palmar-metacarpal nerves are blocked by inserting needles between the deep digital flexor tendon (DDFT) and suspensory ligament (SL) and just below the button of the splint on the inside and outside of the limb. In addition to all of the structures previously mentioned in the PDN and abaxial blocks, the Low 4 point block desensitizes the following structures:

- Coffin, pastern, and fetlock joints
- Deep digital flexor sheath
- Soft tissue structures of the pastern and foot

**Joint Blocks:** Certain joints may be blocked in order to get a very specific block when the area of pathology is suspected to be articular. Joint blocks require aseptic preparation as the needle and Carbocaine will be injected directly into the joint.

The information that can be obtained from a basic lameness examination, flexions, and nerve blocks can give the information needed to decide on further diagnostics. Radiographs and ultrasound are the most common diagnostic modalities used in equine lameness, however advanced imaging such as magnetic resonance imaging (MRI), computerized tomography (CT), and nuclear scintigraphy (Bone scan) are also very informative. MRI and CT will need to be performed under general anesthesia due to the necessity of the horse being absolutely still.

Lameness work-ups are an essential part of the equine health care. This common systematic approach can help localized the affected area to focus diagnostic efforts and make the correct diagnosis and treatment plan.

#### References

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