BOUNDARY BAY

VETERINARY SPECIALTY HOSPITAL

24-Hour Specialty, Emergency & Critical Care
Langley, BC

“Wonky Back Ends”:

The clinician’s approach to hind limb weakness

The orthopedic examination

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Purpose of the Orthopedic Exam

- Systematic evaluation of musculoskeletal system
- Identify the source of lameness or instability
- Informs differential diagnosis list
  - Signalment
  - History
  - Limb and joint/bone affected
  - Severity & chronicity of lameness
- Dictates further diagnostics
  - Radiographs, ultrasound, CT scan, MRI, arthrocentesis, bloodwork, arthroscopy
- Narrows treatment options

Stages of Orthopedic Exam

- Orthopedic History
- General Physical Exam
- Gait Analysis
- Standing Exam
- Recumbent Exam

Stages of Orthopedic Exam

- ORTHOPEDIC HISTORY
  - General Physical Exam
  - Gait Analysis
  - Standing Exam
  - Recumbent Exam
- Chief complaint
  - Verify limb(s) the owner believes is affected
- Duration of clinical signs
- Cause/initial presentation
- Progression of clinical signs
- Response to any previous treatment

Stages of Orthopedic Exam

- Orthopedic History
- GENERAL PHYSICAL EXAM
- Gait Analysis
- Standing Exam
- Recumbent Exam

- Evidence of systemic illness
- Concurrent neurologic disease
- Prioritize diagnostics/treatments

Gait Analysis

- Evaluate at a walk and a trot
  - Some abnormalities more visible at faster or slower gaits
  - Often best analyzed on walk to exam room, before patient becomes stressed
  - Walk on flat, non-slip surface
  - Minimize dog pulling forwards/sideways against leash – balanced gait
- Is gait normal or abnormal?
  - Evaluate for lameness, skipped steps, bunny-hopping, pacing, scuffing, two-engine gait...
- Abnormalities symmetric or asymmetric?
  - Right vs left, front vs back
- Which limb(s) are affected?
  - Bilateral lameness may be difficult to identify
- Evidence of neurologic disease?

Gait Analysis

- Forelimb lameness
  - Head position during gait - “Down on sound”
  - Decreased time in stance phase on painful limb
  - Consider repeating gait analysis after standing/recumbent exam if inconclusive, as this may exacerbate lameness
  - Specific lameness:
    - Infraspinatus contracture - Circumduction with carpal flip
- Hindlimb lameness
  - Hip/pelvis position - “Down on sound”
  - Decreased time in stance phase on painful limb
  - Tail generally held towards sound side
  - May have compensation with contralateral forelimb “lameness” due to weightshifting
  - Specific Lameness:
    - Patellar luxation – skipped steps without lameness between episodes
    - Hip dysplasia – Wide-based stance vs Narrow-based stance
    - Sit-test

Standing Exam

- Important to know normal
- Neurologic exam
  - Including proprioception
- Muscle symmetry/atrophy
- Weightbearing left-right
- Distal joint effusion
  - Shoulder/hip difficult to palpate

Recumbent Exam

- Crepitus
- Range of motion
- Effusion
- Pain
- Instability

- Start with non-injured limb
- Evaluate distal → proximal

Recumbent Exam

- CREPITUS
- Range of motion
- Effusion
- Pain
- Instability
- Fine vs coarse
- Articular vs non-articular
  - Osteophytes
  - Loss of articular cartilage
  - Tendon over bone
  - Long bones

Recumbent Exam

- Crepitus
- RANGE OF MOTION
  - Physiologic vs Pathologic
    - Flexion & extension
    - Abduction/adduction
    - Varus/valgus
    - Torsion
- Effusion
- Pain
- Instability

Recumbent Exam

- Crepitus
- Range of motion
- EFFUSION
- Pain
- Instability

- Increase in intrasynovial fluid volume
  - Displacement of soft tissue structures surrounding joint
- Pain on full flexion/extension due to increased intra-articular pressure

Recumbent Exam

- Crepitus
- Range of motion
- Effusion
- PAIN
- Instability

- Pain on range of motion
- Pain on palpation of joint capsule
- Pain on palpation or manipulation of long bone
- Absence of pain

Recumbent Exam

- Crepitus
- Range of motion
- Effusion
- Pain
- INSTABILITY

- Non-physiologic joint motion
  - Luxation/subluxation
  - Excessive range of motion
- Instability of long bones

Distal Limb

- Foot
  - Nail length/scuffing
  - Interdigital webbing
  - Paw pad wear
  - Paw pad injuries
- Digits
  - CREPI - independently & together
  - Long bones
  - Collateral ligaments
  - Sesamoids
- Metacarpals/Metatarsals
  - Long bone palpation
  - Sesamoids

Forelimb

- Carpus
  - Range of motion
    - Flexion
    - Hyperextension
    - Luxation
    - Medial/lateral instability
  - Effusion
- Elbow
  - Crepitus
  - Range of motion
    - Medial/lateral instability
  - Cubital test
  - Effusion
  - Soft tissue thickening

Forelimb

- Shoulder
  - Crepitus
  - Range of motion
    - Medial/lateral instability
  - Biceps test
  - Axillary palpation
- Long Bones
  - Crepitus/instability
  - Pain on direct palpation
    - Avoid deep palpation into muscle bellies
  - Swelling
  - Do not forget scapula

Hindlimb

- Tarsus
  - Range of motion of each joint level
    - Flexion
    - Hyperextension
    - Luxation
    - Medial/lateral instability
      - In flexion & extension
  - Effusion
  - Common calcanean tendon
- Stifle
  - Crepitus
  - Range of motion
    - Pain on hyperextension
    - Medial/lateral instability
  - Tibial thrust & cranial drawer
  - Effusion
  - Medial buttress
  - Patellar luxation

Hindlimb

- Hip
  - Range of motion
    - Flexion
    - Extension
    - Abduction
    - Luxation
  - Ortolani test
  - Crepitus
  - Iliopsoas palpation & ROM
- Long Bones
  - Crepitus/instability
  - Pain on direct palpation
    - Avoid deep palpation into muscle bellies
  - Swelling
  - Do not forget pelvis
    - Rectal exam