

The Use of StrideGUARD™ as a shock absorber and cushion in joints or soft tissue to encourage normal mechanical function and structural support

1. Introduction

Synovial fluid (synovia) is a clear, highly viscous liquid that fills all synovial joint cavities, serving as a protective lubricant that minimizes wear and damage to joint tissues. Its unique rheological properties arise from the complex interplay between synovia and cartilage during joint movement, enabling it to adapt to varying mechanical demands. Healthy synovia exhibits shear-thinning behavior: it thickens at rest to support load-bearing and thins during motion to facilitate smooth lubrication. This adaptive behavior is largely attributed to the high molecular weight and concentration of hyaluronic acid (HA) present in the fluid. In contrast, inflammatory or degenerative conditions reduce HA content and degrade it into lower molecular weight fragments, leading to diminished viscosity and elasticity (**Figure 1**). The resulting synovial fluid demonstrates a quasi-Newtonian bulk behavior, providing less effective load-bearing and lubrication, which can contribute to joint dysfunction and degeneration.

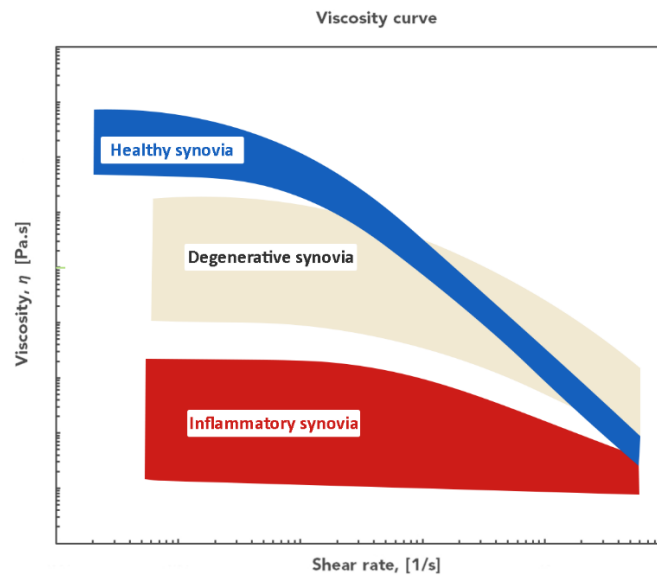


Figure 1. Flow curves of synovial fluid across different joint conditions. In horses with inflammatory joint diseases, synovia features a reduced viscosity and a quasi-Newtonian bulk behavior (minimal shear-thinning), which reflects an increased degradation of hyaluronic acid molecules that leads to a decrease in high MW HA content. Classical non-inflammatory degenerative joint diseases (e.g. osteoarthritis) also feature synovia with significantly lower viscosity and altered elasticity

StrideGUARD™ is a biologically derived product sourced from young horse umbilical cord extracellular matrix, containing no synthetic additives, drugs, or banned substances. It is specifically designed to provide natural shock absorption, lubrication, and synovial support, helping to protect and restore joint tissues even under high mechanical stress. The equine birth tissue is processed through a proprietary method that preserves its native composition and is cryopreserved to maintain potency, ensuring the product is ready to use with no turnaround time. Unlike other therapies, StrideGUARD™ requires no bone marrow aspirate, cell expansion, or culture, offering a convenient and minimally processed solution. It is supplied in 2 mL volumes and can be diluted to achieve the desired consistency or thickness for specific applications.

StrideGUARD™ is intended to act as a shock absorber and cushion in joints or soft tissue to encourage normal mechanical function and structural support. StrideGUARD™ is intended to support the quality of life of horses with joint or muscular issues. Common equine joint or soft tissue issues that have demonstrated favorable clinical outcomes with treatment are osteoarthritis, osteochondral defect, suspensory ligament desmitis, accessory ligament desmitis, flexor tendon tendinopathy and navicular syndrome. This paper presents a comprehensive characterization of the rheological properties of StrideGUARD™ along with preliminary clinical findings demonstrating its function as a joint and soft-tissue shock absorber and cushion that supports normal mechanical function and structural integrity. Please see the package insert for complete product information and directions for use.

2. Methodology

2.1 Injection of StrideGUARD™

Regarding the injection protocol, the horse was appropriately sedated, and the site was aseptically prepared. The product was thawed and drawn under sterile conditions using an 18-gauge needle, then combined with 1.0 mL of sodium bicarbonate to achieve a total volume of 1.5 mL. Case-specific details regarding injection volume, post-injection use of nonsteroidal anti-inflammatory drugs, dressing application (e.g., limb bandaging), and discharge instructions are provided in the corresponding sections.

2.2 StrideGUARD™ Preparation and Thawing Protocol

The product should be removed from cold storage approximately 20 minutes prior to the anticipated injection time. Thawing should occur at controlled room temperature (70-80 °F). During the thawing period, the product should be gently and continuously rolled to maintain uniform distribution. Prolonged exposure in a thawed state is not recommended; the product should not remain thawed for more than 20 minutes prior to injection and should not be allowed to become excessively warm.

2.3 StrideGUARD™ Preparation Steps for Injection

1. The patient should be appropriately sedated prior to the procedure.
2. The injection site should be prepared using sterile technique (recommend 10 minutes of contact time with antiseptic scrub and then the area is wiped clean with alcohol).
3. The product should be drawn up using sterile technique with an 18 gauge needle into the syringe. If increased injection volume is required, the product may be diluted with up to 1.0 mL of a newly opened vial of sterile sodium bicarbonate.
4. The product can be injected with either a 20 gauge or 21 gauge needle.
5. It is not recommended that product is mixed with any other products including prophylactic antibiotics

2.5 Bandage Recommendations

It is recommended that a bandage is applied for 24 hours post injection for any lower limb site.

2.6 Post Care Recommendations

Administration of a non-steroidal anti-inflammatory drug (NSAID) is recommended at the time of injection and continued for three days thereafter. Following injection, the patient should be maintained on stall rest for a minimum of 24 hours. Return to turnout may then be permitted based on the nature of the injury and the attending veterinarian's assessment, with turnout typically allowed after 24 hours provided conditions are favorable.

2.7 SLEIP Gate Analysis

Objective gait analysis was performed at multiple time points for each case using an artificial intelligence-based lameness detection system (SLEIP), which employs inertial motion sensors and machine-learning algorithms to quantify limb movement asymmetries during locomotion. Objective gait analysis systems such as SLEIP provide quantitative, unbiased assessment of equine lameness, addressing key limitations of subjective visual evaluation. Because the human eye has limited ability to accurately perceive rapid and subtle limb movements and is susceptible to expectation bias, even experienced clinicians may struggle to detect or localize low-grade lameness. SLEIP complements the veterinarian's clinical expertise by delivering reproducible, objective motion data, improving diagnostic confidence, documentation, communication with owners, and longitudinal monitoring of treatment outcomes.

In **Figure 2**, a representative final report generated by this system is shown to illustrate and explain all report components, including the graphics and plots. From left to right, the overview summary (left window) provides a snapshot of detected gait asymmetries with arrows indicating push-off (up arrow) or impact (down arrow) components. In such analysis, impact refers to asymmetry during hoof ground contact (weight acceptance), while push-off refers to asymmetry during the limb's propulsion phase. Across all plots in this report, colors indicate asymmetry severity, with red, orange, yellow, and gray representing decreasing severity, and green indicating soundness. The gait analysis view (center window) visualizes front- and hind-limb data using clock plots. Each line represents an individual stride, with its direction and length indicating the type and severity of asymmetry; the colored line denotes the mean value, enabling assessment of stride-to-stride consistency. The asymmetry type plots (right window) present quantified mean asymmetry values with 95% confidence intervals for head (H) and pelvis (P) motion.

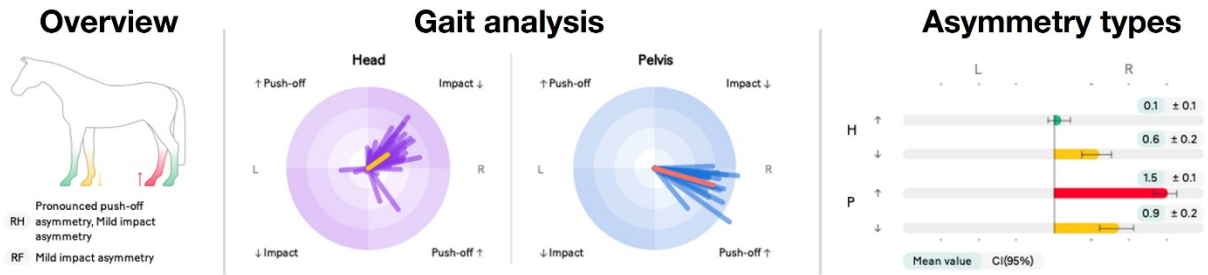


Figure 2. Representative final SLEIP report illustrating objective gait analysis outputs, including an overview of color-coded asymmetry severity, stride-level clock plots for front and hind limbs, and asymmetry type plots reporting quantified mean asymmetry values for head (H) and pelvis (P) with 95% confidence intervals.

2.8 Rheological Characterization

To characterize the rheological properties of StrideGUARD™ and assess how its behavior compares to healthy synovial fluid as well as to competing products, shear rheometry was performed using a high-precision rheometer. Both oscillatory and steady-state flow tests were conducted to capture the viscoelastic and flow behavior of the products under different conditions. In designing these experiments, careful attention was given to replicating the actual usage conditions of the product as closely as possible, including temperature, shear rates, and handling procedures, in order to obtain data that accurately reflects the real-world performance of the products.

3. Characterization of Rheological Properties of StrideGUARD™

StrideGUARD™ retains the native composition of the source tissue (horse young umbilical cord), as the proprietary processing method is minimally destructive. This is why, in StrideGUARD™ (as in healthy synovial fluid), hyaluronic acid is both abundant and primarily of high molecular weight. In fact, the viscoelastic properties observed in both synovial fluid and StrideGUARD™ are largely attributed to the presence of this high molecular weight polysaccharide, hyaluronan (HA), which plays a central role in joint lubrication and shock absorption. Specifically, the combination of compressive forces and sliding motions within the joint creates a complex interaction between articular cartilage and synovia, resulting in multiple lubrication mechanisms. These mechanisms are influenced (often in varying degrees) by the bulk rheological properties of the synovial fluid. Therefore, a comprehensive characterization of these bulk rheological properties for StrideGUARD™ has been carried out and results are presented in **Figure 3**.

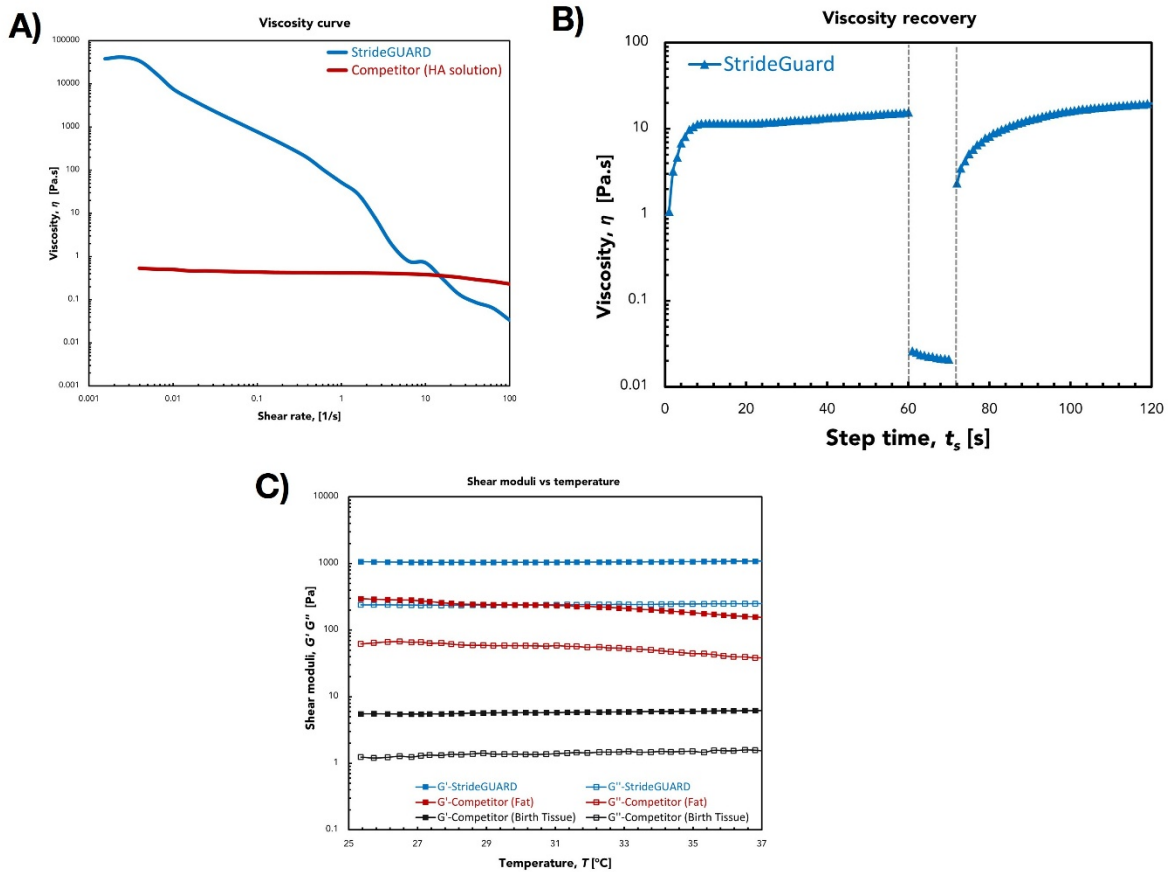


Figure 3. Rheological characterization of StrideGUARD™. **A)** Viscosity curve showing pronounced shear-thinning behavior for StrideGUARD™ exhibiting high viscosity at low shear rates and frequencies, allowing it to stabilize the articular capsule during small, slow movements (e.g., shifts in position). At higher shear rates, such as those occurring during full joint movements like walking or running, the viscosity of StrideGUARD™ decreases significantly (mimicking healthy synovial fluid) and contributes to the formation and stability of a fluid film that effectively separates cartilage surfaces during hydrodynamic lubrication. In contrast, the competitor product exhibits an almost Newtonian profile with nearly constant viscosity and minimal shear-thinning. **B)** Viscosity recovery plot demonstrating rapid and complete restoration of viscosity after exposure to intense forces. **C)** Oscillatory frequency sweep of StrideGUARD™ illustrating synovial fluid-mimetic viscoelasticity and stable performance across physiological temperatures

3.1 StrideGUARD™ adapts like healthy synovia under force featuring shear-thinning behavior (thick and cushiony at rest and thins during motion)

As shown in **Figure 3A**, the viscosity profile of StrideGUARD™ across a range of shear rates is presented alongside that of a competitor product for comparison. StrideGUARD™ similar to a healthy synovia (**Figure 1**) exhibits a high viscosity at low shear rates, which allows it to act as a load-bearer that stabilizes the articular capsule during very small movements at low speeds (e.g. shifts in position). In this regime and at lower shear rates, the StrideGUARD™ features a pseudo-Newtonian plateau characterized by zero-shear viscosities on the range of 40000 Pa.s. At higher shear rates (characteristic of full joint movements like horse walking or running), the viscosity of StrideGUARD™ just like a healthy synovial fluid decrease significantly (to around ~0.01 Pa.s for the StrideGUARD™ which is around 6 orders of magnitude decrease in viscosity); this pronounced thinning contributes to the formation and stability of a fluid film that effectively separates cartilage surfaces during hydrodynamic lubrication. In comparison to StrideGUARD™, the competitor product (based on HA solution) exhibits an almost Newtonian profile with nearly constant viscosity and minimal shear-thinning, suggesting limited effectiveness in lubrication (a key attribute for viscosupplementation), indicating less adaptability to varying joint loads and reduced lubrication under dynamic conditions.

3.2 StrideGUARD™ helps restore original viscosity in inflamed and degenerative synovial fluid

When compared to non-healthy synovial fluid (**Figure 1**), the rheological properties of StrideGUARD™ (particularly its viscosity profile) stand out as highly favorable for joint pain relief. As shown in **Figure 1**, in horses with inflammatory joint diseases, synovia features a reduced viscosity and a quasi-Newtonian bulk behavior (minimal shear-thinning), which reflects an increased degradation of hyaluronic acid molecules that leads to a decrease in high-molecular weight HA content. Classical non-inflammatory degenerative joint diseases (e.g. osteoarthritis) also feature synovia with significantly lower viscosity and altered elasticity (**Figure 1**). Therefore, injecting StrideGUARD™, with its high viscosity and pronounced shear-thinning behavior (**Figure 3A**), helps restore the viscoelasticity of the horse's synovial fluid, relieving pain and reducing inflammation. It works by effectively lubricating the joint, reducing friction, and providing anti-inflammatory benefits, together promoting improved mobility and joint comfort.

3.3 StrideGUARD™ demonstrates a rapid and complete recovery of viscosity after intense forces

Besides favorable shear-thinning behavior established earlier, StrideGUARD™ demonstrates also a rapid and complete recovery of viscosity following the intense mechanical stress simulating high-impact activities such as horse running (**Figure 3B**). Such rapid viscosity recovery is a key factor in ensuring consistent and effective joint lubrication. Using a three-step shear protocol designed to mimic the real-world forces experienced by horse during daily activities such as at rest vs walking or running, the StrideGUARD™ showed a sharp drop in viscosity under high shear of horse walking or running (60 s^{-1}), consistent with shear-thinning materials known for reducing friction during joint movement. Remarkably, within just 30 seconds of returning to low shear (0.1 s^{-1}), the StrideGUARD™ fully recovered its original viscosity which highlights its ability to quickly rebuild internal structure after force (during walking, running, etc.) is removed. This rapid recovery ensures that the StrideGUARD™ regains its functional lubricating properties almost immediately even after the harshest movement ceases, supporting joint protection and comfort.

3.4 StrideGUARD™ demonstrates synovial fluid-mimetic viscoelasticity and stable performance across physiological temperatures

As confirmed by the temperature sweep test (**Figure 3C**), the bulk rheological behavior of StrideGUARD™ demonstrates strong viscoelasticity (exhibiting both solid-like [G'] and liquid-like [G''] responses), resembling that of healthy synovial fluid. In comparison to the two competitor products, StrideGUARD™ maintains higher values for both storage (G') and loss (G'') moduli across the entire tested temperature range compared. This indicates a more robust and structured polymeric network within StrideGUARD™, contributing to its superior mechanical stability and functional performance under physiological conditions. Moreover, the StrideGUARD™ demonstrate excellent thermal stability in their viscoelastic properties which is an important feature for ensuring consistent performance across real-world storage and physiological conditions. As shown in **Figure 3C**, the storage modulus (G') and loss modulus (G'') of StrideGUARD™ were measured across a temperature range of $25 \text{ }^\circ\text{C}$ to $37 \text{ }^\circ\text{C}$, simulating conditions from room temperature to the temperature of a horse's knee joint. Across this entire range, StrideGUARD™ exhibits consistent viscoelastic behavior, maintaining stable solid-like (G') and liquid-like (G'') responses, demonstrating its mechanical stability under physiologically relevant conditions. This stable rheological profile suggests that StrideGUARD™ retain their internal structure, mechanical integrity, and lubricating function even under temperature shifts commonly encountered from production and storage to application and even post-injection. In contrast to this consistent rheological behavior of StrideGUARD™ under physiologically relevant conditions, a competitor product based on adipose tissue shows noticeable deterioration as temperature increases (**Figure 3C**), likely due to the softening and partial liquefaction of fat components.

3.5 StrideGUARD™ encourages natural adaptive tissue remodeling process to promote more functional tissue architecture which reduces scar and adhesion development.

Soft tissue injuries in equine patients are often associated with mechanical instability, altered load dynamics, and have reduced local vascular perfusion, which can prolong inflammation and delay recovery. StrideGUARD functions as a space-occupying, load-distributing matrix designed to reinforce functional soft tissue architecture and support normal mechanical integrity during recovery. By doing this, healthy tissue remodeling can occur which may downregulate scar and adhesion formation. In addition to supporting tissue remodeling the product exhibits naturally occurring characteristics that may contribute to patient comfort.

4. Preliminary Clinical Studies

4.1 Case 1-Barry (#0325-01)

Case presentation: On March 13, 2025, a 3 year-old Quarter Horse stallion presented for a gait evaluation. Physical examination revealed mild effusion of bilateral medial femorotibial joint pouches. The horse demonstrated a grade 3/5 lameness of the right hind limb. Radiographic examination of the right hind stifle identified a subchondral bone cyst within the medial femoral condyle (see left column in **Figure 4**). Based on these findings, the patient was discharged with instructions to begin a polysulfated glycosaminoglycan (Adequan®) series and a surgical consultation was requested. Based on recommendations from the surgical consultation, it was elected to pursue intra-articular medical management prior to surgical intervention.

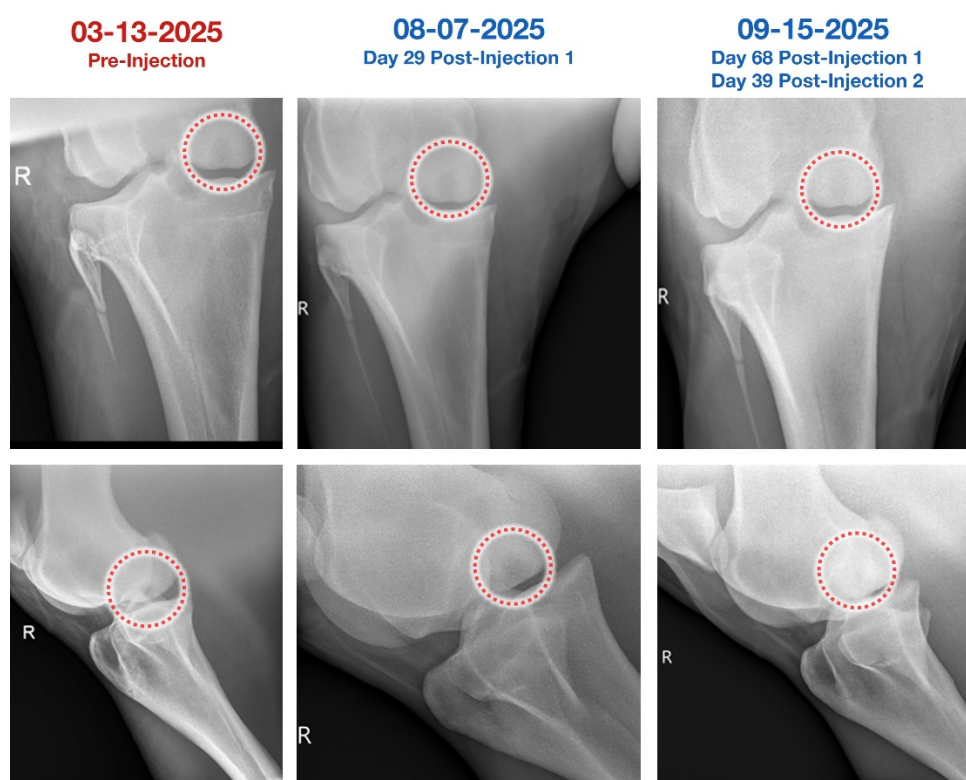


Figure 4. Craniocaudal (top) and oblique (bottom) radiographic views of the right hind stifle of Case #1 where pre-injection radiographs demonstrate a subchondral bone cyst within the medial femoral condyle while post-injection radiographs show approximately 60% and 90% filling of that cyst. [Courtesy: Sunflower Equine Veterinary Clinic]

On March 27, 2025, the right medial femorotibial joint was injected with 2 mL of Stanozolol (5 mg/mL). The patient was discharged on strict stall rest with 10 minutes of hand walking daily.

On April 9, 2025, the patient was re-evaluated and demonstrated mild improvement and a 2/5 lameness of his right hind limb was present. The treatment plan was to delay further intervention until StrideGUARD™ was available for use. During this period, the patient was maintained on stall rest with limited turnout in a small round pen.

On July 9, 2025, the patient presented for the first StrideGUARD™ injection. The patient was adequately sedated, and the injection site was aseptically prepared. Using an 18- gauge needle, the product was drawn up under sterile conditions and combined with 1.0mL of sodium bicarbonate for a total volume of 1.5 mL. The preparation was injected into the medial femorotibial compartment of the right hind stifle using a 20-gauge 1.0-inch needle. The patient was discharged with a three-day course of non-steroidal anti-inflammatory medications and a gradual rehabilitation program was initiated. The patient initially responded well post-injection; however, approximately 25 days following treatment, the patient demonstrated a return of lameness.

On August 7, 2025, the patient was re-evaluated and demonstrated a grade 4/5 right hind lameness. Repeat radiographic images showed improvement of the subchondral cyst; however irregularity was noted in the region of the medial meniscus. Ultrasonographic evaluation of the medial meniscus revealed an approximately 30% increase in size (see middle column in **Figure 4**). The patient was treated with 2nd StrideGUARD™ injection into the medial femorotibial joint pouch. The patient was discharged with instructions for 30 days of stall rest and a 30-day course of nonsteroidal anti-inflammatory medication. In

addition, a series of three extracorporeal shockwave treatments were performed at two-week intervals.

On September 15, 2025, a re-evaluation was performed at which time ultrasonographic examination demonstrated an approximately 50% reduction in meniscal enlargement, and follow-up imaging showed approximately 90% filling of the subchondral bone cyst within the medial femoral condyle (see right column in **Figure 4**). Based on these improvements, a controlled rehabilitation program under saddle was initiated, as undersaddle exercise was deemed more appropriate than in-hand work.

The initial SLEIP evaluation performed on March 13 identified a pronounced push-off asymmetry of the right hind limb (**Figure 5**), consistent with the degree of lameness appreciated on clinical examination at that time. A follow-up evaluation on April 19, conducted prior to initiation of StrideGUARD™ therapy, demonstrated improvement, with findings consistent with a mild right hind push-off asymmetry. Following two StrideGUARD™ treatments, repeat objective analysis performed in September revealed only a very mild residual push-off asymmetry. At the time of final follow-up, the horse had returned to full work and competition.

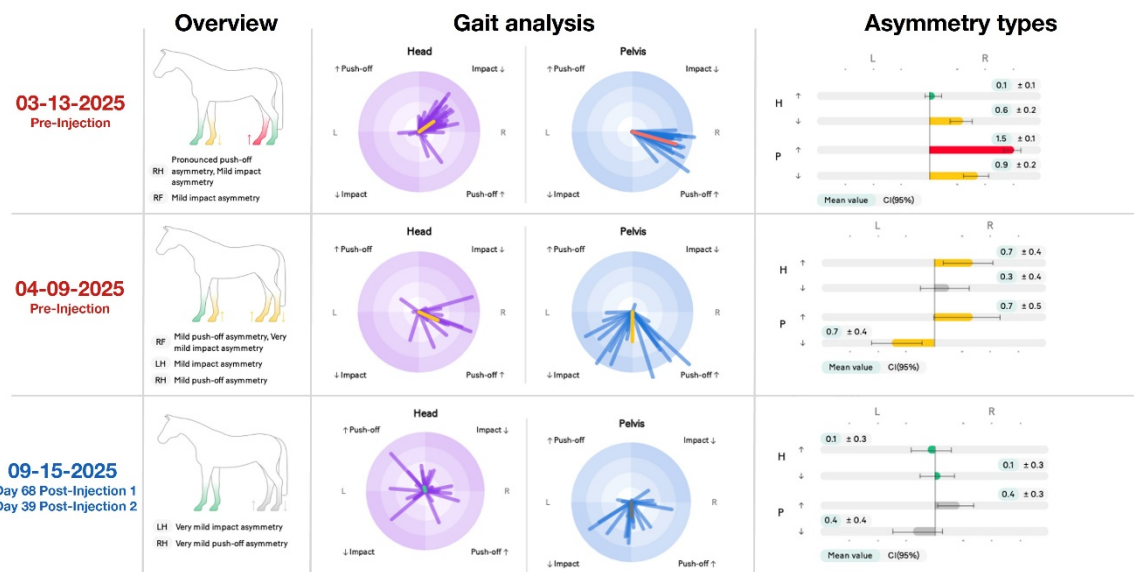


Figure 5. Objective lameness analysis from the SLEIP AI system. First pre-injection data (top row) identified a pronounced push-off asymmetry of the right hind limb, consistent with the degree of lameness appreciated on clinical examination at that time. A follow-up evaluation (middle row), conducted prior to initiation of StrideGUARD™ therapy, demonstrated improvement, with findings consistent with a mild right hind push-off asymmetry. Post-treatment assessments following two StrideGUARD® treatments revealed only a very mild residual push-off asymmetry. For additional information on the graphics and plots in the SLEIP report, including the color coding shown here, refer to the Methodology section. [Courtesy: Sunflower Equine Veterinary Clinic]

Comparison to standard of care: Conventional management of subchondral cystic lesions of the stifle joint typically involves surgical intervention to promote subchondral bone remodeling and joint stabilization. However, not all horses are suitable candidates for surgical treatment. Additional management strategies include controlled exercise, anti-inflammatory therapy, and intra-articular medications; however, these approaches are often band-aid, offering limited long-term benefit and frequently compromising athletic performance. Return to full work typically requires 6–9 months, and complete radiographic resolution is not consistently achieved. In the present case, treatment with StrideGUARD™ was associated with accelerated clinical improvement, with the patient returning to ridden work within four months (and again at eight months following a subsequent meniscal injury), along with approximately 90% radiographic resolution.

4.2 Case 2-Felina (#0326-002)

Case presentation: On August 7, 2025, an 8-year old Oldenburg mare presented with a suspected kick wound to the medial aspect of the right hind limb. The horse demonstrated a grade 3/5 right hind limb lameness that was exacerbated by application of pressure over the medial aspect of the hock and was more pronounced when tracking to the right. Radiographic examination of the right hind hock revealed synovitis affecting the medial aspect. The patient was discharged with a treatment plan consisting of two weeks of nonsteroidal anti-inflammatory medication and strict stall rest. The option of extracorporeal shockwave therapy was discussed.

On August 12, 2025, extracorporeal shockwave therapy was performed on the medial aspect of the right hind hock. The patient was discharged with instructions to begin tack walking for 15–20 minutes daily while continuing stall rest. The patient was reported to progress well with the rehabilitation program for approximately two weeks; however, the lameness subsequently returned.

On August 28, 2025, the patient was re-evaluated and demonstrated a grade 2/5 right hind limb lameness. Palpation and pressure applied over the insertion of the suspensory ligament elicited a pain response, including attempts to kick, and the horse trotted off with a grade 4/5 lameness. Ultrasonographic examination identified a core lesion within the right hind distal accessory ligament of the deep digital flexor tendon (check ligament-see left column in **Figure 6**). The patient was discharged to continue nonsteroidal anti-inflammatory medication and stall rest, with plans to return for regenerative therapy.

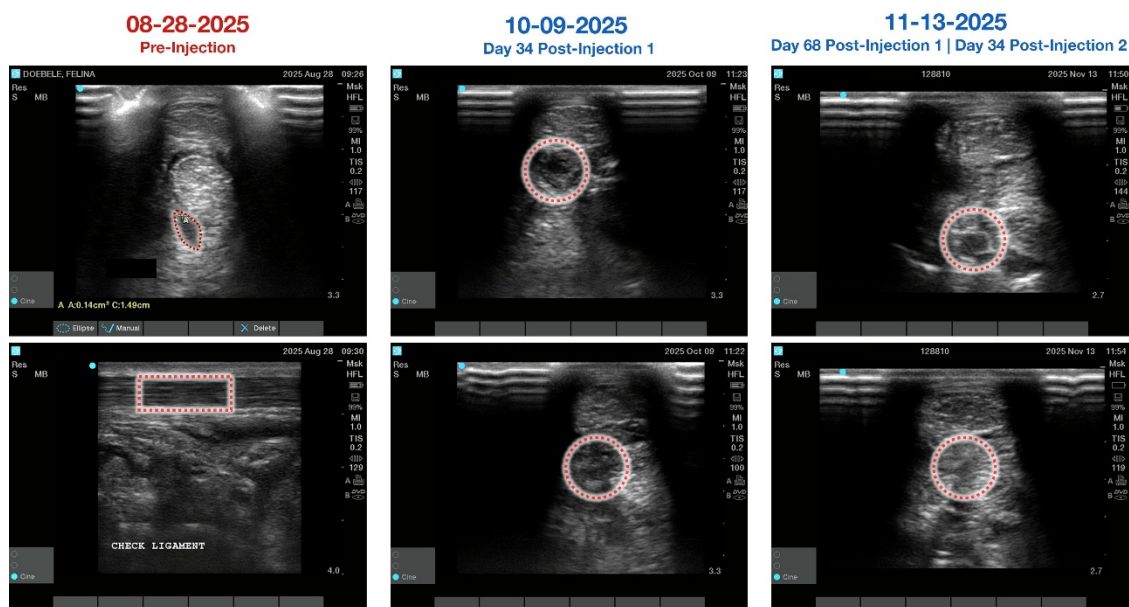


Figure 6. Cross-sectional ultrasonographic images of the distal accessory ligament of the deep digital flexor tendon (check ligament) of Case #2 demonstrating a core lesion with an initial cross-sectional area of approximately 0.14 cm² prior to injection. Post-injection images show approximately 50% and 80% reductions in lesion cross-sectional area, respectively. The lower pre-injection image is a longitudinal ultrasonographic view of the same ligament, demonstrating fiber disruption. [Courtesy: Sunflower Equine Veterinary Clinic]

On September 5, 2025, the patient presented for the first StrideGUARD™ injection. The patient was adequately sedated, and the injection site was aseptically prepared. Using an 18-gauge needle, the product was drawn up under sterile conditions for a total volume of 1.5 mL and administered into the core lesion using ultrasound-guided technique. The patient was discharged with continued nonsteroidal anti-inflammatory medication, stall rest, and 10–15 minutes of hand walking daily.

On October 9, 2025, the patient returned for the second StrideGUARD™ injection, which was performed following the same protocol. Ultrasonographic examination demonstrated improvement of the core lesion with a reduction in lesion diameter (see middle column in **Figure 6**). The patient was discharged with continued stall rest and was permitted to begin tack walking for 10–15 minutes one to two times per week while continuing scheduled hand walking.

On November 13, 2025, a re-examination was performed and ultrasonographic evaluation revealed 80% filling in of the core lesion with continued progression of healing (see right column in **Figure 6**). Gait evaluation demonstrated a grade 1/5 right hind limb lameness. A slowly progressive under-saddle rehabilitation program was initiated.

On December 30, 2025, the patient had returned to full work, and no lameness was appreciated on gait evaluation. A final ultrasonographic evaluation was planned for February prior to allowing the patient to return to full turnout. Objective gait

analysis using SLEIP, was also used to complement subjective gait evaluation and to objectively monitor gait asymmetries over time. In September 2025 evaluation (**Figure 7**), objective gait analysis identified a mild left forelimb push-off asymmetry, a very mild right forelimb impact asymmetry, and a mild right hind limb push-off asymmetry. On repeat evaluation in November 2025, findings demonstrated improvement, with only a very mild left forelimb push-off asymmetry and a mild right hind limb push-off asymmetry detected. Overall, objective gait analysis findings indicated improved balance and symmetry over time, consistent with clinical improvement observed on subjective gait evaluation.

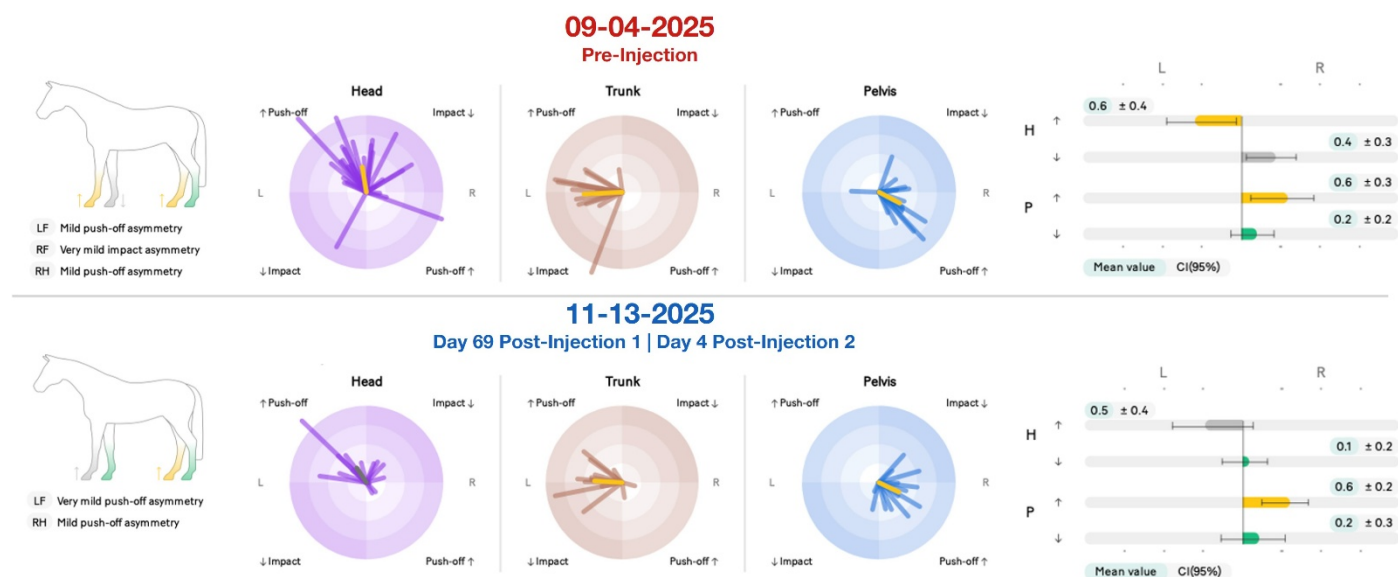


Figure 7. Objective lameness analysis from the SLEIP AI system. Pre-injection data show pronounced right hind push-off asymmetry with mild impact asymmetry. Post-treatment assessments demonstrate progressive reduction in both impact and push-off asymmetries, culminating in only very mild residual asymmetry by the final evaluation, consistent with a marked improvement in gait symmetry. For additional information on the graphics and plots in the SLEIP report, including the color coding shown here, refer to the Methodology section. [Courtesy: Sunflower Equine Veterinary Clinic]

Comparison to standard of care: Standard management of check ligament desmitis typically consists of a prolonged period of stall rest, anti-inflammatory therapy, and adjunctive modalities such as extracorporeal shockwave therapy. Reported and expected timelines for return to ridden work ranges from 4 to 6 months depending on response to rehabilitation. Typical improvement is gradual and variable. In this present case, treatment with StrideGUARD™ resulted in the patient returning to work within three months and accelerated ultrasonic healing when compared with the expected progression under standard management alone.

4.3 Case 3-Daisy (#0325-003)

Case presentation: On July 24, 2025, a 14-year-old American Quarter Horse mare presented for gait evaluation due to a history of intermittent right forelimb lameness that improved with rest. Baseline examination revealed a grade 3/5 right forelimb lameness, which was exacerbated when circling in both directions. Diagnostic analgesia resulted in approximately 50% improvement following a palmar digital nerve block and complete resolution of lameness following an abaxial sesamoid nerve block.

On July 30, 2025, the patient was treated with intra-articular injections of betamethasone and Arthramid® into both coffin joints. The horse was prescribed ten days of rest following treatment.

On September 2, 2025, the patient returned for re-evaluation approximately 30 days post-injection. Physical examination revealed effusion of the distal digital flexor tendon sheath and firm soft-tissue swelling localized to the region of the medial sesamoid attachment. Gait evaluation demonstrated a grade 4/5 right forelimb lameness, which worsened when circling to the right. Repeat abaxial sesamoid nerve block resulted in complete resolution of lameness. Ultrasonographic examination identified a core lesion within the medial branch of the suspensory ligament (see left image in **Figure 8**). The patient was discharged with instructions for 30 days of stall rest, with plans to return for biologic therapy.

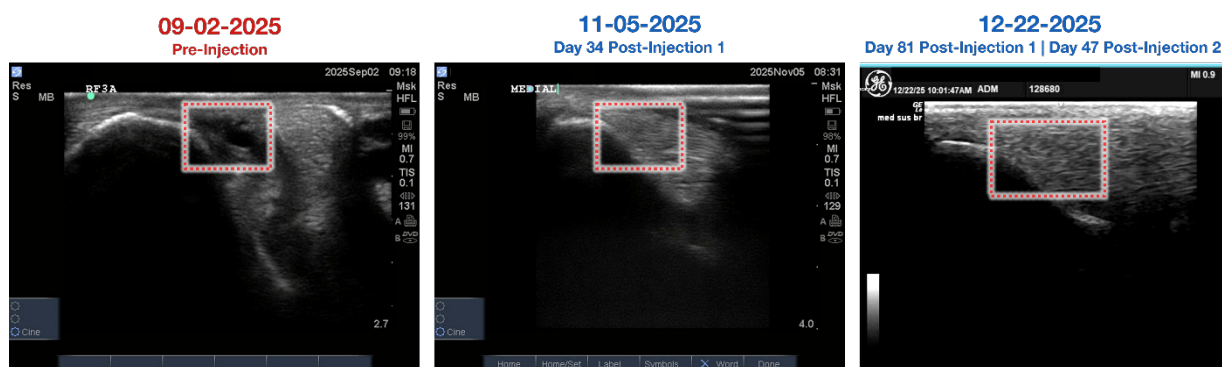


Figure 8. Cross-sectional ultrasonographic images of the medial suspensory ligament of Case #3 at its attachment to the proximal sesamoid bone demonstrating a focal core lesion prior to injection. Post-injection images show approximately 80% and 100% filling of the previously identified lesion. [Courtesy: Sunflower Equine Veterinary Clinic]

On October 2, 2025, the patient presented for the first StrideGUARD™ injection. The horse was adequately sedated, and the injection site was aseptically prepared. The product was thawed and drawn up under sterile conditions using an 18-gauge needle, then combined with 1.0 mL of sodium bicarbonate for a total volume of 1.5 mL. Under ultrasound guidance, the preparation was injected into three separate sites within the medial branch of the suspensory ligament using a 20-gauge, 1.5-inch needle. A distal limb bandage was applied, and the patient was discharged with a three-day course of nonsteroidal anti-inflammatory medication. Post-treatment management included 30 days of stall rest with small-pen turnout and 10 minutes of hand walking daily.

On November 5, 2025, the patient returned for a second StrideGUARD™ injection. Gait evaluation revealed a persistent grade 4/5 right forelimb lameness, evident in both directions when circling. Ultrasonographic examination demonstrated approximately 80% filling of the previously identified core lesion (see **Figure 8**). For second StrideGUARD™ injection, the patient was adequately sedated, and the injection site was aseptically prepared. The product was drawn up under sterile conditions using an 18-gauge needle for a total volume of 1.5 mL; sodium bicarbonate was not added for this treatment. The preparation was injected into two separate intraligamentous sites, with a third injection administered into the associated tendon sheath. The patient was discharged with a three-day course of nonsteroidal anti-inflammatory medication and maintained on strict stall rest with small-pen turnout and 10 minutes of hand walking daily.

On December 22, 2025, the patient presented for re-evaluation six weeks following the second StrideGUARD™ injection. The horse had remained on stall rest with small-pen turnout and daily hand walking since the previous visit. Gait evaluation demonstrated a grade 4/5 right forelimb lameness when tracking left but greatly improved to 1/5 right front lameness tracking to the right. The patient was discharged with a plan to gradually increase turnout size and initiate a controlled rehabilitation program. Lameness analysis with the SLEIP AI system (**Figure 9**) demonstrate progressive reduction in both impact and push-off asymmetries, culminating in only very mild residual asymmetry by the final evaluation, consistent with a marked improvement in gait symmetry.

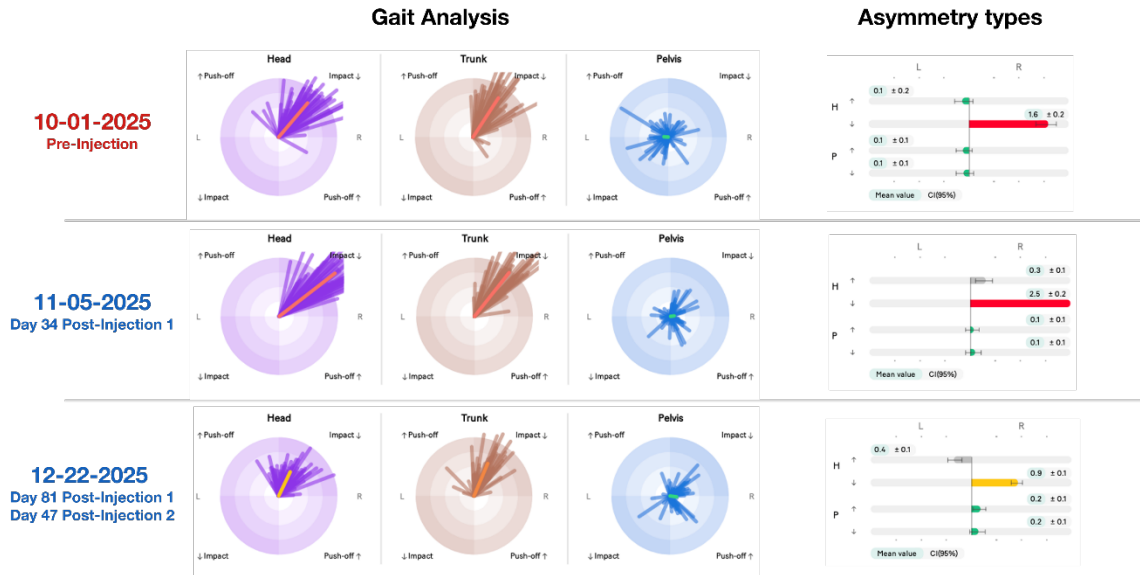


Figure 9. Objective lameness analysis from the SLEIP AI system. Pre-injection data show significant right front head asymmetry when circling to the right. Final assessment (bottom row) demonstrates moderate right front head asymmetry when circling to the right, with marked improvement following the second StrideGUARD™ injection. For additional information on the graphics and plots in the SLEIP report, including the color coding shown here, refer to the Methodology section. [Courtesy: Sunflower Equine Veterinary Clinic]

Comparison to standard of care: Standard management of core lesions within the medial branch of the suspensory ligament typically includes a prolonged period of stall rest, anti-inflammatory medication, and adjunctive modalities. Typical timelines for return to ridden work is commonly between 4-8 months and clinical improvement is variable. In the present case, treatment with StrideGUARD™ was associated with earlier return to functional use (3 months) compared to expected timeline along with complete resolution of the lesion via ultrasound imaging.

4.4 Case 4-Baby G (#0325-003)

Case presentation: On October 14, 2025, a 6-month-old colt was presented for evaluation of a two-week history of swelling involving the right hind pastern. Physical examination revealed no pain or heat on palpation; however, a mild decrease in range of motion along with thickening associated with the pastern joint was noted. Due to the patient's age, a limited gait evaluation was performed, and no overt lameness was appreciated. Radiographic examination of the right hind pastern demonstrated changes consistent with early juvenile osteoarthritis of the pastern joint characterized by irregular articular margins with bony proliferation involving both the dorsal and plantar aspects of the joint (**Figure 10**, top row). Radiographs were reviewed in surgical consultation, with continued monitoring recommended and pastern arthrodesis to be considered if lameness develops, given a guarded athletic prognosis and an estimated 70% likelihood of suitability for light riding.

On December 3, 2025, the patient returned for the first StrideGUARD™ injection. The same injection protocol described in methodology section was followed, except that due to narrow joint spacing in this case, only 0.5 mL was injected into the right hind pastern joint via a lateral approach using a 20-gauge, 1.0-inch needle. A distal limb bandage was then applied for 24 hours, and discharge instructions included small paddock turnout with 10–15 minutes of hand walking daily until re-evaluation in 30–45 days.

On January 14, 2026, the patient presented for a second StrideGUARD™ injection. Physical examination revealed decreased swelling of the right hind pastern and normal range of motion on manipulation. The same injection protocol was followed and, in this case, the total volume of 1.5 mL was successfully injected in its entirety into the pastern joint from a lateral approach using a 20-gauge, 1.0-inch needle. A distal limb bandage was applied for 24 hours. Discharge instructions included small paddock turnout for seven days, followed by return to large turnout. A re-evaluation with repeat radiographs is planned for five to six weeks following the second injection.

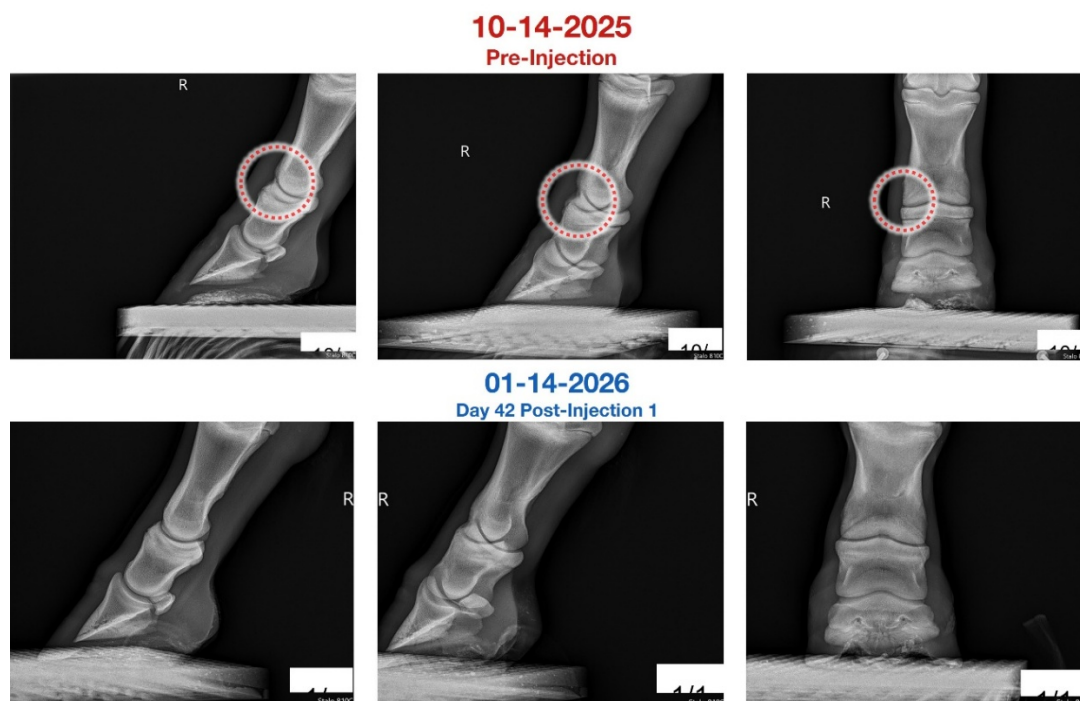


Figure 10. Lateromedial (left), lateral oblique (middle), and craniocaudal (right) radiographic views of the right hind pastern joint of Case #4 obtained on October 14, 2025 (top row, pre-injection) and January 14, 2026 (bottom row, post-injection). Pre-treatment images demonstrate irregular articular margins with bony proliferation involving both the dorsal and plantar aspects of the joint. Post-treatment images show marked improvement following StrideGUARD™ injections, including reduced articular roughening and improved joint space definition. [Courtesy: Sunflower Equine Veterinary Clinic]

Comparison to standard of care: Standard management of juvenile osteoarthritis emphasizes careful control of exercise and joint inflammation during skeletal development with typically needing surgical intervention at some point to allow for further athletic use. Prognosis for return to riding is variable and dependent on response to treatment. For this case, administering of StrideGUARD™ was associated with great clinical improvement including reduced joint effusion and inflammation, stabilization of bony changes and increased joint space.

5. Conclusion

StrideGUARD™ is a medical device composed of young equine umbilical cord extracellular matrix (ECM) that has been processed to retain the native composition of the source tissue and to preserve its structural properties. It is intended to act as a shock absorber, cushion, and lubricant in joints or soft tissue to encourage normal mechanical function and structural support. The high GAG content including abundant HA and preserved structural integrity of StrideGUARD™ result in favorable rheological properties. First, due to abundant high-molecular-weight HA, it exhibits significant shear-thinning behavior (similar to healthy synovia), with high viscosity at low shear rates that helps stabilize the joint during small, slow movements. At higher shear rates associated with walking or running, its viscosity decreases markedly, supporting fluid-film formation that separates cartilage surfaces during hydrodynamic lubrication.

Moreover, StrideGUARD™ demonstrates a rapid and complete recovery of viscosity following the intense mechanical stress simulating high-impact activities such as horse running. This means that it can recover its original viscosity which highlights its ability to quickly rebuild internal structure after the harshest movement ceases, ensuring consistent and effective joint lubrication post-injection. StrideGUARD™ exhibits synovial fluid-mimetic viscoelasticity, with strength exceeding competitors, reflecting a robust, well-structured polymeric network that supports superior mechanical stability and function under physiological conditions. Moreover, StrideGUARD™ demonstrates excellent thermal stability of those viscoelastic properties, ensuring consistent performance within the relevant temperature range of 25–37 °C. This stability preserves its internal structure, mechanical integrity, and lubricating function despite temperature shifts encountered from production and storage through application and post-injection. Through these favorable rheological properties (enabling lubrication, shock absorption, and cushioning), StrideGUARD™ supports the animal's innate healing capacity to restore healthy joint and soft-tissue function including recovery of the original viscosity in inflamed or degenerative synovial fluid.

StrideGUARD™ has already shown promising results in several case studies, demonstrating improvements in joint function, tissue healing, and overall mobility. In a case involving a subchondral bone cyst of the stifle joint, treatment with StrideGUARD™ was associated with accelerated clinical improvement, with the patient returning to ridden work within four months and showing ~90% radiographic resolution of the cyst, along with improved lameness of the hind limb. Confirmed by objective gait analysis using an AI-based system. In another case with a core lesion in the accessory ligament of the deep digital flexor tendon (check ligament), treatment with StrideGUARD™ resulted in the accelerated healing with ultrasound evaluation demonstrating 80% filling in of the lesion. Moreover, objective gait evaluation demonstrated gradual improvement in hindlimb lameness, eventually showing no detectable lameness, with the patient returning to full work within three months. In another case presented with core lesions within the medial branch of the suspensory ligament, treatment with StrideGUARD™ was associated with earlier return to functional use (3 months) compared to expected timeline along with complete resolution of the lesion confirmed by ultrasound imaging. Moreover, AI-based gait analysis showed a progressive reduction in asymmetries and significant improvement in lameness. In the final case involving juvenile osteoarthritis, treatment with StrideGUARD™ was associated with marked clinical improvement, including reduced joint effusion and inflammation, stabilization of bony changes, and increased joint space.

Overall, treatment with StrideGUARD™, supported by its well-characterized and favorable rheological properties and preserved native tissue composition, helped restore joint function and supported the animal's innate repair capacity across both soft tissues (e.g., synovia, ligaments, tendon) and bone. These results highlight its role as a joint and soft-tissue shock absorber, cushion, and lubricant that supports normal mechanical function and structural integrity. The conditions addressed included a variety of equine joint and musculoskeletal disorders, such as stifle injury syndrome, suspensory/check ligament injuries, and osteochondral defects.