



Build an Equine Distal Limb

Context

The equine distal limb consists of a complex set of structures that enables horses to ambulate over most surfaces, conserve energy, and be athletic despite their large size. While 90% of lamenesses in the horse are isolated to the foot, there are many structures in the equine limb that are also prone to injury and responsible for causing lameness. Communication with clients around these concepts is essential to enact effective treatment plans, improve the quality of life for your patients and return them to normal function.

Learning Outcomes

By the end of the session, you should be able to:

- ☐ Identify the crucial anatomical components of the equine distal limb to include bones (anatomic and common names), ligaments, tendons, soft tissue structures, and joints (anatomic and common names).
- ☐ Describe the distal tendon attachments.
- ☐ Explain the actions of the distal tendons (flexion and extension) displayed on this model.
- ☐ Explain the topographical relationships of the various musculoskeletal structures of the equine distal limb.
- ☐ Describe how the structures of the equine distal limb mitigate physical forces when weight bearing.

Criteria for Success

1. Use resources effectively to complete all learning outcomes.
2. Meet all expectations for the learning community during ALE participation.
3. Complete the Connect section.
4. Devise a plan to clear up points of confusion on your own.

Active Learning Instructions

1. Identify the following structures of the distal limb model as you disassemble it:

- ☐ Hoof (epidermis or insensitive layer)
- ☐ Corium (dermis or sensitive/vascularized layer)
- ☐ Tendons, ligaments & soft tissue structures
 - ☐ Lateral cartilages
 - ☐ Digital cushion
 - ☐ Distal tendon of superficial digital flexor (SDF)
 - ☐ Flexor manica

- ☐ Distal tendon of deep digital flexor (DDF)
- ☐ Distal tendon of the long or common digital extensor
- ☐ Suspensory ligament (interosseous ligament)
- ☐ Medial & lateral extensor branches of the suspensory ligament
- ☐ Distal sesamoidean ligaments
- ☐ Bones & bony structures
 - ☐ Cannon bone (metacarpal/metatarsal 3)
 - ☐ Splint bones (metacarpals/metatarsals 2 & 4)
 - ☐ Buttons
 - ☐ Medial & lateral proximal sesamoids
 - ☐ Long pastern, short pastern & coffin bones (proximal [P1], middle [P2] & distal [P3] phalanges)
 - ☐ Extensor process of P3
 - ☐ Navicular bone (distal sesamoid)
- ☐ Joints (do not disarticulate the joints- leave collateral ligaments intact)
 - ☐ Metacarpophalangeal/metatarsophalangeal (fetlock) joint
 - ☐ Proximal interphalangeal (pastern) joint
 - ☐ Distal interphalangeal (coffin) joint

3. Reassemble the model, associating structure & location to function.

4. Using the model, demonstrate the:

- ☐ Hyperextension of the distal joints from footfall through breakover of the foot (stance phase)
- ☐ Flexion of the distal joints that would occur during the swing phase of locomotion

Connect

1. Identify where the accessory or check ligaments would be located on this model. How does your answer vary between the fore and hind limb?
2. If you were to perform an ultrasound on the palmar or plantar aspect of the distal equine limb, what structures would you identify from superficial to deep? In other words, describe the topographical relationships of the structures between the skin and the cannon bone.
3. If you were to add the annular ligaments of the fetlock, the intersesamoidean ligaments and distal navicular (impar) ligaments, where would you place them, and how would you describe their function.

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