



With industry-supported research and data growing, a clearer understanding of joint issues is emerging

Deciphering Joint Issues in Sales Horses

RESEARCHERS EXAMINE INDUSTRY DATA FOR ANSWERS

By AMANDA DUCKWORTH

THERE IS LITTLE debate that healthy joints are incredibly important for the well-being of racehorses, but the reality is things can start to get tricky well before a horse ever races. Understanding what happens when joints are negatively affected by various diseases can help decide the best course of action, but at the same time, the amount of information available can be overwhelming.

Following veterinary advice and scientific evidence are key steps to navigating the topic. The good news is more research is being dedicated to comprehending different joint issues and how they may or may not impact the future,

and the industry is helping to provide the necessary historical data.

When a Thoroughbred is offered at auction, radiographs are a cornerstone of the process. Working with a trusted veterinarian is crucial when dealing with potential joint problems and determining what is a forgivable issue and what is not, especially as safety has become even more of a hot-button issue in the sport in recent times.

The term OCD—which is short for osteochondrosis dissecans—is a familiar one in the world of horse racing. It is a common but complex multifactorial disease that centers around loose cartilage and/or bone fragments in

the joints, with swelling in the joint and lameness as common symptoms. OCDs show up in young horses, which can lead to hesitancy at sales, but researchers have worked to see when and if it has an effect on a potential racing career.

In May 2023, the Equine Veterinary Journal published “Racing performance of juvenile Thoroughbreds with femoropatellar osteochondrosis at auction: A retrospective case-control study.”

“Osteochondrosis dissecans (OCD) is common in the femoropatellar joint in Thoroughbred yearlings for sale at auction, and there is no consensus on the effect on racing outcomes,” said researchers. “The objective of this study was to describe femoropatellar OCD in juvenile Thoroughbreds and compare the racing performance of affected Thoroughbred horses to siblings and unaffected horses from the same sale.”

Researchers conducted a retrospective case-control study of juvenile Thoroughbreds born between 2010-16. In order to do this, they reviewed radiograph reports from 27 weanlings and yearlings offered at auction to identify femoropatellar OCD. Using the sales catalog, the age and sex of both the case studies and controls were identified. Additionally, the racing performance of the OCD cases were compared with sibling controls and age- and sex-matched sale number controls from the same sale.

“Femoropatellar OCD was identified in 429 horses with North American race records,” researchers found. “OCD was present on 519 lateral trochlear ridges and 54 medial trochlear ridges. There were more males in the case group (70%) than in the sibling control group (47%). Case racing performance was compared to 1,042 sibling and 757 hip controls.

“There were significant but small decreases in racing metrics of cases and increases in males for years raced,

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total starts, starts for 2-5 years of age, total placings, and placings at 2-4 years of age. Analysis of specific lesion metrics revealed weak correlations for performance outcomes (positive and negative) resulting in an inability to draw firm conclusions. Femoropatellar OCD in juvenile Thoroughbreds for sale at auction decreases some racing outcomes.”

Following the publication of that study, the Equine Veterinary Journal then published “Subchondral lucencies of the medial femoral condyle in yearling and 2-year-old Thoroughbred sales horses: Prevalence, progression and associations with racing performance” in June 2023. Subchondral lucencies, which are commonly referred to as SCLs, are areas of decreased



THE INTENTION OF UNDERTAKING A LARGE, SALES-BASED STUDY WAS TO PROVIDE VETERINARIANS WITH OBJECTIVE EVIDENCE THAT FREES THEM FROM BEING UNNECESSARILY CRITICAL ABOUT CERTAIN RADIOLOGICAL FINDINGS IN YOUNG THOROUGHBREDS.”

— EQUINE VETERINARY JOURNAL, JUNE 2023

subchondral bone density surrounded by marginal sclerosis that usually communicate with an adjacent joint.

“Subchondral lucencies (SCLs) in the distal aspect of the medial femoral condyle (MFC) of young Thoroughbred horses are a source of controversy on presale radiographs,” explained researchers. “There is limited scientific evidence regarding the risk of progression and impact on future racing performance.”

For this study, researchers aimed to evaluate yearling and 2-year-old Thoroughbred sale radiographs from a large percentage of the United States population in an effort to clearly define the prevalence and lesion characteristics of MFC SCLs and to analyze associations between the lesion grades

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Joint

and racing performance.

Additionally, for horses that were offered at both types of sales, researchers investigated the differences in grade of MFC SCL between their yearling and 2-year-old years.

In order to do the study, consent for study inclusion was sought from consignors at the 2016 Keeneland September Yearling Sale, as well as from the following 2-year-old sales in 2017: Fasig-Tipton Gulfstream, Ocala Breeders' Sales March, OBS Spring, Fasig-Tipton Maryland, and OBS June. If a

horse was offered at both a yearling and 2-year-old sale, new consent had to be obtained. A total of 116 consignors participated.

"It is the first study to sample from all repository radiographs using consignors' permission for enrollment and to subsequently analyze associations between radiological findings and racing performance," said researchers. "Obtaining research consent for 74% of yearlings with repository radiographs and 78% of eligible 2-year-olds exceeded expectations and reflected

a strong desire within the Thoroughbred industry to add to the evidence base regarding the significance or otherwise of MFC SCLs in sales horses."

After consent was granted, six radiographs acquired as part of the standard sales repository protocol were evaluated for each horse: the lateromedial (LM), caudocranial elevated 10°–20° proximodistal (CdCr), and caudolateral 30°–craniomedial oblique (CdLCrMO) projections of the left and right stifles. The radiological appearance of each MFC was categorized into one of four grades, and observers were blinded to sale and race results during evaluation of radiographs.

For the second part of the study, racing data was obtained from Equibase, with data collection continuing until the end of the 4-year-old racing season for study subjects. Researchers looked at whether the horses ever raced, the age horses made their first start, and the total number of starts. Total earnings and earnings per start were also evaluated, as well as the caliber of racing a runner achieved.

In all, the repository radiographs for 2,508 yearlings were used in this study. That is 10.9% of the annual foal crop for that year and it makes up 36% of the North American yearlings sold at auction in 2016. An additional 436 radiographs were studied from horses in the 2-year-old sales, which equated to 19.7% of the juvenile racehorses sold at auction in North America in 2017.

"Grade 1 MFC SCLs are the most common type seen in yearling and 2-year-old sales horses," researchers found. "The majority of yearling grade 1 MFC SCLs resolved or remained static by 2-year-old sales. It was also possible for grade 2 and 3 MFC SCLs to improve one grade between sales. Fewer sales yearlings with a grade 3 MFC SCL raced, but in those that did race there was no evidence of worse performance compared to unaffected peers. Axial MFC lucencies did not affect racing performance."



Radiographs, found in the repository of auction houses, are paramount to the buyers' selection process



Veterinarians examining X-rays at the Keeneland September Yearling Sale

TOP: FASIG-TIPTON PHOTOS; BOTTOM: ANNE M. EBERHARDT

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Researchers released the following statistics: MFC SCLs of grades 1-3 were observed in 242 (9.65%) yearlings and 49 (11.2%) 2-year-olds. Bilateral MFC SCLs of grades 1-3 were observed in 54 (2.2%) yearlings and 12 (2.8%) 2-year-olds. Grade 1 MFC SCLs in yearlings either remained unchanged (14/31), progressed to a grade 2 (6/31), or resolved (11/31) by the 2-year-old sale. Grade 2 MFC SCLs in yearlings remained unchanged (6/10), progressed to a grade 3 (2/10), or improved to a grade 1 (2/10). Yearlings with a grade 3 MFC SCL had a 78% probability of starting a race, compared with an 84% probability of racing for grade 0 yearlings.

“Of arguably greater importance than the identification of severe lesions is the documentation of common, mild findings that have no detrimental impact on racing performance and a low incidence of progression,” explained researchers. “This applies strongly to the grade 1 MFC SCL results. The least positive outcome of the sales repository system is when minor radiological findings of no consequence to the horse result in failed sales, or sale prices that do not reflect the horse’s value, when the horse may go on to perform exceptionally well.

“The intention of undertaking a large, sales-based study was to provide veterinarians with objective evidence that frees them from being unnecessarily critical about certain radiological findings in young Thoroughbreds.”

Of course, issues can start appearing before a horse reaches the yearling stage. In March 2021, the Equine Veterinary Journal published “Progression of shallow medial femoral condyle radiographic lucencies in Thoroughbred repository radiographs and their influence on future racing careers,” which also took into account weanlings.

“Shallow lucencies less than 4 mm deep into the medial femoral condyle (MFC) are frequent in Thoroughbred horses undergoing screening sales



As part of a large and consent-based study, researchers inspected the radiographs of yearlings and 2-year-olds offered at past sales to decipher the impact that joint disease had on those horses when they reached the races

radiographs,” explained researchers. “It is unclear if these shallow defects are precursors to larger cystic lesions or if they are fully developed defects that remodel into a flattened femoral condyle.”

Researchers conducted a retrospective cohort study to evaluate radiological lucencies of the MFC and their progression in size in Thoroughbreds ranging in age from 5 to 18 months. They then examined their racing careers compared to maternal siblings. Racing information was collected for five years. Of the 12,938 sales reports reviewed, 3,874 horses were found to have radiographic sets available at both weanling and yearling sales.

“A MFC lucency ≤ 3 mm in depth was

diagnosed in at least one radiographic sales set in 248 horses (6.4%),” researchers concluded. “The right femur was more commonly affected (73.9%) than the left. Radiographic lucencies in the left femur were significantly smaller than lucencies in the right femur.

“Radiographic lucencies resolved in 6.1% of cases, 3.6% of cases developed into a cyst, 40.7% of cases were unchanged in size, 23.6% of lucencies decreased in size, and 8.2% increased in size. Cysts >3 mm deep regressed into smaller lesions accounting for 4.9% of the lucencies, and 12.9% of lucencies developed from a normal or flat medial femoral condyle contour. Horses with a medial femoral condyle lucency had

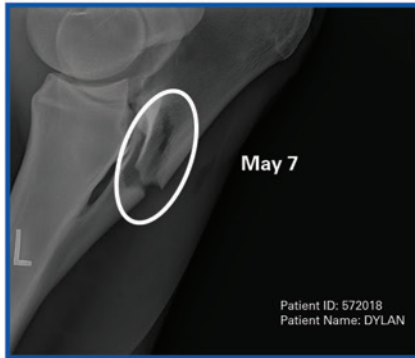
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significantly less starts as a 2-year-old vs. their maternal siblings.”

For all the effort that is put into bringing a foal into this world, sometimes they can be affected by joint issues well before they even reach the auction ring. In July 2023, the Equine Veterinary Journal published “Prognosis for survival to discharge and racing performance in Thoroughbred foals treated for single joint septic arthritis (2009-2016).”

“Hematogenous septic arthritis is a major cause of morbidity and mortality in foals,” explained researchers. “Previous research has demonstrated a variable prognosis for athletic performance in foals diagnosed with septic arthritis.”

For this retrospective cohort study, researchers collected data from Rood & Riddle Equine Hospital from 2009

to 2016. The information centered on Thoroughbred foals that were 6 months old or younger and had a single septic joint of presumed hematogenous origin without recognized systemic sepsis or other serious comorbidity compared with a group of maternal sibling controls. Then, race records were obtained for the case studies, as well as two maternal siblings. In total, 95 Thoroughbred foals were studied.

“The last measured synovial cell count prior to hospital discharge or euthanasia was an indicator of poor prognosis for survival to discharge,” concluded researchers. “Overall, the prognosis for survival was high (93%). Total winnings per career were the only statistically significant racing performance variable between cases

and paired controls.

“While total winnings were reduced compared with maternal siblings, Thoroughbred foals with single joint septic arthritis have a favorable prognosis for both survival and starting in a race.”

Horse racing is all about the willingness to gamble, be it betting a race or buying a racehorse. A better understanding of joint health and the prognosis for different joint issues can help both horse and human when it comes time to make critical decisions. Some issues can be healed with time, and some may have a lasting effect, which is one of the reasons why it is important to work with a trusted veterinarian when faced with these potential problems. **BH**

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¹ Bertone, Ichihara, Zekas, Wellman, Lewis, Schwarze, Barnaba, Schmall, Kanter, Genovese, et al. Evaluation of a single intra-articular injection of autologous protein solution for treatment of osteoarthritis in horses. American Journal of Veterinary Research. Feb 2014.

² Bosch, Schie, Groot, Cadby, Lest, Barneveld, Weeren, et al. Effects of Platelet-Rich Plasma on the Quality of Repair of Mechanically Induced Core Lesions in Equine Superficial Digital Flexor Tendons: A Placebo-Controlled Experimental Study. Journal of Orthopaedic Research. Feb 2010.

³ Alvarez, Boone, Braim, Taintor, Caldwell, Wright, Wooldridge, et al. A Survey of Clinical Usage of Non-steroidal Intra-Articular Therapeutics by Equine Practitioners. Frontiers in Veterinary Science. October 2020.

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1. Bertone, Ishihara, Zekas, Wellman, Lewis, Schwarze, Barnaba, Schmall, Kanter, Genovese, et. al. Evaluation of a single intra-articular injection of autologous protein solution for treatment of osteoarthritis in horses. American Journal of Veterinary Research. Feb 2014.
2. Bosch, Schie, Groot, Cadby, Lest, Barneveld, Weeren, et.al. Effects of Platelet-Rich Plasma on the Quality of Repair of Mechanically Induced Core Lesions in Equine Superficial Digital Flexor Tendons: A Placebo-Controlled Experimental Study. Journal of Orthopaedic Research. Feb 2010.
3. Alvarez, Boone, Braim, Taintor, Caldwell, Wright, Wooldridge, et. al. A Survey of Clinical Usage of Non-steroidal Intra-Articular Therapeutics by Equine Practitioners. Frontiers in Veterinary Science. October 2020.

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