

**Hind Limb Lameness in Dogs-**  
**Dogs-**  
 It's always a cruciate tear...  
 ...until it's not!

Michelle Trappler, VMD, DACVS  
 June 10, 2015



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**Introduction**



Justine A. Lee, DVM,  
 DACVECC, DABT  
 CEO, VETgirl



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**Introduction**



Garret Pachtinger,  
 VMD, DACVECC  
 COO, VETgirl

**vsec** VETERINARY SPECIALTY & EMERGENCY CENTER



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## VETgirl ELITE



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50-60 podcasts/year *plus* 20 hours of webinars!

- \$199/year
- 20+ hours of RACE-CE

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## Members: iTunes Download!





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The image shows a collection of social media icons: YouTube, Twitter, Google+, Pinterest, and LinkedIn. To the right is a screenshot of the VetGirl website, which features the text 'VETgirl' and 'www.vetgirlontherun.com'. The website header includes a navigation menu with 'Home', 'About Us', 'Services', 'Blog', and 'Contact Us'. Below the header, there is a section titled 'VetGirl' with a sub-header '20,362 Members' and a 'Join Now' button. The website also displays a 'Like' button and a 'Share' button.

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### Logistics: CE Certificates

- No need to raise your hand!
- Type in questions
- Emailed to you **48 hours** after the webinar
- Active participation = no quiz
- Watching video later, must complete quiz
  - ELITE members only
- Email / contact with ANY questions
  - garret@vetgirlontherun.com
  - justine@vetgirlontherun.com

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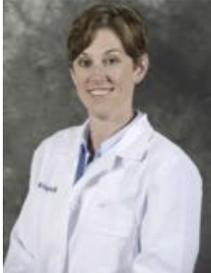
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## Introduction



- Michelle Trappler,  
VMD, DACVS
  
- Surgeon at Hospital Veterinario  
San Francisco de Asis



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## Hind Limb Lameness

- History and Presentation
- Gait observation
- Orthopedic and Neurologic  
Exam
- Specific Conditions



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## History and Presentation

- Acute vs Chronic?
- Progressive? Improving vs worsening?
- Exacerbated by activity?
- Changes with medications?
- Why presented now?



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### Gait Observation

- Watch dog from afar
- Check posture
- Look for asymmetry and muscle atrophy
- Sit test



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### Gait Observation

- Straight line walk and trot
- Circles to both sides
- Stride length
- Abduction/Adduction



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### Orthopedic/Neurologic Exam

- Start at the toes and work your way up
- Palpate each bone for pain, fractures
  - Metaphyseal vs Diaphyseal
- Check joints for increased ROM
- Localize any soft tissue swelling
- Check tendons and ligaments as you go

Orthopedic Examination of the Rear Limb in the Dog.  
Derek Fox. NAVC Clinician's Brief- July 2007.

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Orthopedic/Neurologic Exam

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- Paw pads
- Interdigital areas
- Nails
- Nail bed
- Toe ROM
- Flex and extend toes



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Orthopedic/Neurologic Exam

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- Metatarsals
- Tarsal ROM
- SDF at point of hock
- Med/Lat Stability



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Orthopedic/Neurologic Exam

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- Tibia
- Achilles Tendon



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Orthopedic/Neurologic Exam

- Stifle ROM
- Med/Lat Stability
- Patella tracking
- Patellar tendon
- Stifle effusion
- Fibular head
- McMurray test



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Cranial Drawer                      Tibial Thrust



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Orthopedic/Neurologic Exam

- Femur
- Hip Flexion
- Hip Extension
- Ortolani (C&D)



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**Ortolani Test**

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Positive Ortolani = "Clunk"



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**Orthopedic/Neurologic Exam**

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- Tail Jack
- Extend hips bilaterally
- Palpate LS per rectum



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**Orthopedic/Neurologic Exam**

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- Check toes for scuffing
- Check CPs
- Check withdraw, patellar, sciatic



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### Specific Conditions

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- Achilles rupture
- SDF luxation
- Patellar luxation
- CCL tear
- Meniscal tear
- Gracilis contracture
- Iliopsoas strain
- LS disease




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### Achilles Rupture

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- Achilles:
  - Gastrocnemius
  - SDF
  - Gracilis
  - Semitendinosus
  - Biceps femoris
- Acute (traumatic) or chronic (degenerative) lameness




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### Achilles Rupture

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Complete tear

Partial/ Gastroc only




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## Achilles Rupture

### Complete tears

- Often acute and associated with trauma/ lacerations
- Often mid-body tears
- May not be painful
- May or may not be able to palpate defect or swelling of tendon




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## Achilles Rupture

### Complete tears

- Diagnosis based on clinical suspicion/ PE
- Can perform ultrasound to determine exact location of injury
- Surgical repair recommended to approximate tendon ends, followed by immobilization




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## Achilles Rupture

### Partial tear/ Gastroc Avulsion

Usually non-traumatic

Medium- large breed dogs

Labs and Dobies overrepresented

Older female cats




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## Achilles Rupture

**Partial tear/ Gastroc Avulsion**

May see hyperflexion of hock and curling of toes

Likely the result of repetitive trauma



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## Achilles Rupture

- Palpation of tendon may reveal swelling
- Soft tissue swelling and/or enthesiophytes at insertion on calcaneus



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## Achilles Rupture

- Treatment options include surgical repair and/or regenerative medicine



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## Achilles Rupture

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## SDF Luxation

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- Generally acute onset lameness, usually associated with trauma
- Owners may hear a popping sound when walking
- Swelling over point of hock and luxation of tendon on PE
- Shelties & Collies predisposed



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## SDF Luxation

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- Diagnosis based on palpation
- Rads often reveal soft tissue swelling at point of hock
- Can also demonstrate luxation on dynamic ultrasound



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## SDF Luxation

- Treatment: retinacular repair +/- deepening of groove on calcaneus



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## CCL Tears

- Young dogs can get cruciate disease!
  - Avulsion of the CCL from femoral or tibial\* attachment sites
  - Look for avulsed bone fragment on rads



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## CCL Tears

- Cats can get cruciate disease!
  - Older, overweight cats
  - Clinical history similar to dogs
  - Dystrophic mineralization of CCL insertion and/or meniscus more likely than in dogs
  - Caudal cruciate is smaller than cranial in cats. Reverse is true in dogs.
  - Conservative treatment traditionally recommended, but surgery is also effective



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## Meniscal Tears

- Typically associated with CCL tears in dogs (and cats)
- Isolated meniscal tears are rare, but can occur
  - Reported in Boxers, working dogs, in association with OCD lesions
- McMurray test
- Diagnose with arthroscopy or MRI



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## Patellar Luxation

- MPL- Small & Large Breeds
- LPL- Large breeds
  - “knock-kneed”
- Grades 1-4
  - 1: In, In
  - 2: In, Out
  - 3: Out, In
  - 4: Out, Out



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## Patellar Luxation



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### Gracilis/Semitendinosus Contracture

- Most common in German Shepherds, 3-7 years
- Weight bearing, affected leg will jerk up when raised, hock hyperflexed and externally rotated, internal rotation of the metatarsus
- Non-painful
- Cause unknown, thought to be due to repetitive strain injury
- May have history of injury weeks to month prior to onset of contracture



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### Gracilis/Semitendinosus Contracture

- Palpation reveals tight fibrotic band in area of gracilis/semiten (medial groin)
- Decreased extension on gracilis stretch
- Usually progressive to a point, then static
- Conservative treatment currently recommended



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### Iliopsoas Strains

- Iliopsoas- fusion of the psoas major and iliacus
- Responsible for external rotation and flexion of the hip and vertebral column
- Mild to moderate lameness that often improves after onset
- Reduced hip extension, short stride
- Decreased hind limb muscle mass



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## Iliopsoas Strains

- Pain on direct palpation of origin, insertion and muscle body
- Exacerbated with hip extension and internal rotation of the femur
- Can see femoral neuropathy with severe cases



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## Iliopsoas Strains

- Diagnosis based on palpation
- +/- Avulsion at lesser trochanter on rads
- Ultrasound for severe cases



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## Iliopsoas Strains

- Rehab therapy is the mainstay of treatment
  - Manual therapy
  - Laser
  - Stretching and strengthening techniques
  - Rest
  - NSAID/Tramadol / Methocarbamol
- Severe cases may require regenerative medicine



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### Lumbosacral (LS) Syndrome

- Large breed dogs, GSD overrepresented
- 6-7 years old, younger in working dogs
- Males predisposed
- Progressive




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### Lumbosacral (LS) Syndrome

- Clinical signs
  - Crouched posture
  - Reluctance to jump
  - Difficulty rising, with stairs
  - Unilateral or bilateral hind limb lameness
  - Paraparesis
  - Root signature
  - Short choppy gait
  - Urinary incontinence




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### Lumbosacral (LS) Syndrome

- A- Bulging of the disc
- B- Thickened dorsal anulus
- C- Mechanical instability of L7-S1
- D- Osteophyte formation in spinal canal
- E- Thickening of joint capsule
- F- Thickening of ligamentum flavum




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### Lumbosacral (LS) Syndrome

**Radiographs:**  
Sclerosis of LS endplates  
Wedging of disc space  
L7-S1 Spondylosis

**MRI:**  
Ventral compression  
of cauda equina



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### Lumbosacral (LS) Syndrome

- Medical therapy
  - NSAIDs/steroids
  - Tramadol
  - Leash walks
- Surgical therapy
  - Decompression
  - +/- discectomy
  - +/- stabilization



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### Hip Dysplasia

- Unilateral or bilateral hind limb lameness
- Reluctance to rise, jump, do stairs
- Weight shifting to forelimbs
- Decreased muscle mass of hindlimb(s)
- Hip pain
- Positive Ortolani sign



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## Hip Dysplasia

- Dogs of any age, size
- Swaying of hind end
- Bunny hopping gait
- Reluctance to run, jump, do stairs




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## Hip Dysplasia

- Radiographs
  - Screening: OFA, PennHip, DLS
  - Diagnostic: V/D & lateral
  - pelvis




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## Hip Dysplasia

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|---|---|
| <ul style="list-style-type: none"> <li>• Medical:           <ul style="list-style-type: none"> <li>• Pain management</li> <li>• Weight management</li> <li>• Low impact activity</li> <li>• PT</li> <li>• Disease modifying OA drugs</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Surgical:           <ul style="list-style-type: none"> <li>• JPS</li> <li>• TPO/DPO</li> <li>• THR</li> <li>• FHO</li> </ul> </li> </ul> |
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 VetGirlOnTheRun  
[Garret@vetgirlontherun.com](mailto:Garret@vetgirlontherun.com)  
[Justine@vetgirlontherun.com](mailto:Justine@vetgirlontherun.com)

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### 2015 VETgirl Webinar Topics

Check out some of our 2015 RACE-Approved VETgirl webinars  
Please visit our website for a complete list! [www.vetgirlontherun.com](http://www.vetgirlontherun.com)

- Seizure diagnosis and treatment
- Common feline ophthalmic conditions
- What's new in veterinary wound healing
- Common emergency room procedures
- Arrested development: The RECOVER initiative and CPR updates
- To cut or not to cut: Approach to the abdominal radiograph
- Emergency management and treatment of rattlesnake envenomations
- Misconceptions of emergency and critical care
- Summer toxins affecting small animals
- Feline pediatrics: Treating the small and the sick





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### Check out our 2015 upcoming VETgirl appearances!



**Dr. Justine Lee**

- IVS, Vancouver, June 2015
- IVS, Amelia Island, July 2015

**Dr. Garret Pachtinger**

- NCASAM, October 2015
- GVMA, November 2015
- CVC, San Diego, Dec 2015



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Questions?

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