

DEBATE ABOUT HORSERACING DRUG MAY BE SOLVED WITH COLORADO STATE UNIVERSITY AND PARTNER RESEARCH IN SOUTH AFRICA

FORT COLLINS - A study led by Colorado State University and research partners will help to answer a long-debated question about health and performance effects of a drug commonly used to treat racehorses in the U.S. to prevent bleeding into their airways as they run. The study, which is a massive research effort, involves 200 horses in South Africa that will compete in four days of racing in November. The races have been coordinated for the purposes of the study.

The drug furosemide is widely used in the horse racing industry in North America but is banned on race days in all other countries. More than 90 percent of racing Thoroughbreds and 50 percent of racing Standardbreds in the United States and Canada are given furosemide a few hours before racing to treat bleeding. However, despite this common practice, there is no conclusive evidence that furosemide is actually effective in preventing or limiting lung bleeding in racehorses - but there is evidence that the drug may enhance performance for other reasons, making it a controversial treatment.

"This study will be the first randomized field trial ever conducted under normal racing conditions to investigate the efficacy of furosemide for preventing exercise-induced pulmonary hemorrhage in horses," said Paul Morley, one of the leaders of this study and a veterinarian at Colorado State University. "Because of the size of this experiment and its design, these results will provide the most reliable information ever available to guide the highly politicized debate over the use of this drug in the horse racing industry."

Because of their unique physiology, all horses running at racing speeds experience varying degrees of exercise-induced pulmonary hemorrhage, or bleeding into their airways. Because of blood pressure changes in the lung that are unique to horses during exercise, more than half of Thoroughbred racehorses have some amount of blood in their trachea after a single race.

While horses rarely bleed severely into their airways, the same research group working on this project in South Africa previously confirmed the widely held belief that bleeding into the airways impairs athletic performance of horses. Morley and co-researchers Kenneth Hinchcliff from the University of Melbourne and Alan Guthrie from the University of Pretoria will conduct research in South Africa because use of furosemide is not currently allowed on race days in horses, and also because of the interest and support from the South African racing industry.

Use of furosemide, which is sold as Lasix and Salix, to treat pulmonary hemorrhaging in racehorses began in the 1970s. Today it is estimated to cost \$30 million annually to treat horses with furosemide on race days in the United States and Canada.

Furosemide is also used in other species, including humans, to control blood pressure and fluid balance.

"While its use in the racing industry has always been controversial, controversy surrounding use of this drug increased with the discovery that horses receiving furosemide prior to racing generally perform better," Morley said. "A study of more than 22,000 racehorses that was previously conducted by our research group found that horses treated with furosemide raced faster, earned more money and were more likely to finish in a top position. It is possible that performance is improved by preventing or minimizing lung bleeding in these horses, but it is also possible that improved performance is caused by other drug effects, such as transient weight loss. Race horses treated with furosemide lose about 2 percent of their body weight - or about 20 pounds - prior to racing, which may make it possible for them to run faster."

In South Africa, horses participating in the research project will compete in two races, once treated with furosemide and once with a placebo. Each horse will be examined after each race for evidence of bleeding and for the effects of furosemide on pulmonary hemorrhaging. In addition, their performances will be evaluated to identify differences in performance.

Other than the use of furosemide, which will be administered strictly adhering to research project guidelines, all races will take place under South Africa's standard rules and regulations for the industry. The horses and jockeys will race for purses to ensure competitive racing efforts. The five to eight furlong races will be conducted on a one-mile straightaway on the turf at the Vaal Racecourse in South Africa. The races will take place Nov. 20-21 and Nov. 27-28.

If the study points to the effectiveness of furosemide in treating hemorrhaging, the results will help veterinarians and horsemen make more prudent and informed decisions about the drug's use and alleviate concerns that the drug is primarily being used to enhance racing performance.

"Regardless of whether or not furesomide can be shown to prevent pulmonary hemorrhaging, results of this study will provide critical information for policy-makers in the horse racing industry throughout the world," Morley said.

Several sectors of the racing jurisdiction have pledged support. The Grayson-Jockey Club foundation and the Racing Medication and Testing Consortium, both from the United States, have provided about \$150,000 to support this research, and an equivalent amount of support is being provided by the South African horse racing and from high profile private sponsors, including golfing legend Gary Player.