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Arthramid – (PAAG) injections for joint pain in horses

What Arthramid is:

- Arthramid - Polyacrylamide hydrogel (PAAG), is mainly composed of water, with a non-toxic, stable, non-degradable gel material
- It is used as an injectable filler for aesthetic purposes and to treat urinary incontinence

Indication for use:

- It is increasingly being used as a joint injection for arthritis

Action:

- PAAG integrates into the synovial membrane (lining) of the joint, aiming to protect the joint surface and reduce stiffness

Effectiveness:

- Studies suggest that PAAG is very effective in reducing pain and improving joint function in horses with osteoarthritis, with a significant number of horses remaining sound at a 2 year follow up
- PAAG demonstrates a longer period of action compared to hyaluronic acid, however more high quality, controlled studies are required

Safety and Risks:

- There appears to be minimal adverse effects
- Concurrent use with steroids has been shown to be safe in healthy horses
- There is a risk of infection following an injection, up to 4 weeks after

Conclusion:

- Arthramid (PAAG) is considered a safe and effective long-term treatment for equine osteoarthritis
- Further research with controlled trials is required

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References – Arthramid (PAAG) Injections

Boorman, S., McMaster, M., Groover, E., & Caldwell, F., 2022. Review of glucocorticoid therapy in horses: Intra-articular corticosteroids. *Equine Veterinary Education*. https://doi.org/10.1111/eve.13719.

Barnes, H., Talbot, A., & Ogden, N., 2022. The Use of Intra-Articular Polyacrylamide Hydrogel for Management of Lameness Associated with the Distal Interphalangeal Joint Following Magnetic Resonance Imaging in Five Horses. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4174108.

Christensen, L., Camitz, L., Illigen, K., Hansen, M., Sarvaa, R., & Conaghan, P., 2016. Synovial incorporation of polyacrylamide hydrogel after injection into normal and osteoarthritic animal joints.. *Osteoarthritis and cartilage*, 24 11, pp. 1999-2002 . https://doi.org/10.1016/j.joca.2016.07.007.

Da Silva Xavier, A., Da Rosa, P., De Brum Mackmill, L., & Roll, V., 2020. An assessment of the effectiveness of hyaluronic acid and polyacrylamide hydrogel in horses with osteoarthritis: Systematic review and network meta-analysis.. *Research in veterinary science*, 134, pp. 42-50 . https://doi.org/10.1016/j.rvsc.2020.11.013.

Della Tommasa, S., Brehm, W., Farì, G., Bernetti, A., & Imperante, A., 2023. Use of Autologous Conditioned Serum (ACS) for Osteoarthritis Treatment in Horses: A Systematic Review of Clinical Data. *Veterinary Sciences*, 10. https://doi.org/10.3390/vetsci10120707.

De Souza, A., Paretsis, N., & De Zoppa, A., 2020. What is the Evidence of Hyaluronic Acid and Polyacrylamide Hydrogel in Intra-articular Therapy in Equines? Systematic Literature Review.. *Journal of equine veterinary science*, 86, pp. 102909 . https://doi.org/10.1016/j.jevs.2019.102909.

Greene, H., 2020. Are bisphosphonates a more effective treatment than intra-articular steroids in horses with distal hock osteoarthritis?. *Verbum Et Ecclesia*, 5. https://doi.org/10.18849/ve.v5i1.235.

Lowe, J., De Clifford, L., Julian, A., & Koene, M., 2024. Histologic and cytologic changes in normal equine joints after injection with 2.5% injectable polyacrylamide hydrogel reveal low-level macrophage-driven foreign body response.. *Journal of the American Veterinary Medical Association*, pp. 1-9 . https://doi.org/10.2460/javma.23.10.0553.

Mayet, A., Zablotski, Y., Roth, S., Brehm, W., & Troillet, A., 2023. Systematic review and meta-analysis of positive long-term effects after intra-articular administration of orthobiologic therapeutics in horses with naturally occurring osteoarthritis. *Frontiers in Veterinary Science*, 10. https://doi.org/10.3389/fvets.2023.1125695.

McClure, S., Peitzmeier, M., Jackman, B., Evans, R., Ziegler, C., & Ganta, C., 2024. Serial injections of 4% polyacrylamide hydrogel have no detrimental effects in equine joints following clinical, histologic, and synovial biomarker evaluation.. *American journal of veterinary research*, pp. 1-7 . https://doi.org/10.2460/ajvr.24.01.0016.

McClure, S., & Wang, C., 2017. A Preliminary Field Trial Evaluating the Efficacy of 4% Polyacrylamide Hydrogel in Horses with Osteoarthritis. *Veterinary and Comparative Orthopaedics and Traumatology*, 31, pp. A1 - A25. https://doi.org/10.1016/j.jevs.2017.02.019.

McIlwraith, C., & Lattermann, C., 2018. Intra-articular Corticosteroids for Knee Pain—What Have We Learned from the Equine Athlete and Current Best Practice. *The Journal of Knee Surgery*, 32, pp. 009 - 025. https://doi.org/10.1055/s-0038-1676449.

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References – Arthramid (PAAG) Injections

Nedergaard, A., Carlsson, L., & Lindegaard, C., 2024. Evidence of the clinical effect of commonly used intra-articular treatments of equine osteoarthritis. *Equine Veterinary Education*. https://doi.org/10.1111/eve.13984.

Terlinden, A., Jacquet, S., Manivong, S., Cullier, A., Cassé, F., Legendre, F., Garcia, A., Roullin, G., Moldovan, F., Sirois, P., Banquy, X., Galéra, P., Audigié, F., Demoor, M., & Bertoni, L., 2024. Double-blinded, randomized tolerance study of a biologically enhanced Nanogel with endothelin-1 and bradykinin receptor antagonist peptides via intra-articular injection for osteoarthritis treatment in horses. *BMC Veterinary Research*, 20. https://doi.org/10.1186/s12917-024-04352-w.

Tnibar, A., 2022. Intra-articular 2.5% polyacrylamide hydrogel, a new concept in the medication of equine osteoarthritis: A review.. *Journal of equine veterinary science*, pp. 104143 . https://doi.org/10.1016/j.jevs.2022.104143.

Tnibar, A., 2024. Review of intra-articular 2.5% polyacrylamide hydrogel, a new concept in the management of osteoarthritis. *Equine Veterinary Education*. https://doi.org/10.1111/eve.14087.

Vishwanath, K., McClure, S., & Bonassar, L., 2024. Heterogeneous distribution of viscosupplements in vivo is correlated to ex vivo frictional properties of equine cartilage.. *Journal of biomedical materials research. Part A*. https://doi.org/10.1002/jbm.a.37766.

Whitaker, B., Barnhard, J., Webb, K., Levine, D., Green, M., & Vieira, M., 2025. The concurrent use of 2.5% polyacrylamide hydrogel and betamethasone esters for intra-articular injection is well tolerated in 10 healthy horses.. *Journal of the American Veterinary Medical Association*, pp. 1-8 . https://doi.org/10.2460/javma.24.10.0651.