

EnduraCare™

Not just Lifespan,™
but Healthspan



PREPARED FOR

TRIPLE CROWN NUTRITION

315 Lake St E Suite 200,
Wayzata, MN 55391
(952) 473-6330

COMPANY

CAMAS INC.

40463 261st Avenue
Le Center, MN 56057
(507) 357-4929



EnduraCare™ Overview

This document is designed to provide comprehensive information tailored to meet the needs of both experts in the equine industry and everyday horse owners. You'll find explanations at varying degrees of complexity ranging from scientific research to simple language.

Infographics will be used to convey the effectiveness of EnduraCare™ in a quick, digestible format. At the bottom, you'll find an 'FAQ' section addressing common questions and a Terms Sheet for science terminology used in this paper.

Let's dive into the details!



Name and Value Proposition

EnduraCare™ is a specialized protein that intercepts harmful molecules

to help fortify the gut and

promote a healthy inflammatory



PROMOTES A HEALTHY INFLAMMATORY RESPONSE

Horses given EnduraCare™ for 30 days exhibited a reduction in TNF- α by more than 50% when tested before, directly after, and 24 hours after a period of exercise. TNF- α is a molecule that triggers inflammation.



FORTIFIES THE GUT AND MICROBIOME

EnduraCare™ works by coating the GI tract with antibody proteins that intercept pathogenic molecules in the mucosal layer of the gut lining.



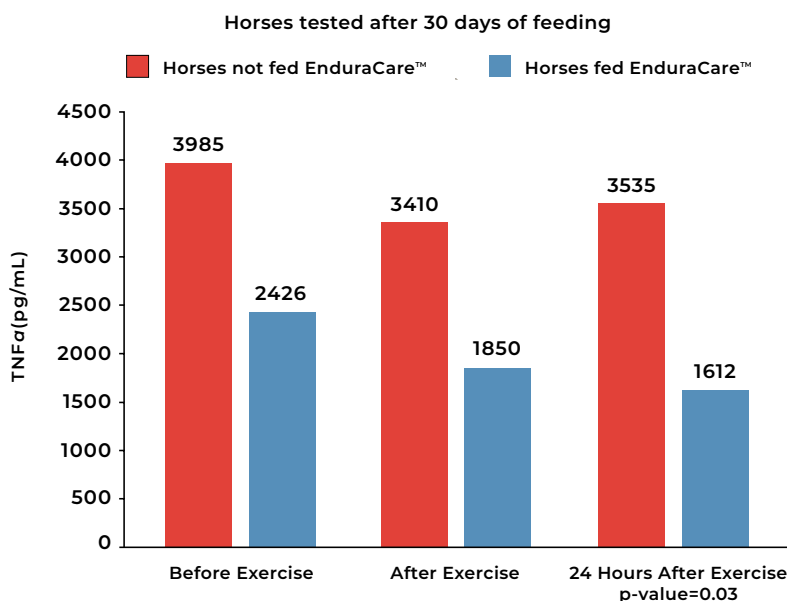
TARGETED ANTIBODY PROTECTION

EnduraCare™ antibodies are formulated to target pathogenic bacteria molecules that cause inflammation.

30 Day Anti-Endotoxin Antibody Study in randomly selected horses

It has been long understood that tumor necrosis factor (TNF) plays a crucial part in a body's inflammatory response. As a Cytokine, TNF is associated with the regulation of immune cells by cell signaling. An important trigger for a pro-inflammatory cytokine response is endotoxin. Endotoxin is a polysaccharide found in the cell wall of gram-negative bacteria. This toxin is released after cell lysis in the gut and migrates trans-intestinally into the blood. Endotoxin levels are impacted by events such as stress, nutrition, and antibiotic use. Endotoxin concentration directly impacts TNF, and at certain levels, may result in systemic inflammation and/or endotoxemia. We at Camas have developed an anti-endotoxin antibody that has been shown, with the help of Dr. Jessica Leatherwood, to reduce the amount of TNF in equine both in everyday use and after a stress event. We choose to partner with Dr. Jessica Leatherwood due to her vast and reputable knowledge in equine health and management.

"Immunoglobulin Y elicits positive effects in domestic livestock with gastrointestinal or inflammatory diseases; however, there are limited studies in horses. To test the hypothesis that dietary anti-endotoxin IgY (IgY) has a positive effect on gastrointestinal health and mitigates systemic inflammation in horses undergoing exercise, 30 stock-type horses (578±59 kg BW; 1413 yr) were used in a completely randomized design. Horses were stratified by BW, age, and sex and then randomly assigned to treatments: 0 g/d IgY (CON; n=10), 1 g/d IgY (TRT1; n=10), and 2 g/d IgY (TRT2; n=10). Horses were fed twice daily, every 12 h, with dietary treatments (Camas, Inc., Le Center, MN) top-dressed on the morning concentrate for 33 d. Horses were maintained in dry lots with ad libitum access to Coastal Bermudagrass Hay. Horses were exercised 5 d/wk for 1 h. On d 0 and 30, BW and BCS were recorded, and blood was collected for complete blood cell count (CBC) and serum blood chemistry. On d 32, horses were transported 270 km and underwent a 3.2 km exercise stressor on concrete at a walk with maximum 15 min of trot." (Gilcrest, 2023). Blood was drawn at three time points: Pre-trailering (before movement to the Houston Livestock Show and Rodeo), Post-trailering (immediately after returning), and 24 hours post trailering (24 hours after returning).



Key Points:

Feeding Camas Anti-Endotoxin Antibodies greatly reduces TNF-a in an everyday pasture setting and its effects are amplified after a stress event.

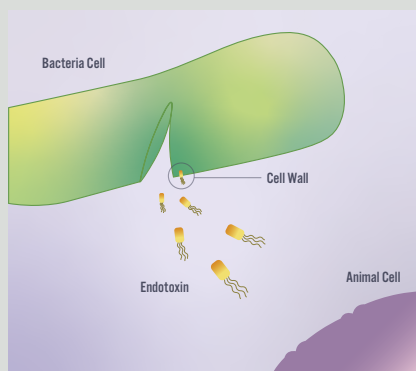
TNF-a was reduced by as much as 55% compared to those horses that did not receive Camas Anti-Endotoxin Antibodies following a stress event.

Camas Anti Endotoxin Antibodies have broad binding coverage across all gram-negative bacteria.

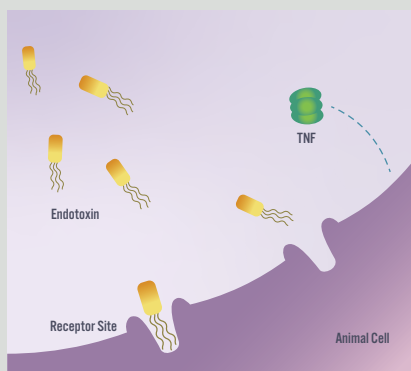
At the cellular level

INFLAMMATORY RESPONSE WITHOUT ANTI-ENDOTOXIN

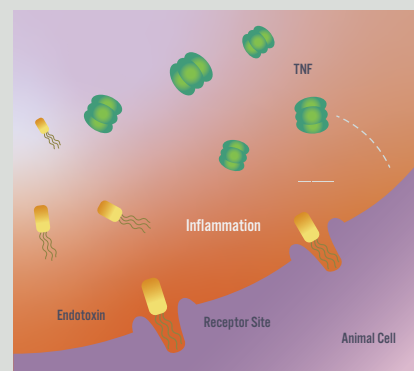
When a gram negative bacteria cell dies endotoxin is released. It then makes it's way from the gut to the bloodstream.



In the bloodstream, Endotoxin bind to animal cells at a receptor site.

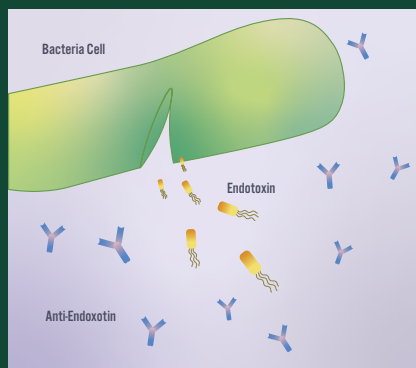


TNF- α is released in response. The presence of TNF- α eventually leads to inflammation.

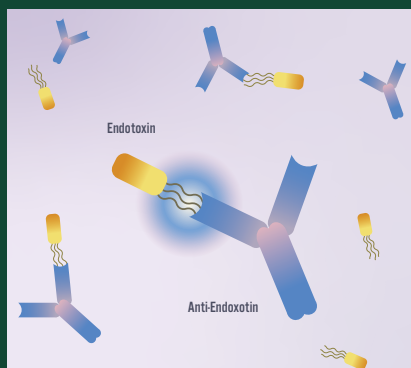


INFLAMMATORY RESPONSE WITH ENDURACARE™

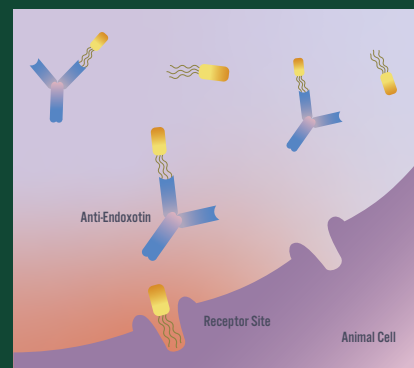
Upon the death of a (gram-negative) bacterial cell Endotoxin is released.



Anti-Endotoxin bind to Endotoxin blocking them from animal cell receptor sites.



The inflammatory response is inhibited.



Terms Sheet

Endotoxin - A molecule released from the cell wall of a gram-negative bacteria cell that can pass through the gut lining to eventually trigger inflammation.

Antibody - Specific proteins our bodies produce in response to pathogens like bacteria and viruses.

Microbiome - Microorganisms like bacteria, fungi, and viruses that live in the gut of animals and influence aspects of digestive and overall health.

Gut Lining - A barrier around the gut that decides what gets absorbed into the bloodstream and what stays out.

Cytokine - A type of protein that is made by certain immune and non-immune cells and has an effect on the immune system. Their function is an important part of cell signaling.

TNF- α stands for Tumor Necrosis Factor alpha. It is one of the main causes of inflammation.

After endotoxin binds to an animal cell, a series of reactions occurs and TNF- α is one of the molecules released.

Hyperimmunized Egg Yolk - Egg yolk contains trillions of antibodies which are a type of protein. Our egg yolk contains a special antibody that targets endotoxin. Because of this special formulation, we refer to it as hyperimmunized.

Pathogen - Any harmful or disease-causing organism. Bacteria, viruses, and fungi can all be pathogenic but only if they are harmful to the animal.

Cell Lysis - Lysis refers to the breakdown of a cell caused by damage to its plasma(outer) membrane. Cell lysis occurs during cell death, or with the aid of antibiotics.



Frequently Asked Questions

What is in EnduraCare™?

EnduraCare™ is a protein powder made from all-natural food-grade hyperimmunized egg yolk.

How does it work?

EnduraCare™ works by binding harmful molecules known as endotoxin that cause inflammation.

How long until I see results?

In research testing, benefits have been observed after 30 days of consistent feeding.

Why is Inflammation bad for my horse?

Issues linked to inflammation include premature aging, diarrhea, sore muscles, depression, insulin dysregulation, and colitis.

How do I know EnduraCare™ is safe to feed my horse?

The safety of EnduraCare™ in horses of all ages has been validated in university research trials.

How will I know that my feed contains EnduraCare™? How will it be listed on the bag?

The feed tag will include EnduraCare™ listed as spray-dried egg yolk powder

What is the shelf life of my feed with EnduraCare™?

EnduraCare™ has an 18 month shelf life, however we recommend our feed be consumed within 3-6 months of manufacture date for optimum vitamin and mineral performance.

Will all horses benefit from EnduraCare™?

Horses face a wide range of stressors daily. These stressors include training, transportation, environment, medication, abrupt changes in diet, metabolic issues, vet and farrier visits, as well as social/herd changes. Stress negatively impacts gut health by compromising the integrity of the gut lining and making the horse more susceptible to harmful molecules. EnduraCare™ intercepts these harmful molecules so that they are unable to further weaken the gut lining therefore helping to maintain gut function and support immune health.

What are the harmful molecules and where do they come from?

Endotoxin is a harmful molecule that comes from the cell wall of gram-negative bacteria that live in the horse's gut. These bacteria are present in a healthy horse and under ideal circumstances, the horse's natural resources are able to mitigate their effects. However, when faced with stress, those resources become limited and the horse may no longer be able to defend against the effects of the bacteria's endotoxin.

Frequently Asked Questions

What does Endotoxin do to my horse's gut?

Endotoxin when bound to its receptor elicits an inflammatory response, which in turn, changes the morphology of the gastrointestinal barrier. These changes include decreased height and area of intestinal villi resulting in reduced intestinal nutrient absorption. With this inflammatory response, there is a nutrient cost in the form of reduced feed intake and conversion.

Could my horse be allergic to eggs?

While egg allergies are common in humans, EnduraCare™ has been fed to millions of livestock animals with no reported cases of allergic reaction. Since horses have virtually no past experience with consuming eggs, it would be unlikely for them to develop allergy symptoms.

What benefits could I expect to see from feeding EnduraCare™?

It can be difficult to qualify your horse's gut health and overall well-being however, you may notice improved feed efficiency, recovery time from training, response to heat stress, and consistency of manure.

To see the benefits of EnduraCare™ do I need to feed it daily?

Benefits will be maximized through daily feeding.

What are some gram-negative bacteria that horses may commonly come in contact with?

There are many gram-negative bacteria that exist in a horse's gut, some of them are beneficial while others are harmful. Some of the better-known harmful bacteria are E. coli and Salmonella.

What does hyperimmunized mean? – what is the process?

A series of vaccinations provided to an organism to increase immunity and antibody production to a specific antigen. An antigen is any substance that elicits the body to mount an immune response against that substance.

What happens to the bound molecules?

The bound molecules are flushed out of the horse's system like any other substance in the gut. Binding endotoxin with EnduraCare™ antibodies prevents the endotoxin from activating receptors. Furthermore, the large complex that is formed when EnduraCare™ binds to endotoxin prevents intestinal barrier crossover and absorption in the bloodstream.

Where can I find EnduraCare™?

Look for EnduraCare™ exclusively in your favorite Triple Crown products!

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