Injury PRO

A Neurotransmitter Formula using the Nitric Oxide (NO) Pathway

Introducing a Wound Recovery Formula Created from Nobel Prize Winning Science

- Injury PRO precursor technology promotes the production of NO and Collagen
- Nitric Oxide promotes vasodilatation
- Nitric Oxide can increase blood flow & capillary perfusion to the equine hoof & laminae
- Nitric Oxide normalizes blood pressure, blood flow and glucose balance
- Nitric Oxide reduces stress and promotes a calming effect
- Nitric Oxide decreases inflammation and pain (eNOS)
- Nitric Oxide decreases healing time (the arginine solution) [1]

Injury PRO promotes the production of Nitric Oxide is a bioidentical NO therapy engineered to deliver clinically proven restorative NO precursor amino acids, neutralizing network antioxidants, regulating flavonoid, vitamins, minerals, and whole herbs to the soft tissue injuries via endothelial Nitric Oxide Synthase (eNOS) mediated bloodflow (1998 Nobel Prize).

Nitric Oxide (eNOS) proven by the 1998 Nobel Prize winning team, *is the definitive mechanism behind system wide vasodilatation, which promotes laminar blood flow, decreases laminar swelling, and supports recovery from laminitis. Concerns have arisen regarding drugs such as Nitroglycerin and sildenafil which are being clinically studied and used in the Equine arena for laminitis.* These concerns regard unopposed free radical production, oxidative stress/tolerance (Nitroglycerin[3]), cGMP breakdown inhibition (sildenafil), and blood pooling at blood vessel lesion sites[4]. This has opened up the opportunity for a multi-nutrient Nutraceutical application engineered to produce Nitric Oxide, nature's nutrient delivery pathway, without the side effects related to the more popular pharmaceutical applications.

Injury PRO contains a proprietary blend of clinically established Nitric Oxide amino acid precursors[5] to include Arginine & Citrulline, network antioxidants[6] to include Vitamin C, Vitamin E, N-Acetyl-L Cysteine and flavonoid regulators[7] including Citrus Bio Flavonoid and Horse Chestnut seed extract.

Suggested Dosage: 1 scoop (32 cc per 1000lbs)
Top dress on feed 2 times a day for 10 days, then dose once a day until issue has been resolved.
Powder can be mixed with water in an oral syringe, dose into mouth slowly so horse can lap it up.
This prevents loss and insures horse gets full dose.

Research Abstracts

Supplemental L-arginine enhances wound healing following trauma/hemorrhagic shock. *WOUND REP REG* Vol.15;No.1;Page 66-70(2007). Shi H.P, et al.

To determine whether parenteral L-arginine supplementation enhances the impaired wound healing of rats subjected to trauma/hemorrhagic shock. Impaired wound healing after trauma and shock has been documented experimentally and clinically. L-arginine has been shown to enhance wound strength and collagen synthesis in rodents and humans. Its efficacy under conditions of impaired wound healing is less well defined. Forty-eight male Lewis rats were used in this study. Using a well-defined model, 24 rats underwent trauma/hemorrhagic shock before wounding. Twenty-four untreated rats served as controls. All animals underwent a dorsal skin incision with implantation of polyvinyl-alcohol sponges. Half of the animals in each group were assigned to receive 1 g/kg/day of L-arginine by intraperitoneal injection in three divided doses, while the other half received saline injections only. Animals were sacrificed 10 days postwounding, and wound-breaking strength (WBS) and wound sponge total hydroxyproline (OHP) and nitrite/nitrate (NO_x) content were determined. Wound sponge RNA was collected and subjected to Northern blot analysis for procollagens I and III. Trauma/hemorrhage greatly decreased WBS with a concomitant diminution in collagen (OHP) deposition. L-arginine significantly enhanced WBS (19%) and increased OHP (21%) levels in control animals as well as in rats subjected to trauma/hemorrhage (WBS +29%, OHP 40%) compared with their saline-treated counterparts. Procollagen I and III mRNA levels were elevated by L-arginine treatment in both trauma/hemorrhage and control rats. Arginine treatment had no effect on wound fluid and plasma NO_x. The data demonstrate that the impaired healing subsequent to trauma/hemorrhage can be greatly alleviated by L-arginine supplementation.

Arginine supplementation enhances diabetic wound healing: Involvement of the nitric oxide synthase & arginase pathways. *Journal of Metabolism: Clinical and Experimental*. Volume 51, Issue 10 Pages 1269-1273 (October 2002). Witte, MB, Thornton, F, Tantry, U., Barbul, A**.**

Arginine is a basic amino acid that plays several pivotal roles in cellular physiology. Like any amino acid, it is involved with protein synthesis, but it is also intimately involved with cell signaling through the production of nitric oxide and cell proliferation through its metabolism to Ornithine and the other polyamines. Because of these multiple functions, arginine is an essential substrate for wound healing processes. Numerous studies have shown that arginine supplementation can lead to normalization or improvement of healing. This article reviews the basic biochemistry and cell signaling within which arginine performs its functions. In particular, the requirement for this amino acid in tissue repair is highlighted.

References:

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4. Chambers, J.C., et al. 1999. Demonstration of rapid onset vascular endothelial dysfunction after hyperhomocysteinemia: An effect reversible with Vitamin C therapy. *Circulation* 99*:* 1156-60.
5. Taddei, S. et al. 1998. Vitamin C improves endothelium-dependent vasodilation by restoring nitric oxide activity in essential hypertension. *Circulation* 97: 2222-29.
6. Pittler, M.H. , and E. Ernst. 1998. Horse Chestnut Seed extract for chronic venous insufficiency – a criteria-based systemic review. *Arch Dermatol* 134:1356-60.