



# Bronchix Pulmo

> FOR PULMONARY SUPPORT AND ELASTICITY

# RESPIRATORY DISEASES IN HORSES

## EPIDEMIOLOGY OF RESPIRATORY PROBLEMS

Respiratory diseases can be considered as the second most common cause of loss of performance in sport horses and racehorses after musculoskeletal problems. The overall prevalence of respiratory diseases is most probably underestimated due to the fact that some chronic forms of diseases may develop sub clinically, although they still impede performance.

## LOWER AIRWAY ISSUES

Whatever the type of sport, most lower airway diseases cause a significant decrease in athletic parameters and delayed cardio-respiratory recovery.

The main lower respiratory diseases involved in poor performance reported are inflammatory airway disease (IAD), recurrent airway obstruction (RAO), exercise induced pulmonary haemorrhage (EIPH) and viral or bacterial infections.

Several factors inevitably promote the occurrence of inflammatory diseases, such as age (higher prevalence in older individuals), pollution and other environmental conditions.

Horses are often housed indoors in buildings where ventilation within the boxes is limited, indoor storage of hay and straw can be encountered and doors and windows are often closed during the cold months. This type of management promotes chronic respiratory inflammation.



**Intensive training, repeated transports and mingling during competitions may also promote the development and transmission of infectious diseases.**

Moreover, competition itself is also a key factor in the prevalence of lower airway diseases in horses. Competition may trigger metabolic and hormonal alterations, which disturb immunity.

Depression of the immune system and the occurrence of repeated inflammatory and oxidative processes during training and competitions seem to create favorable conditions to the outbreak of infectious respiratory diseases. These respiratory problems are often subclinical but have an impact on performance and may impede the pursuit of their physical preparation as well as post-race short and long-term recovery.



# EXERCISE-INDUCED PULMONARY HAEMORRHAGE (EIPH)

## EIPH

Exercise-induced pulmonary haemorrhage (EIPH) is a unique respiratory condition that results in the shedding of blood in the lungs and airways after a sufficient strenuous exercise.

Pulmonary haemorrhages have been shown to be associated with pulmonary inflammation and fibrosis, gas exchange disturbances during exercise and subsequent poor performance. EIPH can also affect negatively the duration of the career of sport horses and race horses.

## DIAGNOSIS

### DIAGNOSIS

In practice, the diagnosis is generally made by observation of:

> **POST-EFFORT EPISTAXIS** (bleeding from the nose)



> **BLOOD WITHIN TRACHEA AND LOWER AIRWAYS**

However, in most cases, the blood remains within the lungs and diagnosis can only be made through sampling of the lower airways.

## PREVALENCE

### RACE HORSES

Prevalence as high as 95% has been reported.

### EVENTING, POLO, AND EVEN HIGH-LEVEL SHOW-JUMPERS

In all disciplines including intense or fast bouts of exercise, horses have been diagnosed with EIPH.

Recent study revealed that the incidence of EIPH in show-jumpers – participating at 4 and 5 star competitions – can go up to 50%.

### ENDURANCE, DRESSAGE AND LEISURE

Lower prevalence.

## CONSENSUS STATEMENT ON EIPH BY THE AMERICAN COLLEGE OF EQUINE INTERNAL MEDICINE

- > Based on the current scientific evidence, EIPH should be considered a disease, as it is progressive and can significantly reduce lung capacity.
- > Furosemide is currently the only effective treatment for the management of horses with EIPH. However, because of its ergogenic effects, furosemide is banned from use in competitions by racing jurisdictions in Europe, Asia and Australia as well as by the FEI.

## RISK FACTORS

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- Age and gender
- Type and distance of the race
- Intense or fast bouts of exercise
- Hardness of the ground and presence of jumps
- Air temperature
- Pulmonary inflammation

## UNMET NEED

There is a need for an effective, non-doping prophylactic treatment to prevent the occurrence of EIPH in competitive horses.

### BRONCHIX PULMO



# CLINICAL TRIAL

## > CLINICAL TRIAL

Bronchix Pulmo

Investigators: Dr. Emmanuelle van Erck-Westergren / Dr. Fe ter Woort  
Equine Sports Medicine Practice, Waterloo, Belgium

## > PRODUCT STUDIED

A food supplement, specifically formulated to strengthen blood vessels, improve tissue elasticity and maintain airway patency.

## > AIM OF THE STUDY

Determine the effect of a daily oral supplementation of Cavalor Bronchix Pulmo over the period of one month on the incidence and severity of EIPH in active racehorses.

## > METHODS

Sixteen Thoroughbred racehorses in active training and racing were involved in the trial.

- Aged 2-9 years old (11 geldings, 5 mares)
- All from the same stable: managed similarly
- Feed, work and environmental management remained identical during the trial
- None of the horses received any treatment during the course of the study

## SUPPLEMENTATION PROTOCOL CAVALOR BRONCHIX PULMO

All horses were supplemented every day for 25 days.

23 DAYS	DAY 24	DAY 25
20cc / horse / day for 23 days	30cc / horse / the evening prior to the second exam on day 24	60cc / horse / on the day of the second exams on day 25

## MEASUREMENTS

# T1

### INITIAL EXAMINATION AFTER RETURNING FROM A TRAINING SESSION AT THE GALLOPS, PRIOR TO SUPPLEMENTATION



Dr. Emmanuelle van Erck Westergren

#### HORSES WERE SCOPED AND SCORED FOR:

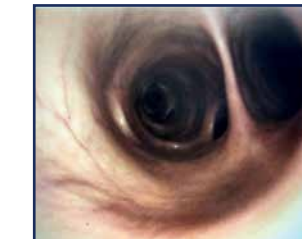
Pharyngeal lymphoid folliculitis



EIPH/Tracheal mucus



Carina thickness



Tracheal wash and broncho-alveolar lavage



Tracheal wash (TW) and broncho-alveolar lavage (BAL) were also sampled for white (WBC) and red blood cell counts (RBC) and cytology.

# T2

### ALL EXAMS WERE RE-ITERATED IN THE SAME CONDITIONS AFTER 25 DAYS OF DAILY ORAL CAVALOR BRONCHIX PULMO SUPPLEMENTATION

#### DIAGNOSIS

Were considered as having EIPH:

- Endoscopy scores 1-4/4
- Presence of red blood cells in the TW and BAL



TW and BAL, also sampled for WBC, RBC and cytology at T2.

# RESULTS

## T1

### > 15/16 THOROUGHBRED RACEHORSES WERE DIAGNOSED WITH EIPH

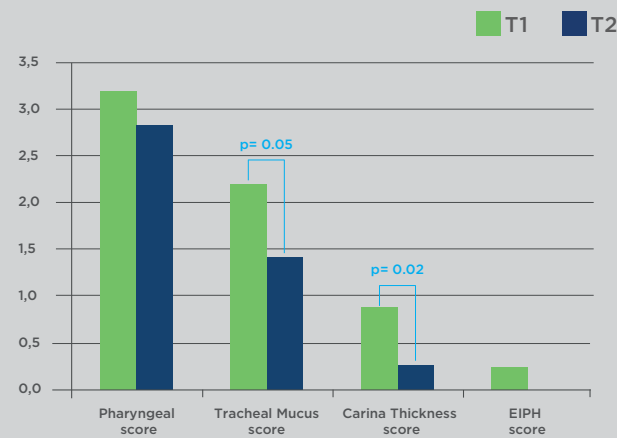
T1 / T2: Data were analysed using Wilcoxon signed-rank test. Significance was set for  $p < 0.05$

## EFFECT OF SUPPLEMENTATION ON RESPIRATORY HEALTH

### > ENDOSCOPIC SCORES

### > BLOOD CELL COUNTS

Figure 1

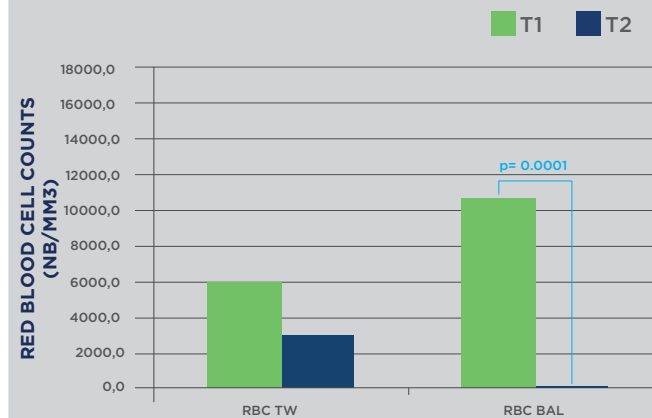


> Significant reduction of tracheal mucus scores ( $p=0.05$ ) and of the thickness of the bronchial carina ( $p=0.02$ ).

The presence of mucus in the trachea and bronchial carina thickness are recognized as a sign of lower airway inflammation.

> EIPH endoscopic scores were low and were not retained for the diagnosis of EIPH.

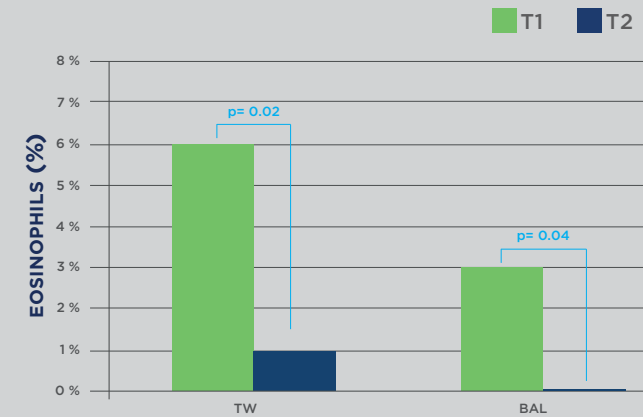
Figure 2



> The RBC counts in the TW and BAL were significantly reduced at T2 after Cavalor Bronchix Pulmo supplementation, indicating that the supplement is effective in reducing the occurrence of EIPH in race horses.

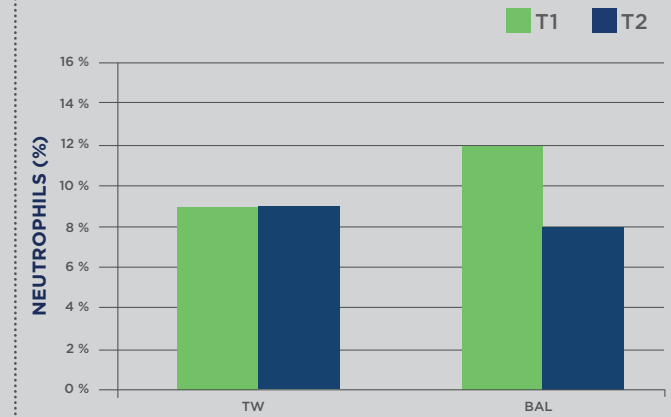
## > INFLAMMATION

Figure 3



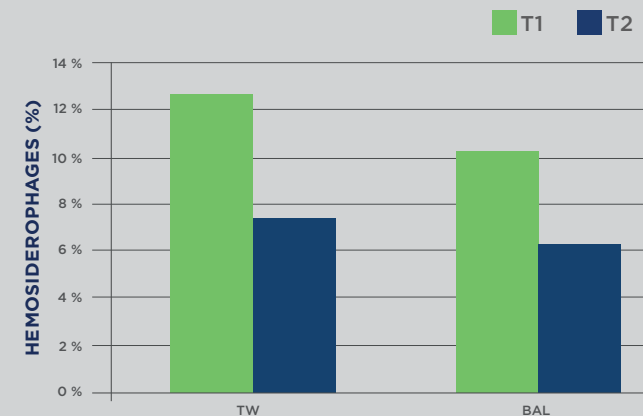
> We noted a significant reduction in the amount of inflammatory cells, namely eosinophils in both TW and the BAL, but also in BAL neutrophils.

Figure 4



## > HEMOSIDEROPHAGES

Figure 5



> No statistically significant reduction of the percentages of hemosiderophages in racehorses noted.

• This is no surprise, as we know that hemosiderophages can remain in the lungs for 3-6 months after the bleeding stopped.

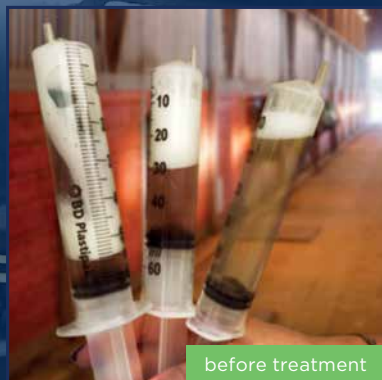


## CONCLUSION

This study demonstrated that the use of daily Cavalor Bronchix Pulmo oral supplementation during a 25 day period significantly reduces the incidence and severity of EIPH in Thoroughbred racehorses during a period of intensive training. Non of the horses studied bled at T2.

The results also show that Cavalor Bronchix Pulmo has a mild anti-inflammatory effect and reduces signs of inflammation in the lower airways.

Cavalor Bronchix Pulmo is an oral supplement that can be given to horses as a preventative measure to avoid the occurrence of EIPH.



### DIRECTIONS FOR USE:

**1/3 - 1/2**  
syringe daily  
for at least 5 days in  
a row

**1/2**  
syringe the day before  
the increased  
workload

**1/2 - 1**  
syringe on the day  
of the increased  
workload  
(or the evening before)





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