Effect of an Equine Health Product with Natural Active Ingredients on the Equine Immune System

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Abstract
This study was designed to determine whether a natural health product (Immunex) by Finish Line Horse Products of Bensenville, Illinois is effective in increasing T-cells in horses. A group of 12 show horses consisting of mares, geldings, and one stallion, were selected for the study. The horses ranged in age from 4 to 14 years old. The horses were randomized into two groups of 6. All finished the study except one horse that was sold during the course of the study. Six of the horses were given Immunex at the recommended dose of 2 volume ounces per day for 30 days.

Both groups were maintained on normal feeding, exercise and showing. All horses were then shipped from Florida to Tennessee. Blood samples were drawn prior to the start of the study, on shipping day, and on arrival. Data was analyzed and charted using readily available spreadsheet software.

1. Introduction

Reductions in the immune system function in Thoroughbred horses have been shown to occur in horses due to long-term shipping, by Y.Maeda DVM et al [1]. Finish Line Horse Products developed an equine health product with natural active ingredients, including Goldenseal, Echinacea, Schizandra berry, Yellow Dock, Ashwagandha, Kelp, Astragalus, Garlic and Ginger root. The product, Immunex, is intended to promote healthy immune response in horses, especially when stressed by shipping.

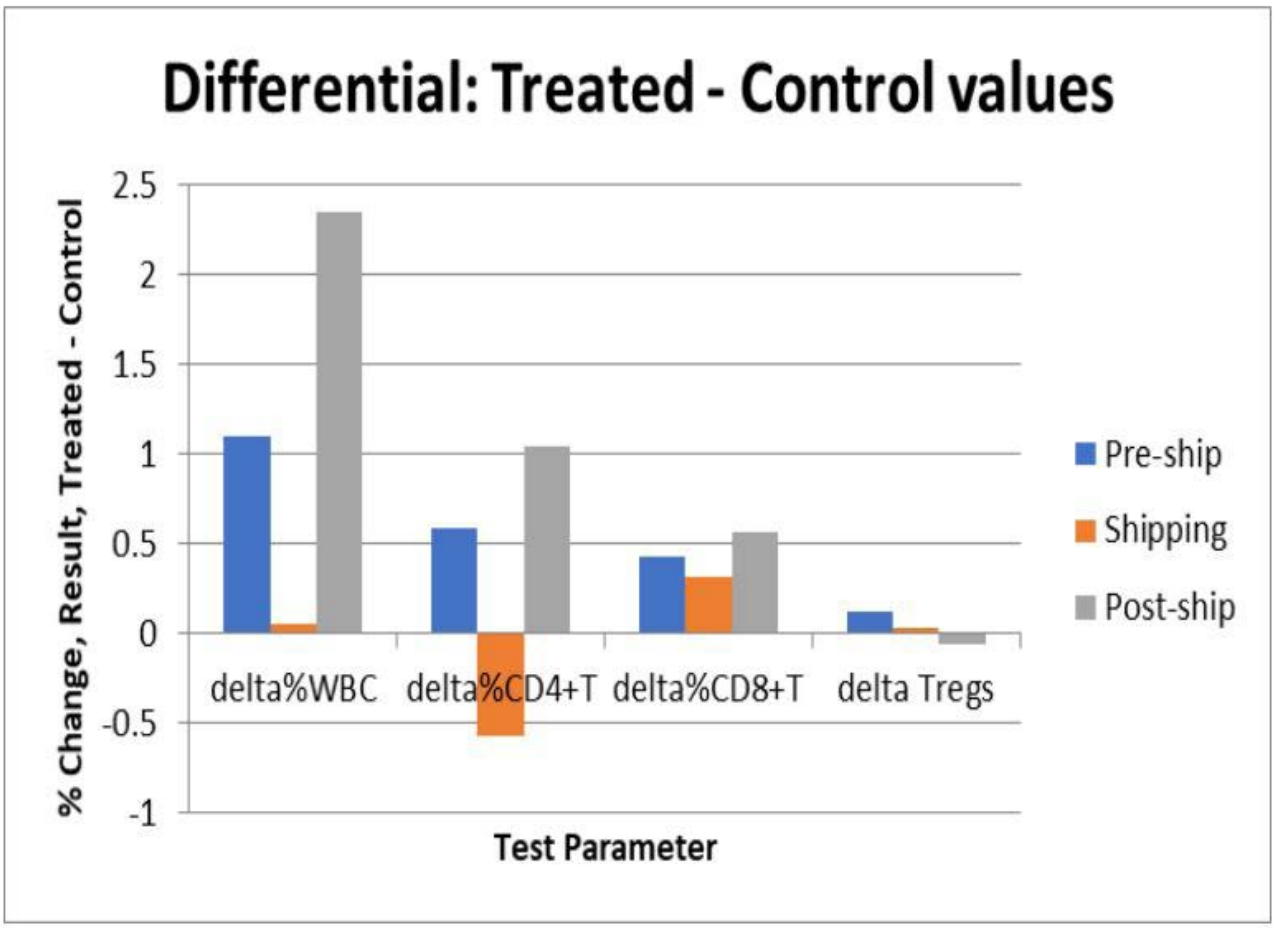
The purpose of this study was to determine what changes occur to White Blood Cell test parameters with and without addition of this supplement. Analysis of the WBC test parameters was by Flow Cell Cytometry.

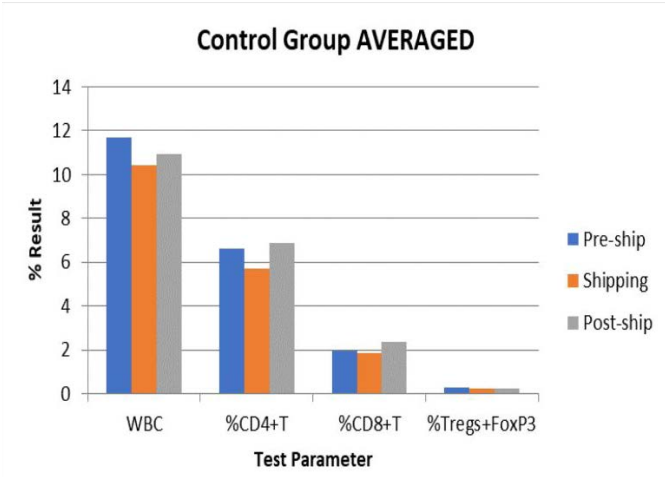
2. Materials and Methods

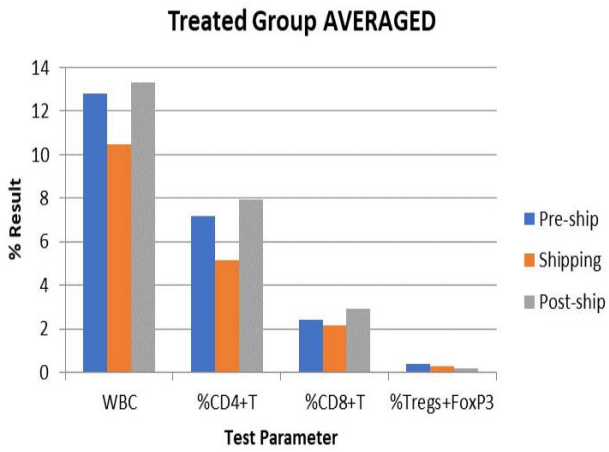
This study used a group of 12 hunters and jumpers from a show barn in Ocala, Florida. The horses were randomly divided into two groups of 6 each (1-6 = treated, 7-12 = control). Both groups were maintained on their normal feeding, exercising and show schedule. Their ages ranged from 4 to 14 years of age. They were a mixture of mares and geldings with one stallion. The treated group received Immunex, the control group did not. Supplementation began 30 days before scheduled shipping, at the rate of 2 scoops (2 vol.oz) per day.

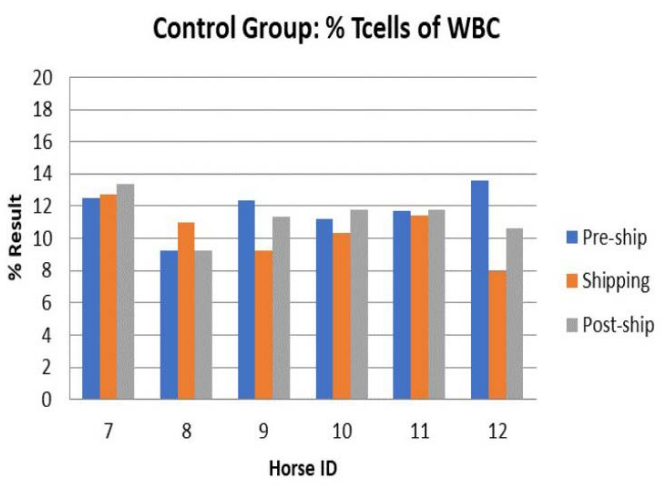
All horses were tested for initial base line values of CD4, CD8 and FoxP3 T-cell. On the day the horses were shipped to Tennessee, they were tested again before loading onto the trailers. Post-shipping tests were performed at their time of arrival in Tennessee. All samples were sent for testing to the University of Florida by Bikash Sahay, DVM, PhD, CVM, Department of Infectious Disease and Immunology Center, University of Florida, College of Veterinary Medicine.

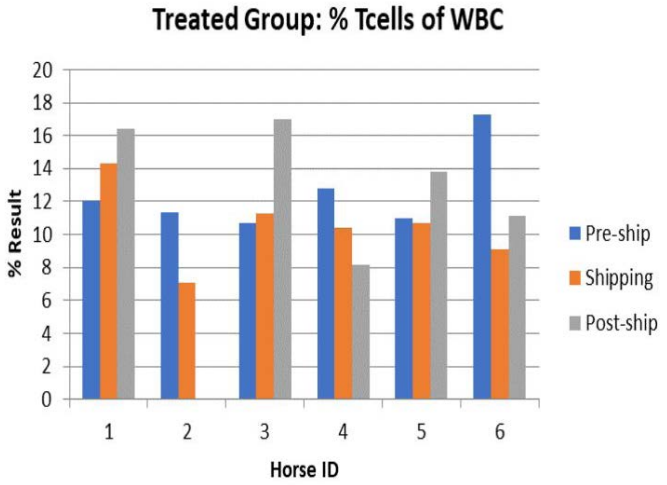
Keywords: Immune system, Natural Active Ingredient Supplement, Immunex, Shipping fever, WBC.

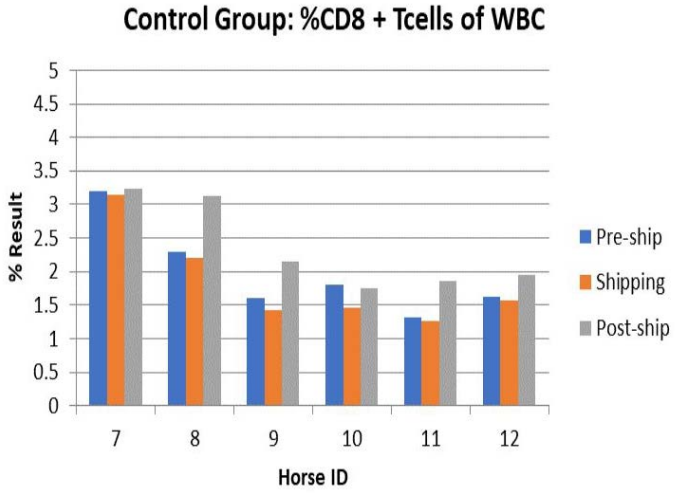

Differential: Treated - Control values
% Change, Result, Treated - Control
2.5
2
1.5
1
0.5
0
-0.5
-1
delta%WBC
delta%CD4+T
delta%CD8+T
delta Tregs
Test Parameter
Pre-ship
Shipping
Post-ship


Control Group AVERAGED
% Result
14
12
10
8
6
4
2
0
WBC
%CD4+T
%CD8+T
%Tregs+FoxP3
Test Parameter
Pre-ship
Shipping
Post-ship


Treated Group AVERAGED
% Result
14
12
10
8
6
4
2
0
WBC
%CD4+T
%CD8+T
%Tregs+FoxP3
Test Parameter
Pre-ship
Shipping
Post-ship


Control Group: % Tcells of WBC
% Result
Horse ID
Pre-ship
Shipping
Post-ship


Treated Group: % Tcells of WBC
% Result
Horse ID
Pre-ship
Shipping
Post-ship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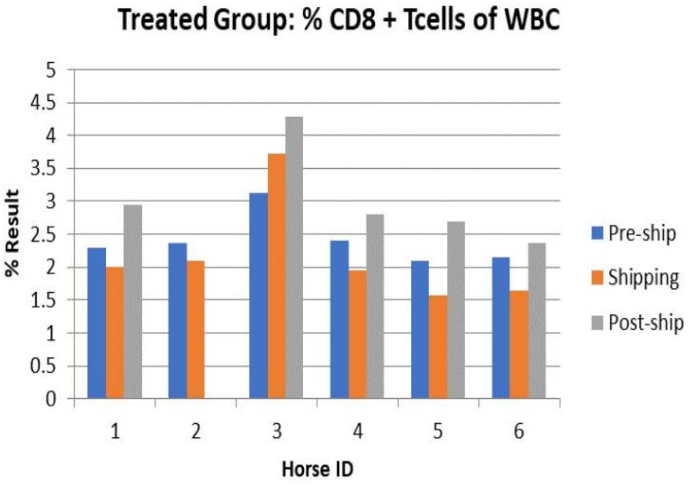
% Result
Horse ID
Pre-ship
Shipping
Post-ship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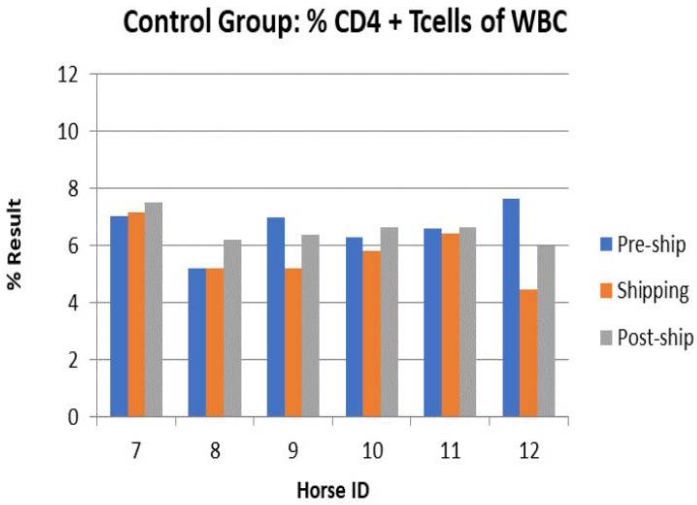
% Result
Horse ID
Pre-ship
Shipping
Post-ship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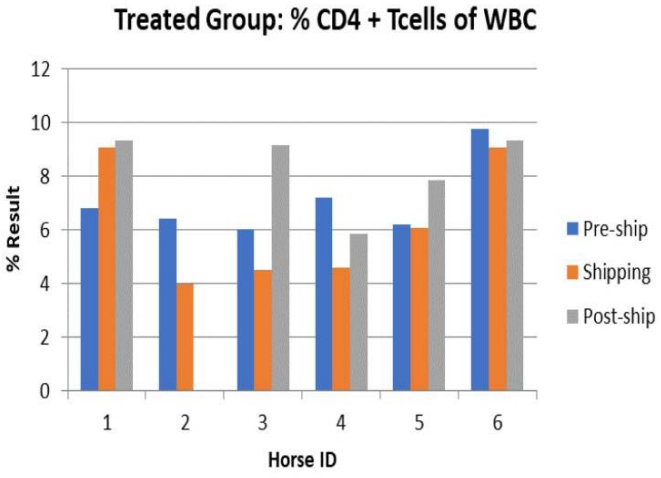
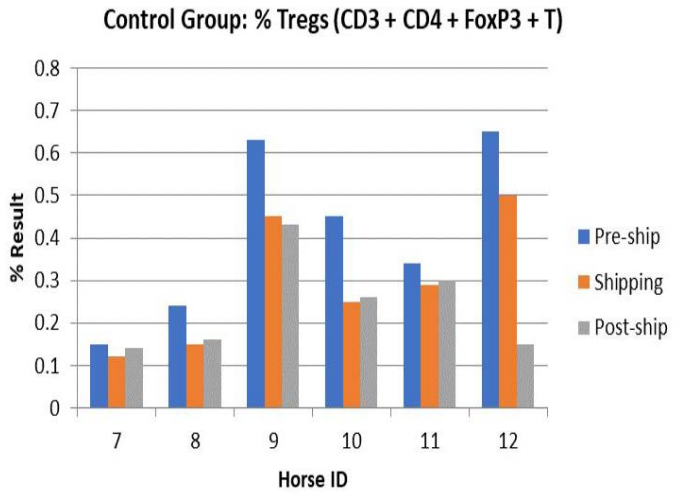
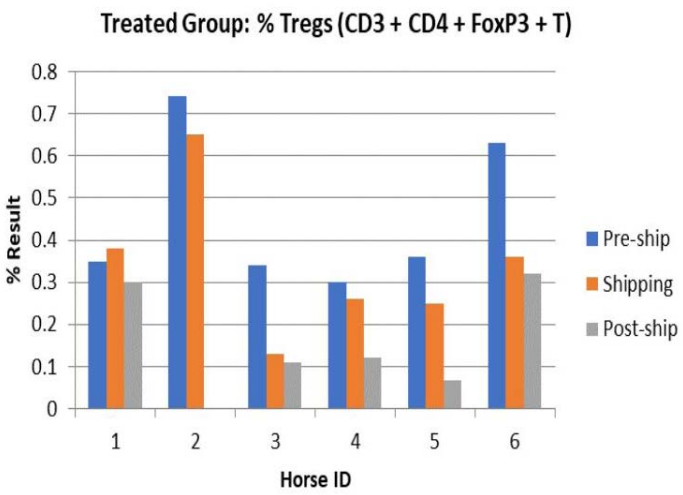
% Result
Horse ID
Pre-ship
Shipping
Post-ship


Treated Group: % CD4 + Tcells of WBC
% Result
Horse ID
Pre-ship
Shipping
Post-ship





4. Discussion:

CD4 cell glycoproteins are found on the surface of the immune cells and remind the immune system to fight infections. The CD8 cell glycoproteins are attached to the cells that fight infections and the FoxP3 cell proteins appear to function as a master regulator of the function of T cells. Elevated levels of FoxP3 may cause immune diseases.

Immunex caused an increase in the CD4 and CD8 cells markers while decreasing the FoxP3 cells markers, in the treated group, relative to the control group. 3 horses in the control group contracted shipping fever. No horses in the treatment group contracted shipping fever. This product was shown to be effective at stimulating the immune system to counteract the negative effects of stress and potential infections while decreasing the chances of triggering an immune mediated autoimmune disease process.

5. Conclusions:

Shipping has been shown to be very stressful to horses. Immunex increased the WBC on average. It increased, within normal ranges, the CD4 cell values as well as the CD8 cell values while decreasing the FoxP3 cell average values.

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References

[1] Maeda Y, Tomioka M, Hanada M, Oika M. Changes in Peripheral Blood Lymphocyte and Neutrophil Counts and Function Following Long-Term Road Transport in Thoroughbred Horses.

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