

Equine Nerve Blocks

A PowerPage Presented By



A general working knowledge of the equine lameness examination and diagnostic perineural analgesia is important for the national board examination. This PowerPage is intended to review the basic anatomy of the limb and the diagnostic nerve blocks used in the lameness examination. Although numerous sites of perineural analgesia are described in the literature, this review will only cover 4 main blocks that are typically a source of questions on that national board examination. These include the palmar digital block, abaxial sesamoid block, low four-point (palmar) block, and high four-point (palmar) block.

Palmar Digital Block

The distal limb is a common source of lameness in the horse. Anatomical structures subject to injury in the distal limb include the distal interphalangeal (coffin), proximal interphalangeal (pastern), and metacarpophalangeal (fetlock) joints. Additional structures that may be involved, among others, include the flexor (superficial and deep) and extensor tendons, tendon sheath, phalanges (P1-3), and structures of the hoof. Figure 1A and B demonstrate lateral views of the distal forelimb while Figures 2A and B demonstrate anterior-posterior views.

- **Block Location:** A small amount of local anesthetic (e.g. lidocaine) is placed around the medial and lateral palmar digital nerves (blue arrows) which are typically palpable between the proximal sesamoid bones and just proximal to the cartilages of the foot.
- **Desensitized Areas:** 50-70% of the palmar/plantar aspect of the foot is desensitized using the palmar digital nerve block. This would include most of the distal interphalangeal joint except the proximodorsal region.

Figure 1A



Figure 1B



Figure 2A



Figure 2B



Abaxial Sesmoid Block

As you work your way up the limb, the abaxial sesmoid block is the next common area to be anesthetized. Figure 3A and B demonstrate lateral views of the distal forelimb/fetlock region while Figures 4A and B demonstrate anterior-posterior views.

- **Block Location:** A small amount of anesthetic is placed around the medial and lateral palmar digital nerves which are palpable over the abaxial surface of the medial and lateral aspect of the proximal sesamoid bones (red arrows).
- **Desensitized Areas:** Skin over the palmar pastern and distal dorsal pastern along with the foot and proximal interphalangeal joint are desensitized. Partial desensitization of the palmar fetlock may also occur.

Figure 3A



Figure 3B



Figure 4A

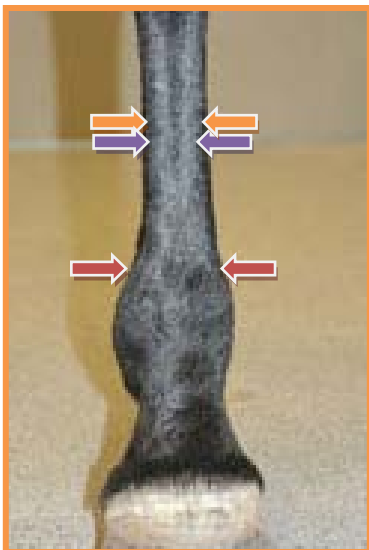


Figure 4B



Low Four-Point (palmar/plantar) Block

Proximal to the abaxial sesmoid block is the low four-point block. In this block the medial and lateral palmar nerves and the medial and lateral palmar metacarpal nerves are anesthetized.

- **Block Location:** To block the palmar nerves, a small amount of anesthetic is placed dorsolateral and dorsomedial to the digital flexor tendon (between the suspensory ligament and deep digital flexor tendon) at the level of the distal metacarpal bone (orange arrows), proximal to the fetlock joint. The medial and lateral palmar metacarpal nerves course parallel to the 2nd and 4th metacarpal (splint) bones and can be anesthetized as they emerge distal to the end of the splint bones. The site of injection for the metacarpal nerves is just distal to the end of the splint bones on each (medial/lateral) side (purple arrows). See image 4A and B.
- **Desensitized Areas:** Entire metacarpophalangeal (fetlock) joint and structures distal to this joint.



High Four-Point (Subcarpal) Block

The final block that will be discussed here is the high four-point or subcarpal block which involves anesthesia of the medial and lateral palmar nerves and the medial and lateral palmar metacarpal nerves just distal to the carpus.

- **Block Location:** To block the medial and lateral palmar nerves, anesthetic is placed between the suspensory ligament and the deep digital flexor at a level just distal to the carpus (blue arrows). Subsequently, to block the medial and lateral palmar metacarpal nerves, anesthetic is placed axial to the splint bones and abaxial to the suspensory ligament and then guided to the palmar cortex of the cannon (third metacarpal) bone (red arrows). See images 5A-B and 6A-B.
- **Desensitized Areas:** Metacarpal region along with the entire metacarpophalangeal (fetlock) joint and structures of the digit.

Figure 5A



Figure 5B



Figure 6A



Figure 6B1



Conclusion

This PowerPage was intended to review the basic nerve blocks that an equine practitioner may utilize. It is important that the user realize that each block has individual idiosyncracies that were not elaborated upon here. It is also recommended that you use a equine text to review more detailed anatomy if you planning on entering equine practice. From the standpoint of the National Board Exam, the most commonly utilized questions in regard to this information would be akin to the following:

You are evaluating a horse with a right front lameness that resolves by 85% after performing a low four-point block. The most likely area resulting in the lameness is:

- a) The proximal metacarpal region or below
- b) The metacarpophalangeal (fetlock) joint or below
- c) Proximal P1 and below
- d) Caudal region of the foot

With the information provided here, you should be able to answer “b” as the correct answer. Thus a general knowledge of what specific block anesthetizes what specific area will allow you to answer these questions correctly. It is unlikely that the examination will ask you how to specifically perform each individual block or which specific nerve is being anesthetized.

