

# HYDRO-P PREMIUM



## HYDRO-P PREMIUM: HYDROLYZED COLLAGEN TO IMPROVE JOINT AND GASTRIC HEALTH

Hydro-P Premium is an food grade hydrolyzed collagen. It can be characterized as a type I collagen. In the production process the collagen is heated to a liquid phase and extracted. After a filtration and further concentration step the enzymatic hydrolysis takes place. The liquid product is then sterilized, spray dried and packed for delivery to the customer. Hydrolyzed collagen is used in a wide range of health products, including joint, skin, gastric and wound healing products for humans, pets and performance horses.

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**DARLING**  
INGREDIENTS

## JOINT AND GASTRIC HEALTH

Connective tissue is the most abundant protein in the body, and as humans and animals age, their capacity to produce collagen begins to decline. Connective Tissue is the structural component of:

- Cartilage
- Bone
- Skin
- Gastric lining

Though absent of blood vessels, cartilage tissue in the joints is a living tissue composed of specialized cells called chondrocytes.

Collagen fibrils make up a part of the extracellular matrix. This matrix further consists of 60-80% water and other macromolecules of which chondroitine and glucosamine take part. Their main function is lubrication and support (shock absorption). The collagen fibrils provide the cartilage with its tensile stiffness and strength.

Osteoarthritis (OA) causes degeneration, loss of cartilage matrix, and inflammation with a release of pro-inflammatory cytokines. This (may) lead(s) to chronic pain, lameness and disability.

It is estimated that 15% of all horses suffer from OA. There have been some published trials with using hydrolyzed collagen (type I and II) in OA application for horses (Applet 2005, Gupta 2009). In these, and also new trials, horses were tested on a force plate or bio-markers were used in order to indicate a positive effect.

### Results (synovia): Prostaglandin E2 (PGE<sub>2</sub>, pg/mL)

Hydro-P Premium differed from placebo at PID 0.3\*

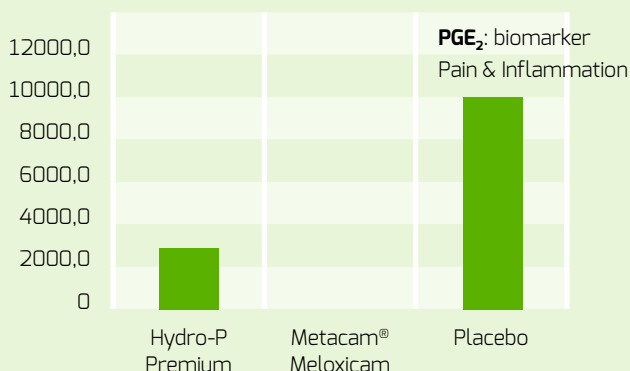


Fig 1: PGE<sub>2</sub> levels in the synovia 8 hours after LPS injection.

\*Note: Differences refer to overall statistical analysis performed. For PGE<sub>2</sub> log transfer of data was needed – Statistics according to submitted publication.

Sonac is a leading manufacturer of reliable ingredients of animal origin. With an active R&D program, reliable processes and sustainable end products Sonac continuously adjusts to market needs. A good geographical spread of locations and a broad portfolio of fats, proteins, minerals and specialties make Sonac a trusted partner for many international producers in food, pet food, feed and fertilizers, worldwide. Sonac is part of Darling Ingredients.

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## THE ADVANTAGES OF HYDRO-P PREMIUM

- Supports connective tissue health (joint, skin, bone)
- Supports equine gastric health (reduction in ulcer scores)
- High protein content (>90%)
- Hypoallergenic
- Absent of GMO, biogenic amines

The university of Gent (2016) evaluated the anti-inflammatory effect of Hydro-P Premium using an acute synovitis model. Joint inflammation plays a crucial role in development of OA. PGE<sub>2</sub> is a primary marker for evaluation of inflammation and pain.

Up to 90% of performance horses suffer from gastric ulcers. There are veterinary products available for treating gastric ulcers. However, they are expensive and must be given daily during training and racing, which most performance venues do not allow. Hydro-P Premium reduces gastric ulcer scores. This has been shown by a recent study at Louisiana State University. Where at day 56 of the trial the number of ulcers were reduced and less severe (Fig 2).

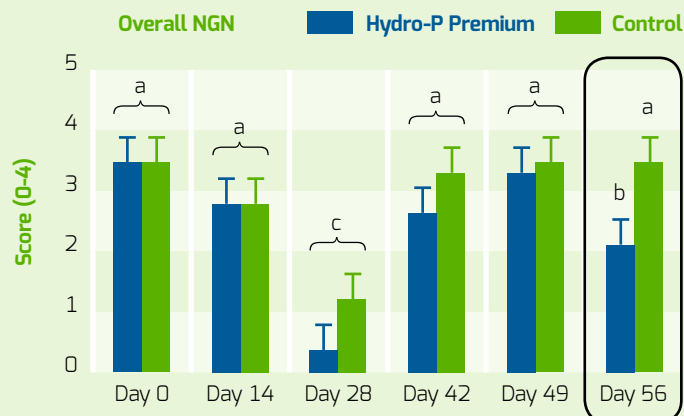


Fig 2: Mean endoscopic nonglandular gastric acid score number (NGN 0-4) in horses on Day 0 (before) and Days 14, 28, 42, 49 and 56 after feeding Hydro-P Premium (45 g, mixed in grain twice daily).

Horses were given omeprazole paste (4.0 mg/kg, orally, once daily) from Day 14 to 28 and horses were exposed to an alternating feed deprivation model from Days 42 to 49. Different lower case letters denote significant (P<0.05) day and treatment\* day differences.



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