Dr. Jane Manfredi Presents: "Quick On Their Feet: Endocrine Disease and the Equine Athlete"

Metabolic disease is associated with joint pain and tendon injury in other species, and horses with Pars Pituitary Intermedia Dysfunction have shown a greater percentage of injuries to the proximal suspensory. It is not clear if insulin dysregulation (ID) plays a role in lameness, but the fact that resveratrol-based nutritional supplements in horses have been shown to both decrease lameness and improve insulin dynamics could suggest a link. We hypothesize that horses with a metabolic phenotype and/or ID would have a greater correlation to lameness than phenotypically and metabolically normal horses. Fifty-six horses had metabolic testing performed, and body condition score (BCS), local adiposity, weight, and lameness assessed. Horses with pituitary pars intermedia dysfunction were excluded. Statistics included: a D'Agostino-Pearson test for normality, Spearman's correlations and two-sided Fischer's Exact tests (significant at $p < 0.05$). Weight correlated to lameness (rho=0.3, p=0.05). Sixty and 90 minute insulin concentrations during an OST correlated to BCS (rho=0.41 and 0.34, p=0.002 and p=0.01). There was a trend for 60 minute insulin concentrations to correlate with lameness (rho=-0.23, p=0.09). Hind limb lameness correlated to weight (rho=0.33, p=0.02) and related to ID/phenotype (Fischer's exact P=0.03), with more horses with ID having hind limb lameness. Hind limb lameness was most commonly due to osteoarthritis and not soft tissue pathology. A metabolic phenotype as demonstrated by general adiposity and increasing BCS is related to increased lameness. ID correlated to increased weight and BCS and hind limb lameness.