Product User Guide

www.noltrexvet.com

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ProVets

About Noltrex®Vet

Noltrex®Vet is a synthetic joint lubricant with physical properties similar to healthy synovial fluid. Noltrex®Vet mitigates a root cause of sore joints by mechanically reducing friction, improving boundary lubrication, and providing physical protection to articular cartilage. Unlike other viscosupplements, Noltrex®Vet has been shown to adhere to damaged articular cartilage surfaces[1], producing a fine and lubricating film.

Scan the QR code to view our Quick Start Video

Elimination of Product

Due to its synthetic composition, Noltrex®Vet remains unaffected by enzymatic degradation, allowing it to persist within the joint for much longer than alternative viscosupplements. Noltrex®Vet is gradually broken down into smaller pieces and is removed by phagocytizing synoviocytes[2]. Removal from the joint occurs over approximately 30-60 days. The elimination of Noltrex®Vet enables the safe administration of the product multiple times throughout a horse's lifetime and athletic career without concerns of accumulation.

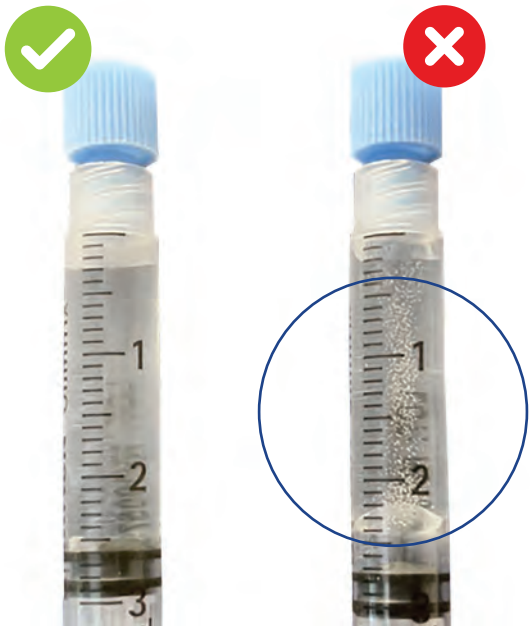
Storage and Handling

Noltrex®Vet is sterile and is provided within a sterile blister/peel pack. Standard aseptic practices apply to maintain the sterility of this product. Noltrex®Vet has a 3-year shelf-life; always check the packaging for evidence of damage, and confirm the expiry date before use to ensure sterility. Any unused portions must be discarded.

Store at a temperature of 34°F to 86°F (1°C to 30°C).

It is crucial to protect this product from freezing.

When exposed to freezing temperatures, the product becomes adulterated; this is visually recognizable by a significant number of small bubbles in a central column within the gel. Noltrex®Vet with this finding must be discarded.



Clinical Application Guidance

Injection Preparation

Noltrex®Vet is administered by intra-articular injection only. Intra-articular injection requires aseptic site preparation and sterile administration technique.

Noltrex®Vet has a high viscosity; therefore, maintaining correct needle placement throughout the injection can be challenging. Radiographic or ultrasonographic guidance is encouraged to ensure accurate needle placement for intra-articular injection.

Larger needle diameters, or additional time, are expected when injecting Noltrex®Vet. Needle size should be chosen based on the joint to be injected. Typically, this product is used with an 18-21G needle.

Time to Inject 2.5ml		
Needle Size	**Syringe**	**Time to Inject**
18G x 1″	Standard (3ml) syringe	6 sec
19G Thin Wall x 1.5″	Standard (3ml) syringe	10 sec
20G x 1.5″	Standard (3ml) syringe	18 sec
22G x 1″	Standard (3ml) syringe	45 sec
Time to Inject 1ml		
20G x 1.5″	Tuberculin (1ml) syringe	3 sec
20G x 1.5″	Standard (3ml) syringe	8 sec
22G x 1″	Tuberculin (1ml) syringe	4 sec
22G x 1″	Standard (3ml) syringe	18 sec

For smaller volumes, and joints requiring a smaller gauge needle, transferring the Noltrex®Vet to a tuberculin syringe improves the ease of injection.

Scan the QR code to view our Noltrex®Vet Tuberculin Syringe Transfer Video

NOLTREX® Synthetic Joint Lubricant VET

Early Disease Stages and Routine Joint Maintenance

Mild synovitis and a loss of joint fluid viscosity are two of the earliest hallmarks in the pathogenesis of osteoarthritis. Intra-articular administration of an anti-inflammatory, such as a corticosteroid or orthobiologic, and the addition of a viscosupplement, such as Noltrex®Vet, are fundamental to restoring the joint to a more stable condition.

The following recommendations are for consideration in injection procedures with minimal joint pathology:

- Noltrex®Vet is best utilized in combination with an intra-articular anti-inflammatory product (such as a corticosteroid or orthobiologic).
    - o If the horse has received an intra-articular anti-inflammatory treatment 3-6 months preceding the Noltrex®Vet injection, it is usually acceptable to proceed as a mono-therapy.
- Provide at least 24 hours of systemic NSAID coverage following intra-articular injection.
- Stall-rest horses for 48-72 hours after intra-articular injection.
- Return to work within one week.

Key Concepts

- Response to the Noltrex®Vet portion of a combination treatment is gradual, with improvement over 1-3 weeks following injection.
- If some improvement is noted, but the lameness is not eliminated, the veterinarian should consider when to re-evaluate based on their expectations of the timeline their combined therapy dictates.
- A second dose of Noltrex®Vet can be injected after 30-45 days if the lameness is not resolved.
- Clinically, Noltrex®Vet has been used in combination with corticosteroids and orthobiologics without incidence of product interactions. Combination therapies provide complementary actions that are non-synergistic. Dosing protocol of other products is at the discretion of the veterinarian.

Tailored Dosing for Early Disease Stages and Routine Joint Maintenance

Distal Interphalangeal	1.25 ml*
Proximal Interphalangeal	1.25 ml*
Metacarpo/Tarsophalangeal	1.25 ml*
Intercarpal and Radiocarpal	1.25 ml* per affected joint
Tibiotarsal	1.25 ml*
Tarsometatarsal	1.75 ml*
Distal Intertarsal	0.75 ml*
Medial Femorotibial	2.5 ml
Coxofemoral	2.5 ml

Volumes utilized may vary depending on individual patient considerations. Volume recommendations have been made from observed clinical responses to treatment.

*Syringes may be sterilely split at the time of injection to facilitate dosing between joints that are being administered less than 2.5 ml.

Clinical experience with Noltrex®Vet has seen the adoption of a tailored dosing strategy, promoting individualized treatments that adapt to the patient's specific needs, and response to therapy, to optimally manage their disease state.

Advanced Disease Stages and Interventional Treatment

Cases with chronic pathology will typically have an ongoing inflammatory process within the affected joint. In these cases, it is important to control inflammation and synovitis, as Noltrex®Vet does not possess anti-inflammatory properties. This category includes conditions where advanced pathology might not be present, but it falls outside the typical "joint maintenance" injections.

The following recommendations are for consideration in injection procedures with chronic or advanced joint pathology:

- To control the inflammatory process and existing synovitis, it is highly recommended to pre-treat cases with marked synovitis and/or joint effusion with an intra-articular anti-inflammatory product 2-4 weeks before Noltrex®Vet injection.
- Provide at least 24 hours of systemic NSAID coverage following intra-articular injection.
- Stall-rest horses for 48-72 hours after intra-articular injection.
- Utilize a controlled exercise program for 2-3 weeks of gradual return to exercise. Turnout must be monitored to prevent horses from running in the paddock during the controlled exercise period.

Key Concepts

- Sufficient joint space must exist for injecting this product - adjust volumes accordingly.
- Response to the Noltrex®Vet portion of a combination treatment is gradual, with improvement over 1-3 weeks following injection.
- If some improvement is noted, but the lameness is not eliminated, the veterinarian should consider when to re-evaluate based on their expectations of the timeline their combined therapy dictates.
- A second dose of Noltrex®Vet can be injected after 30-45 days if the lameness is not resolved.
- Where concern of joint flare exists, two smaller doses of Noltrex®Vet can be administered 30-45 days apart.
- Clinically, Noltrex®Vet has been used in combination with corticosteroids and orthobiologics without incidence of product interactions. Combination therapies provide complementary actions that are non-synergistic. Dosing protocol of other products is at the discretion of the veterinarian.

Tailored Dosing for Advanced Disease Stages and Interventional Treatment

Distal Interphalangeal	2.5 ml
Proximal Interphalangeal	1.25 ml*
Metacarpo/Tarsophalangeal	2.5 ml
Intercarpal and Radiocarpal	2.5 ml per affected joint
Scapulohumeral	2.5-5.0 ml
Humeroradial	2.5 ml
Tibiotarsal	2.5 ml
Tarsometatarsal	2.0 ml
Distal Intertarsal	1.0 ml*
Medial Femorotibial/ Lateral Femorotibial/ Femoropatellar	5.0 ml per affected compartment
Coxofemoral	2.5 ml, repeated in 30-45 days
Navicular Bursa	1.25-2.5ml
Distal Digital Sheath	2.5-5.0 ml
Bicipital Bursa	2.5 ml
Carpal Sheath	2.5 ml
Tarsal Sheath	2.5 ml

Volumes utilized may vary depending on individual patient considerations. Volume recommendations have been made from observed clinical responses to treatment.

*Syringes may be sterilely split at the time of injection to facilitate dosing between joints that are being administered less than 2.5 ml.

NOLTREX® Synthetic Joint Lubricant VET

Dosing and Case Management

Post-Operative Applications

In post-operative applications, Noltrex®Vet injection should be delayed until one week after suture removal.

Developing a Management Program with Noltrex®Vet

Clinical response to treatment with Noltrex®Vet has been found to last between 6 and 24 months. It is of value to consider how to implement future doses of Noltrex®Vet, in order to improve welfare and produce reliable soundness during peak periods of training and competition.

- Preference should be given to allow a full 30 days for Noltrex®Vet to reach peak effect.
- Identify periods within the client's training and competition schedule to allow the product to reach peak effect. Return to work within one week.
- Monitoring response times to past injections in chronic cases helps optimize intervals for future interventions to avoid the recurrence of significant lameness.

Adverse Event Reporting

A very small number of horses have reported the development of symptoms, consistent with aseptic synovitis, 10-20 days after intra-articular injection with Noltrex®Vet. Aseptic synovitis (i.e., joint flares) can often be avoided by pre-treating cases with an intra-articular anti-inflammatory product, a two-week controlled exercise protocol post-injection, and consideration of smaller volumes per treatment with multiple treatments spaced 30-45 days apart if indicated.

1. Vishwanath K, McClure SR, Bonassar LJ. Polyacrylamide hydrogel lubricates cartilage after biochemical degradation and mechanical injury. Journal of Orthopaedic Research. 2023;41(1):63-71. doi:10.1002/jor.25340

2. McClure SR, Yaeger M, Wang C. Clinical and histologic evaluation of polyacrylamide gel in normal equine metacarpal/metatarsal-phalangeal joints. J Equine Vet Sci. 2017;54:70-77. doi:10.1016/j.jevs.2016.11.016

NOLTREX® VET

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INSTRUCTIONS FOR USE

NOLTREX®VET (4.0% Polyacrylamide)
Sterile synthetic joint lubricant for intra-articular injection in horses.

CAUTION

Federal law restricts this device to use by or on the order of a licensed veterinarian.

COMPOSITION

- 3-dimensional polyacrylamide, %: 4.0 ± 1.0;
- purified water, %: 96.0 ± 1.0;
- silver ions, %: 0.0001 - 0.0025.

DESCRIPTION

NOLTREX®VET is a synthetic, hydrogenous, biocompatible polymer. It is composed of a sterile, viscous, polymer gel with a high molecular weight (approximately $10x10^6$ Dalton); color ranges from transparent to light-yellow. Due to the high density of the gel, it is normal to observe small bubbles in the polyacrylamide within the syringe. NOLTREX®VET does not contain substances of animal origin.

MECHANISM OF ACTION

NOLTREX®VET acts as a joint lubricant with physical properties similar to synovial fluid.

INDICATIONS FOR USE

NOLTREX®VET is used as a joint lubricant in horses.

CONTRAINDICATIONS

NOLTREX®VET should not be injected in the presence of acute inflammation, or subcutaneous/periarticular inflammation, or pathological skin conditions in the area of the injection site; or where the possibility of infection exists. Cases of acute inflammation, including but not limited to heat and/or swelling, should be controlled prior to injection. Therapy must be delayed for 48 hours to confirm the control of the acute inflammation.

NOLTREX®VET should not be used sooner than 1 week after arthroscopic or other joint surgery.

Do not use NOLTREX®VET together with any other injectable synovial fluid replacements or inject into joints with permanent implants.

WARNINGS AND PRECAUTIONS

NOLTREX®VET is intended for intra-articular injection only, and as such requires aseptic site preparation and administration technique. The intra-articular injection process has inherent risks, including but not limited to bleeding and infection. Injection into soft tissues, including synovial membrane or joint capsule, can lead to peri-articular or soft tissue complications. Avoid injecting air into the joint. Do not use if product may have been frozen.

ADVERSE EVENTS

Transient inflammatory symptoms consistent with routine intra-articular injections may occur following injection with NOLTREX®VET. This may include mild heat, pain, and/or swelling. These symptoms typically subside within 2-5 days and usually do not require intervention beyond conservative symptomatic treatment. While not all adverse events may be reported, adverse events such as aseptic synovitis have been voluntarily reported in a very small number of cases, typically 1-3 weeks post-injection. Adverse events that are related to the process of an intra-articular injection, including infection, can be avoided by strict adherence to aseptic rules and proper administration techniques. If inflammation is excessive or severe, the possibility of infection should be considered, and appropriate therapy administered.

Please report any adverse events to the authorized North American distributor Nucleus ProVets at info@nucleusprovets.com or call +1-888-550-0071.

DIRECTIONS FOR USE

Before use, inspect the package for signs of damage. If the package is damaged, sterility may not be assured and the contents should not be used. In cold environments, the syringe may be warmed up to body temperature before injection. Use sterile technique to remove NOLTREX®VET from its packaging. NOLTREX®VET requires an aseptic injection site preparation and administration technique. Due to the high viscosity of NOLTREX®VET, extra pressure must be applied to the plunger of the syringe, so care must be taken to maintain accurate positioning of the needle during the injection to avoid dislodging the needle or causing tissue damage. The recommended injection volume of NOLTREX®VET ranges from 1-5 ml depending on joint volume. A second subsequent injection can be performed after 30 days if indicated. Following treatment, the horse should be rested for a minimum of 72 hours and then enter a controlled exercise program as appropriate based on the underlying condition.

SAFETY MARGIN

In toxicity studies of NOLTREX®VET, a single subcutaneous injection of 4.0-4.4 ml/kg in rats did not result in any systemic toxic effects or gonadotoxicity during 2.5 months of observation. The same results were obtained after single subcutaneous injection of 0.4-0.5 ml/kg in dogs during 18 months of observation. A single intra-articular injection of 0.25-0.33 ml/kg in rabbits did not reveal any inhibition of local tissue or cellular reactions, or histopathogenesis during 14 months of observation. The reproductive safety of NOLTREX®VET has not been established.

INTERACTIONS

Routine local anesthetics may be used prior to injecting NOLTREX®VET. The safety of use of NOLTREX®VET in combination with other drugs has not been established.

HOW SUPPLIED

2.5 ml of NOLTREX®VET supplied in a 3.0 ml sterile, single-use, disposable, Luer-Lock™ syringe. The surface of the syringe in the blister packaging is sterile.

STORAGE

Store between +1 °C to +30 °C (from 34 °F to 86 °F). KEEP IN PLACES NOT ACCESSIBLE TO CHILDREN. Keep out of direct sunlight. Do not freeze. Keep away from moisture.

	Caution, consult accompanying documents
	Consult Instructions for use
	Do not use if package is damaged
	Do not re-use
	Temperature limitation
	Do not resterilize. Repeat sterilization can lead to destruction of the physical condition and destruction of the chemical bonds in the product.
	Sterilized by steam
	Catalogue number
	Keep away from sunlight
	Do not freeze
	Date of manufacture
	Batch code
	Use by date

Important Resources

Learn more about incorporating Noltrex®Vet into your practice, from getting started, to dosing and aftercare including:

Quick Start Video

Joint Specific Treatment Protocols

Noltrex®Vet Specific Tuberculin Syringe Transfer Technique

Published Research

19+ hours of RACE Approved CE Courses

Client Portal for Quick Online Ordering

For further assistance, contact Nucleus ProVets at 1-888-550-0071 or info@nucleusprovets.com.