DOES LITOVEL®, A HERBAL REMEDY MADE FROM ROSA CANINA, ACT AS AN ANTI-INFLAMMATORY AGENT IN HORSES EXPOSED TO STRENuous EXERCISE?

A RANDOMIZED, PLACEBO-CONTROLLED, PARALLEL, DOUBLE-BLINDED STUDY ON THE IMMUNE SYSTEM OF HORSES, THEIR WORKING CAPACITY AND BEHAVIOUR

K.Winther, J. Falk-Rønne, A. Kharazmi, A.V. Hansen, and E.W. Hansen. Department of Clinical Biochemistry, Frederiksberg Hospital, University of Copenhagen, The Horseclinic at Lunden, Charlottenlund, Copenhagen, Department of Clinical Microbiology, Rigshospitalet, University of Copenhagen, Denmark.
INTRODUCTION AND AIM

A standardised product, LITOZIN®, made from rose hip (Rosa Canina), has shown anti-inflammatory and pain reducing properties in humans.

The present study aimed to test if LITOVET®, a version of LITOZIN® especially developed for horses, would affect the immune system, working capacity and behaviour of horses.
Seventyfour horses, all trotters, were included in a double-blind, placebo controlled trial.

The horses were randomized in blocks of three of which two received LITOVET® and one placebo of similar taste and colour. Then the LITOVET® group, as well as the placebo group, were treated for three months.
METHODS II

The chemotaxis of neutrophils was estimated using a Boyden chamber, haematology using normal laboratory routine, and the time to run 1000 metres by simply counting the minutes.

Behaviour was evaluated on a questionnaire which was answered by the staff taking daily care of the horses.
Three months treatment with LITOVET® resulted in a significant reduction in chemotaxis (* p<0.0039).
LITOVET® resulted in a significant reduction in chemotaxis (* p<0.004). Three months after withdrawal this reduction was reduced by 50%.
DELTA CHANGE IN HAEMOGLOBIN CONCENTRATION IN HORSES DURING 3 MONTHS TREATMENT WITH LITOVET® (0.5 g/kg).

LITOVET® treatment resulted in an improvement in haemoglobin (* p<0.002).

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Delta Change in Haemoglobin</th>
<th>Improvement</th>
<th>n</th>
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<tbody>
<tr>
<td>Placebo</td>
<td>0.4 ± 0.9</td>
<td>3.1 %</td>
<td>10</td>
</tr>
<tr>
<td>LITOVET®</td>
<td>0.7 ± 1.0</td>
<td>5.6 %</td>
<td>23</td>
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DELTA CHANGE IN ERYTROCYTE COUNTS IN HORSES DURING 3 MONTHS TREATMENT WITH PLACEBO OR LITOVET® (0.5 g/kg).

LITOVET® treatment resulted in an improvement in the counts of erythrocytes (* p<0.0001).
During LITOVET® treatment the horses improved their speed (* p<0.02).
In the LITOVET® group haemoglobin concentration and erythrocyte count improved significantly respectively and the time to run 1000 meters declined. No significant change was observed in the group receiving placebo.
ARE THE HORSES MORE LITHE AFTER STRENUOUS EXERCISE?

In the LITOVET® group there was a significant number of positive statements. This was not observed in the placebo group.

In the LITOVET® group:
- 19 respondents answered “Yes or possibly yes”
- 8 respondents answered “No or absolutely not”

In the placebo group:
- 8 respondents answered “Yes or possibly yes”
- 8 respondents answered “No or absolutely not”
- 7 respondents answered “No or absolutely not”

(* P<0.05)
One question was: Have the horses changed their behaviour?

1) A change in behaviour was registered in 10 horses treated with LITOVET®
2) A change in behaviour was registered in 5 horses treated with placebo

(No significant change between the two groups)

In general, a more positive behaviour was reported in horses on LITOVET®
In the LITOVENT® group there was a significant number of positive statements. This was not observed in the placebo group.
HORSES AND VITAMIN C

In contrast to humans, horses are able to synthesise vitamin C from their daily diet.

However, horses under strenuous exercise end up with Vitamin C depletion, which weakens the immune system.

The addition of synthetic vitamin C to the diet of horses has not been successful as it results in poor and slow absorbance (> 3 weeks).

Natural vitamin C from LITOVET® is easily and quickly absorbed by horses.

A significant increase in vitamin C was observed in blood drawn from horses after 2 and 4 hours (p<0.05). Two horses with low vitamin C levels increased their vitamin C level by 40% in the same time period.
VITAMIN-C LEVELS IN HORSES FOLLOWING INTAKE OF LITOVET®

![Graph showing vitamin C levels in horses after intake of Litovet. The graph plots the S-Vitamin C µmol/l against weeks treated. There are three treatment groups: 100 g/day (n=8), 50 g/day (n=8), and 25 g/day (n=8).]
VITAMIN-C LEVELS IN HORSES WITH INITIALLY LOW LEVELS OF VITAMIN-C (14.9 - 23.1 µmol/l) FOLLOWING DAILY INTAKE OF 25 GRAM LITOVET®

* p<0.031
CONCLUSION

LITOVET® has anti-inflammatory properties in horses. This can possibly explain why the horses, while on LITOVET®, were more lithe after training intensively, why the haemoglobin concentration increased and why the horses improved their speed during competition.

The addition of LITOVET® to the diet of horses strongly improved their blood level’s of vitamin C.