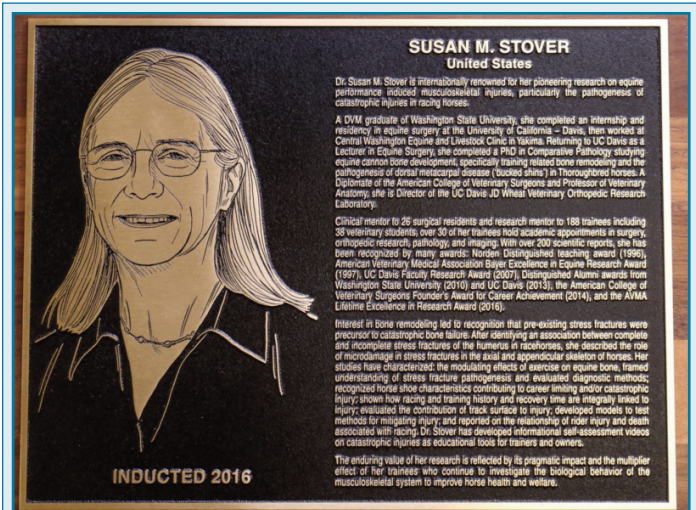




## OPTIMIZATION OF RACETRACK SURFACE PROPERTIES

By Jamie Haydon



### Susan Stover, BS, DVM, PhD

Professor Anatomy, Physiology & Cell Biology, University of California-Davis, Veterinary Medicine Inducted in 2016 to the Equine Research Hall of Fame Gluck Equine Research Center

Her goal is the prevention of musculoskeletal injuries in equine athletes. Consequently, her research focus is understanding the epidemiology, pathogenesis, and biomechanics of repetitive, overuse injuries in equine athletes – so that risk factors can be identified and managed for injury prevention.

### What first sparked your interest in exploring this area of equine research?

My research is motivated by the discovery that injuries develop over time as a result of repetitive training and racing activities. Therefore injuries in racehorses are preventable - if we better understand the risk factors for injuries and how injuries develop as a result of the risk factors. Further, the potential impact of reducing injuries is huge – to equine, jockey, and industry welfare.

Several pieces of information dictated our current research priority. First, fatal musculoskeletal injury rates are known to be different for different race surfaces. Both nationally (Jockey Club Research Study Data, Dr. Tim Parkin) and in California (California Horse Racing Board Data, Dr. Rick Arthur) synthetic surfaces have had a lower rate of

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fatal musculoskeletal injuries than dirt surfaces. Second, we know that different race surfaces impart different loads to the hoof and limb, with the measured loads on a some race surfaces greater than the measured loads on other race surfaces---and higher loads incur more damage to bones, tendons, and ligaments in the limb, thus creating a greater risk for injury. Third, we know that the mechanical behavior of surfaces varies markedly with how the surface is constructed and managed. So, not all surfaces are necessarily worse or better for injury prevention than all other surfaces, but the mechanical behavior of the surface is the key feature related to injury prevention.

Developing a standard for an optimal race surface “mechanical behavior” for injury prevention would allow racetracks to use whatever materials and management are appropriate for their climatic and operational environments to create a consistent race surface behavior (feel to the horse) wherever a horse trains and races. Consequently, horses in training and racing at different racing venues would have to adapt to only one race surface behavior. Lastly, but key to making a difference, is that improvements to race surfaces would affect ALL racehorses that train and race on optimized surfaces, thus having a large impact on horses and the racing industry.

### What was the most significant finding from this research? What, if anything, surprised you about your findings?

This study is envisioned as the first half of a four-year research program to reach our end goal. So far, consistent with our expectations, fractured fetlock proximal sesamoid bones had damage that was present before bone fracture. We learned (consistent

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with previous studies) that how often and hard a racehorse trains on each type of surface also affects the likelihood for fetlock bone fracture. This validates the need to include how a horse is trained and raced in our study. These are not surprising findings, but illustrate that management of both race surfaces and training schedules are needed to prevent injuries. There is not a single solution to injury prevention.



What was surprising is that fetlock proximal sesamoid bones fracture in several patterns, and that the damage that precedes and predisposes to injury may occur in more than one location. However, the current study has clearly demonstrated that pre-existing mild injuries are associated with the development of catastrophic bone fracture. This has implications not only for our study, but for detecting the damage in live horses before catastrophic fracture occurs. In association with other work on a new imaging technique (PET scan) being explored for horses, there is good likelihood that the pre-existing mild injuries can be detected in racehorses as improvements in the technique are made more feasible for horses. These developments are huge for future injury prevention of

the most common catastrophic injury (fetlock breakdown) in racehorses.

### **What aspects of the research process are relevant to this project?**

It involves why we do research---because there is always more to the story than is initially apparent, and lack of attention to new discoveries through the process could lead to inappropriate conclusions and missed opportunities.

### **How will this research improve equine health and soundness?**

Our hope is that improvements in racetrack surface design and management, along with training guidelines, will not only prevent catastrophic, fatal injuries, but also reduce the mild injuries that delay race training and racing, because the mild injuries are the early stages of the severe injuries. Collectively, race horses will be healthier and have longer careers. (In addition to the basic humane goals) this will reduce loss of horses from the racing population and result in an economically healthier racing industry.

### **Has this research led to additional projects?**

Certainly. We have already initiated two new projects based on the study in progress. The first is a study of the different patterns of fetlock proximal sesamoid bone fractures and the presence of early damage in each pattern. The second is an epidemiologic study of race training and racing schedules that incorporate race surface material and condition in likelihood for bone fracture.

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## **Investing In Research Keeps Industry Up To Speed**

*By Jodie Vella-Gregory*

*In the May 12, 2018 issue of Blood Horse Magazine, Jodie explains her support of the Foundation. Here is an excerpt.*

- “Insight and knowledge are power, and the more we educate ourselves, the more relevant we become. So, in my own words, here is why we all need to embrace research and support the undertaking of these projects. In a nutshell, the Grayson-Jockey Club Research Foundation works by funding research at different universities nationally and internationally rather than carrying out research internally. The information produced from this research is then publically distributed.”



**[For the complete article, click here.](#)**

## FRANK STRONACH TO RECEIVE DINNY PHIPPS AWARD

Frank Stronach, the founder and honorary chairman of The Stronach Group and a leading Thoroughbred owner and breeder, will be presented with the Dinny Phipps Award at the Belmont Stakes Charity Celebration on Thursday, June 7, at the Bryant Park Grill in New York City.

Earle Mack, an active participant in Thoroughbred racing and breeding for more than five decades, created the award in 2017 to honor an individual or individuals who have demonstrated dedication to equine health. The Phipps family received the inaugural Dinny Phipps Award at last year's charity celebration. All proceeds from the event benefit the ongoing research of the foundation.

“Frank Stronach has been committed to improving all aspects of the horse racing industry since entering the sport more than 50 years ago,” said Mack. “I am thrilled to bestow the Dinny Phipps Award to an individual who prioritizes the wellbeing of the equine in all areas from breeding to racing to racetrack management.”

The evening will feature a cocktail reception and delicious food on the rooftop of the restaurant, which overlooks the famed Bryant Park. Tickets for the event are available at \$250 each, and there are also various sponsorship opportunities available.

Stronach has won 12 Eclipse Awards as an owner and breeder. He has won the Sovereign Award for Outstanding Owner in Canada a co-record nine times and has won 18 Sovereign Awards overall.

In pursuit of his goal to care for horses at all stages of their lives, Stronach created the Adena Springs Retirement program and has organized aftercare and retirement programs at his racetracks. He has also pledged support to the Horseracing Integrity Act of 2017, which would create a uniform, nationwide, conflict-free drug testing enforcement program for horse racing.

“It is with great gratitude that I wish to thank the Grayson-Jockey Club Research Foundation for being

chosen as the second recipient of the Dinny Phipps Award,” said Stronach. “This award not only honors the legacy of a great man in the Thoroughbred industry but represents upholding the integrity of our sport and improving equine health - values and principles that are most important to me.”

Phipps, a prominent Thoroughbred owner and breeder, served as the chairman of The Jockey Club from February 1983 until he retired in August 2015. He received numerous honors and awards through the years for his dedication and commitment to the Thoroughbred industry. He died on April 6, 2016.

Mack has owned Thoroughbreds since 1963 and has actively supported equine retirement initiatives. A member of The Jockey Club since 2012, he has also served as a board member at various times for the New York Racing Association, the New York State Thoroughbred Racing Capital Investment Fund, and the New York State Thoroughbred Breeding and Development Fund Corp. He was chairman of the New York State Racing Commission in the mid-1980s.



*Last Year's Inaugural Presentation To The Phipps Family.*

### Belmont Stakes Charity Celebration

Featuring The Dinny Phipps Award For  
Longstanding Dedication To Equine Health  
2018 Award Winner Frank Stronach

**Thursday, June 7, 2018**

Bryant Park Grill • New York City • 7 pm to 10 pm



Benefiting  
**Grayson-Jockey Club  
Research Foundation**

[Click here for tickets](#)

## “Iron Horse Challenge” A Great Success

We would like to thank Spendthrift Farm for their sponsorship and support of the “Iron Horse Challenge” on Help a Horse Day.



Spendthrift Farm opened their gates to our group and hosted a lovely evening visiting the stallions and the grounds, as well as making a generous donation in support of the foundation. In addition to the great visit with their outstanding sires, we especially appreciate their willingness to offer 5 of our supporters of this event (by either ticket or donation) the opportunity to visit with Beholder later this summer.

Congratulations to the five lucky winners:



Mary Barsan  
Laura Ferguson  
C. Todd Morton  
Mary Whalen  
Mary Wyper

We also thank all of our participants and donors for their support which makes horses of all breeds the biggest winners of all.

If you missed this event, be on the lookout for our next farm challenge.

## Keen Ice Cares

The Foundation would like to thank Donegal Racing For the donation of two stallion seasons to Keen Ice for the benefit of the foundation. The sale of these seasons supports equine research. We appreciate Jerry Crawford, the Donegal Racing partners in making this donation possible.



## Two Great Ways to Support Research

### Tribute Program

Allows you to give in the name of a beloved equine pal, have their photo and story posted on our tribute page. Several levels to choose from, starting at \$30.

[Click here for more information on this program.](#)

### Junior Membership

Young horse and pony enthusiasts can learn more about horse health and be a part of supporting research through our special Junior Membership Group.

We'll send you a toy pony from our stable, a membership certificate and other surprises. You also have access to our quarterly newsletter the Grayson Gazette, filled with tips, activities, recipes and more. Specially available for only \$35 for a limited time.

[Click here for more information on the program.](#)

