- Update on Sports medicine

- **Relationship between repository radiographic findings and subsequent performance of Quarter Horses competing in cutting events**
- Repository films of 343 client owned QH
  - 22 images of 10 joints
    - LM, DP fore and hind fetlocks
    - Flexed lat carpi
    - LM, DLPMO, DMPLO, DP of hocks
    - CrCd, CdLCrM obl of stfles
  - Performance data
    - Did the horse compete? If not why
    - Did the horse earn money? How much

- Radiographic findings and scores

- Performance data available for 178
  - 103 no earning available
    - 29 competed but did not earn money
    - 74 did not compete
      - Lameness most common 22%

- Lesions affecting performance
  - Osteophytes of the distal tarsal joint (grade 1 and 2)
  - Osteophytes hindlimb P2 dorsoproximal
- Retrospective analysis of distal limb conformation and lameness in mature horses after desmotomy of the accessory ligament of the deep digital flexor tendon for management of a flexural deformity
- Dorsal hoof wall angle <60°
- Previous studies on ALDDFT desmotomy
  - Young horses
    - <8 mons STB had good prognosis for race career
    - Tb foals were less likely to race than age matched peers
  - Adult
    - Median age 7 yrs. 8/9 horses improved soundness 90 days post-op

    - Median age 3.yrs 12/14 horse returned to performance

- 13 horse mean age 5 yrs. with median follow-up time 34.5 months
  - Lameness improved from gr 2 to gr 1 in 69%, no change 31%, sound 38.5%
  - Radiograph improvement of the distal phalanx improved in all
  - 77% were able to be just for intended function (most medium level of activity)
- Effectiveness of furosemide in attenuating exercise-induced pulmonary hemorrhage in horses when administered at 4- and 24-h prior to high-speed training
- 15 racing TB
- Study design
  - 3 way cross-over design, 2 week washout
    - 5 ml saline 4 hrs prior to work
    - 250 mg furosemide 4 hrs prior to work
    - 250 mg furosemide 24 hrs prior to race
    - Water withheld 4 hrs prior to race
  - 5 furlongs

- Study design
  - Endoscopic exam
  - BAL exam

- Results
  - Endoscopic scores
    - Lower in 4 hr furosemide group compared to 24 hr
    - No difference between saline or furosemide groups
  - BAL
    - Difference in RBC between furosemide and saline groups
    - 4 hr furosemide having the greater difference
- **Pharmacokinetics of tiludronate in horses: A field population study**

- 39 horse with diagnosed musculoskeletal issues
- Currently in competition
  - 21 racehorses
  - 12 sport
  - 6 unknown

- 1 mg/kg tiludronate in 1 L saline IV
- Samples collected at 10, 20, 30, 40 or 50 days post administration

- **Expression of inflammatory and structural matrix genes in synovial fluid following intra-articular administration of isoflupredone acetate to exercised horses**

- 12 horses in simulated work program
- IA administration- carpus
  - 8 mg isoflupredone acetate
  - 4 saline same volume
- Samples
  - Blood 0, 15, 30 and 45 min and 1, 1.5, 2, 2.5, 3, 4, 5, 6, 8, 12, 18, 24, 36, 48, 72 and 96 h post
  - Synovial fluid 0, 24, 48, 72, 96 and 120 h and 7, 14, 21, 28, 35, 42 days post

- Effects on interleukins and MMP in synovial fluid
  - Decrease of IL23A
    - IL23A protein indirectly increases levels of various pro-inflammatory mediators by inducing differentiation of naïve $CD4^+$ T cells into helper T cells
  - Downregulation of MMP1 and MMP 9
    - MMP 1 production has been shown to be increased by interleukin-1 and tumor necrosis factor
    - MMP 9 is promoted by IL23A

- Isoflupredone
  - Falls below detectable levels within plasma within 48 hrs.
  - Detected within synovial fluid 4-21 days
  - Effects on MMP up to 42 days
- **Ultrasonographic screening for subclinical osteochondrosis of the femoral trochlea in foals (28–166 days old): a prospective farm study**

- 46 TB foals between ages of 27-166 days
  - LRTF of both hindlimbs were imaged once with ultrasonography and radiography (lateromedial and caudolateral-craniomedial oblique views).
    - Cartilage thickness, ossification front indentation of the chondro-osseous junction
    - Epiphyseal vascularization were assessed on ultrasonography

    - Follow-up radiographs were taken as yearlings.

- 27-62 day old foals
- Ossification front was highly indented
- Assessment of normal developmental variations compared with radiography
- Indentations with a V shape (a, b) are considered physiological
- Semicircular and wider indentations (e, f) were judged to be subclinical osteochondrosis

- 66-121 days old foals
- Cartilage was thinner and the ossification front was less indented, appearing more homogeneous
- More indentations within the middle third of the trochlear ridge when compared with proximal and distal trochlear sites
- Difference in cartilage thickness between proximal and distal region was less obvious

- 122-180 days foals
- Cartilage thickness was similar between the proximal, middle and distal thirds of the trochlear ridge
- Very subtle or no indentations remained

- 6 foals had subclinical OCD lesions
    - No lameness
    - No effusion
- Ultrasound sagittal and transverse images permitted a better assessment of the topography (depth and width)

- Follow-up radiographs 1 year of age
    - No OCD lesions present
- Successful healing of small LRTF lesions with conservative treatment (foals 5.5–17 months old) has been reported
    - Stall rest and small paddock
- **Magnetic resonance imaging findings of the proximal metacarpus in Quarter Horses used for cutting: Retrospective analysis of 32 horses 2009–2012**

- Ultrasound of the PSL is complicated by acoustic shadowing and by the presence of fat and muscle fibers within the ligament, which result in a heterogeneous appearance

- Radiographic evaluation of the proximal metacarpus
  - Structural integrity of McIII at the PSL attachment
  - Osseous irregularity of the second and fourth metacarpal bones (McII and McIV)
  - Concurrent abnormalities in the carpus

- MR
  - Thickening of the SL
  - Discrete tearing, fiber disruption
  - Osseous contusion of the palmar cortex of McIII at the PSL origin
  - Exostoses between McII and McIV

- Retrospective analysis of cutting horses referred for MRI of the proximal metacarpus between 2009 and 2012
- Horses had been lameness evaluation, diagnostic analgesia, and basic imaging
- MRI studies were evaluated by a board-certified veterinary radiologist; the severity of lesions was graded from 0 (absent) to 3 (severe)
- 2 year follow-up period

- 32 horses were included in the study
  - Grade 2/5 average
  - 7 weeks duration prior to MR
  - 22/30 returned to competition
    - 14 within 6 months
    - 8 within 12 months

- Degree of lameness at time of diagnosis and severity of lesions (bone and/or soft tissue) were not found to be significantly associated with successful return to performance or time to successful return
- No significant correlation was found between the type or severity of lesion/s present and the severity of lameness at the time of diagnosis
- McIII sclerosis and resorption frequently occurred in conjunction with PSL enlargement in this group of horses

- Various treatment and rehabilitation protocols
  - Extra-corporeal shockwave therapy
  - Systemic and regional administration of tiludronate
  - Periligamentous injection of platelet-rich plasma or triamcinolone acetonide

- Gestation length and racing performance in 115 Thoroughbred foals with incomplete tarsal ossification

- 136 tarsal radiographs <90 days age

- Performance
  - Grades 1 through 3 incomplete ossification should be considered compromised racehorse
  - Grades 2 and 3 appear to make it to the racetrack less frequently than their cohorts
  - Grades 1, 2 and 3 appear to earn less

- **Comparison of aloe vera and omeprazole in the treatment of equine gastric ulcer syndrome**

- 40 horses
  - Ulcer grade ≥ 2 squamous and/or glandular
- Treatment 28 days
  - Aloe vera inner leaf gel (17.6 mg/kg bwt) b.i.d
  - Omeprazole (4 mg/kg bwt) s.i.d.

- Ultrasonography Appearance of the Equine Proximal Palmar Metacarpal Region After Local Anesthetic Infiltration
- Presence of ultrasonographic artifacts in the palmar metacarpal area after 20 minutes and at 24 hours after infiltration of local anesthetic solution
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- Four horses
  - Lateral approach
    - 20-gauge needle was inserted axial to the fourth metacarpal bone perpendicular to the palmar cortex of the 3rd metacarpal, until it hit the bone
    - needle was partly withdrawn and then redirected in a dorsomedial direction, toward the junction of the 2nd and 3rd metacarpal
  - 2 groups
    - Group 1 needle not filled with anesthetic
    - Group 2 needle filled with anesthetic (2.5 mL)

- Results

- Did not find any differences in measures expressed in cm and obtained in the cross-sectional scan at the origin of the SL.
- No subjective changes noted in echogenicity or fiber pattern of the tendons and ligaments were noted

- **The Use of Equine Lavender Aromatherapy to Suppress Stress**

- 8 horses
  - 15 minute trailer ride
  - Cross-over study
  - Lavender diffuser or water
  - Heart rate and cortisol levels

- Heart did not change significantly between the 2 treatments
- Cortisol was decreased in the lavender treatment group
- Incidence and risk factors of surgical site infection and septic arthritis after elective arthroscopy in horses
- Retrospective study
- 1079 cases reviewed of elective arthroscopy
  - Age, gender, breed
  - Surgeon
  - Number of joints operated
  - Total anesthetic time
  - Perioperative antimicrobial administration
  - Presence and size of osteochondral fragments/subchondral lesions
  - For each operated joint, the development of postoperative infection (surgical site infection [SSI] and/or septic arthritis) and long-term outcome (>6 months)

- Results (1741 joints)
  - SSI without septic arthritis
    - 8 joints total
      - 1 fetlock joint (0.14%) 1 tibiotarsal joint (0.19%), and 6 femoropatellar joints (1.67%)
  - SSI with septic arthritis
    - 13 joints total
      - 1 fetlock joint (0.14%), 4 tibiotarsal joints (0.74%), and 8 femoropatellar joints (2.23%).

- SSI was a significant risk factor for the development of septic arthritis

- Probability of postoperative SSI was higher when large lesions (>40 mm long) were treated
- Although age did not affect the incidence of SSI, increasing
- age was associated with a lower rate of septic arthritis rate
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  Frequency of shedding of respiratory pathogens in horses recently imported to the United States

- Imported horses entering USDA quarantine
  - 2014-2016
  - 167 horses sampled
    - Europe origin
- Physical exam and nasal swab performed at entry
- Samples were assayed (PCR)
  - EHV 1, 2, 4, 5
  - Equine rhinitis virus A and B
  - Influenza
  - Strangles

- Results
  - PCR
    - Equine herpesviruses were detected in 52% of the study horses
      - EHV- 2 (28.7%)
      - EHV-5 (40.7%)
      - EHV-1 (1.2%)
      - EHV-4 (3.0%).
    - Negative
      - EIV, ERAV, ERBV, and S. equi