Performance Lameness
in Reining Horses

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Types of lameness

• Arthritis
  – Any type of joint inflammation
    • Hock, pastern, stifle, coffin joints
    • Most often “wear-and-tear”, cumulative stress
    • Following injury
    • Developmental Diseases: “D.O.D.”
  – Usually worsens during flexion test
  – Diagnosis: Radiographs, Ultrasound, CT/MRI

• Soft Tissue
  – Tendons, Ligaments, Muscles, Bursa
  – Usually improves with rest, worsens after work
  – Diagnosis: Ultrasound, CT/MRI
Recognizing Lameness

- Forelimb lameness ⇒ “Head-bob”
- “Unloading” the sore forelimb
- Landing heavier on opposite forelimb
* 80% of forelimb lameness is from fetlock or lower *

QuickTime™ and a Sorenson Video decompressor are needed to see this picture.
Recognizing Lameness

- Hindlimb lameness $\Rightarrow$ “Hip-hike”
- Greater height AND depth on the lame leg
* Majority of hindlimb lamenesses are hock pain *

QuickTime™ and a Video decompressor are needed to see this picture.

QuickTime™ and a Sorenson Video 3 decompressor are needed to see this picture.
Arthritis Prevention?

- Wear-and-Tear vs One Traumatic Event
- Fitness
- Conformation abnormalities initiate arthritis
- Balanced shoeing and trimming

- Oral Supplements
  - Glucosamine + Condroitin
  - MSM, Yucca Root
  - Avocado Unsaponifiables: “ASU”
  - Oral H.A?
- Injectable Supplements
  - Legend
  - Adequan
  - Their “knock-offs”
Hock Lameness

- The classic wear-and-tear type of arthritis
- Most Common:
  - Progressive arthritis in joints of the lower hock
    - Tarsometatarsal + Distal Intertarsal
- Less Common:
  - OCD fragments in the top hock joint (tibiotarsal)
  - Arthritis in the upper hock joints
    - Usually follows trauma (e.g. fractures or infection)

Diagnosis: Lameness Exam, Radiographs
Treating Hock Arthritis

- Legend and Adequan
- Joint Injections
  - “Cortisone”
  - Low-motion joints:
    - Less long-term risks
    - Less Consequence of cartilage injury
- End-Stage Disease
  - Fusion
    - Surgical Fusion
      - “Drill the Hocks”
      - Laser Fusion
    - Chemical Fusion
      - Old School - M.I.A: Severe inflammation and Pain
      - New Research - EtOH: DECREASED discomfort, ultimate fusion
Pastern Joint Arthritis

• “Ring-Bone”
• Wear-and-Tear
  – Gradually increasing inflammation over months or years
• Acute Trauma
  – Collateral Ligament Tears

• Diagnosis:
  – Where?
    • Nerve and/or Joint Blocks
  – What?
    • Radiographs
Pastern Joint - Treatments

• Joint Injections:
  – Cortisone
  – IRAP

• End-stage Disease
  – EtOH injections
    • No published research on treating Pastern
  – Surgical Joint Fusion
Heel Pain

• Aka “Navicular Disease”
• Navicular Bone is rarely the problem
  • Instead:
    – Deep Digital Flexor Tendon
    – Sesamoidean Ligaments
    – Collateral Ligaments (Pastern, Coffin Jts.)
    – Navicular Bursa, Impar Lig.
    – Suspensory Lig. of Navicular
Treatments

• *Trimming and shoeing:
  – Hoof-pastern Axis:
    • Maintaining strong, wide heels
    • Minimizing the toe to ease Break-Over
  – “Bute” as needed
    – Side Effects
    – Does not treat the primary inflammation

• Shockwave
  – Minimize pain
  – Stimulate soft-tissue healing

• Navicular Bursa Injections
  – Symptomatic Therapy

• Coffin Joint Injections
  – Coffin Joint Pain may be a component
  – “Reservoir” for treating the entire region
Soft Tissue Injury

- Tendons and Ligaments are fiber bundles
  - When fibers tear: Produces pain, weakens the entire unit
- Classically:
  - Occur with rapid change in direction
  - More Frequent with deep footing
  - Moderate Intermittent Lameness
  - Worse towards outside of circle
- Diagnosis:
  - Where? Nerve Blocks
  - What?
    - * Ultrasound *
    - MRI
Suspensory Ligament

- Occurs during sliding stops
- Suspensory Branches
  - Just above the fetlock joint
- Origin of the Suspensory
  - Just below the knee/hock
Flexor Tendon Injuries

- Mild “Bow”: Peritendinous Swelling
  - E.g. “Bandage Bow”
  - Short-Term Rest - Weeks

- Severe “Bow”:
  - Fiber Tearing
  - Long-term rest - Months

- The Classic Soft Tissue Injury
  - Early: Obvious to See and feel
  - Late: May palpates normal
    - Minimal Lameness without extended work
Collateral Ligaments

- **Collateral: “CO”-lateral**
  - Injury follows twisting and shearing trauma
    - Worst in deep footing
  - Provides stability to joints
    - Medial to Lateral Support
    - Wrapping can support collateral ligaments

- **Response to Injury**
  - Varying Degrees of Instability
  - Joint is unstable: new bone formation

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.
Ligament Injury Treatments

• Ice Early (first 24 hrs)
  – Ice Boots

• Heat Late (after 24 hrs)
  – Therapeutic Ultrasound
  – Lasers

• REST
• REST
• REST
• Stem-Cell Injections
• Platelet-Rich Plasma
• Shock-wave
Developmental Orthopedic Diseases, “D.O.D”

• A group of developmental conditions all related to lameness in growing horses
• Combination of genetics, diet, and environment
• Angular Limb Deformities = “Crooked Legs”
• O.C.D. = Cartilage Flap Defects
  = Bone Cyst Defects
• “Wobblers”
Angular Limb Deformities

• Possible Risk Factors:
  – Position in Utero
  – Selenium Deficiency
  – Other nutrients?
  – Pre-maturity and Dysmaturity
    • Crushing of small bones in knees/hocks
  – Rapid Growth
    • Excessive Calories
    • Abnormal Insulin/Glucose regulation?
Treatments

• Hoof Extensions
• Minimize muscle/tendon contracture
  – Heavy Bandages
  – Splints/Casts
  – Medications
    • Oxytetracycline
    • Low-Dose Bute
• Surgery: “Strip + Screw”
  – “Strip”: Periosteal Elevation
    • Stimulates growth on the “short” side
  – “Screw”: Transphyseal Bridge
    • Slows growth on the “long” side
OCD: Osteochondrosis Dessicans

- “Failure of Endochondral Ossification”
- Abnormal Bone Formation
  - Cysts
  - Bone Fragments
  - Cartilage Flaps
- Fast-growing Foals
- Riskiest Age?
  - 2-7 months
OCD Causes

• Genetic Risks:
  – OCD is very rare in wild horses
  – Breeding Affected to Affected: >50% Rate of OCD

• Nutritional Risks for Weak Bone, Cartilage:
  – Energy Levels
    • Avoid Simple Sugars
      – Produce rapid growth
      – Increased Insulin Effect: Insulin, IGF-I + II, Thyroid Effects
  – Micronutrients (Phosphorus)
    • Excess phosphorus weakens bone + cartilage
  – Micronutrients (Copper):
    • Provide Adequate Copper: At least 10 ppm
    • Avoid excess Zinc (Decreases Copper availability)
O.C.D.

• Clinical Signs
  – Joint Swelling + Lameness
  – Clinically healthy Otherwise

• Locations:
  – Hock Joints
    • Top (Large) Hock Joint
    • Distal Intermediate Ridge of the Tibia
  – Stifle Joints
    • Medial Femoral Condyle
    • Lateral Trochlear Ridge
  – Can occur in any joint
  – Neck Joints
    • One cause of “wobblers”
OCD Treatments

• Best Defense is A Good Offense
  – Minimize Rapid Growth
  – Careful Feeding:
    • Moderate Calories
    • Adequate Copper
    • Avoid Excess Zinc
    • Anti-O.C.D. complete feeds and supplements

• Medical Treatments
  – Joint Injections
    • IRAP vs. Cortisone
    • Usually not definitive

• Surgical Treatments:
  – Arthroscopic debridement of bone fragments
  – Stem-Cell Injections/Bone Grafts
Thank You!!

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