

Testimony of Sheila Lyons, DVM

“H.R. 2012, A Bill To Improve  
The Integrity and Safety of Interstate Horseracing, and For Other Purposes.”

November 21, 2013

United States House of Representatives

Energy & Commerce Committee

Subcommittee on Commerce, Manufacturing, and Trade

Sheila Lyons, DVM  
Founder and Director  
The American College of Veterinary Sports Medicine and Rehabilitation®

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Summary of Testimony By Sheila Lyons, DVM, November 21, 2013

I fully support the Horseracing Integrity and Safety Act of 2013 and its mandate of drug free horse racing; its designation of a national and independent regulatory authority; its requirement that appropriate penalties be enforced without bias; and this legislation's clear and unambiguous message to the horse racing industry, veterinary community and the public that cheaters will not prosper and drugs may only be administered or prescribed for racehorses under the strict ethical and professional guidelines known as the veterinarian-client-patient relationship. The pervasive use of injury masking and performance enhancing drugs in horse racing in the United States has created a crisis in the horse racing industry and is destroying the reputation of a once vibrant sport. Veterinarians are often asked by horsemen to provide quick fixes for injured horses and too often they oblige these unethical requests. Racing commissions, in their attempt to regulate and moderate the use of drugs, have developed guidelines for the administration of many powerful pharmaceuticals but the only responsible policy is a complete ban on all drugs in racing. This anti-doping policy will serve to regain the public's confidence by instituting measures which assure the safety of horses and riders and restore the integrity of the multibillion dollar pari-mutuel wagering industry. My experience as a veterinary consultant with over thirty years of experience in equine sports medicine and rehabilitation both in the United States and abroad has revealed that when drug use is prohibited in racing, drug abuse declines overall. When drugs cannot be used to mask injury on race day it removes the incentive for the training of unsound horses. This is in contrast to our current system where the recklessly permissive use of powerful pharmaceuticals to both enhance performance and mask injury has encouraged horsemen to drug-to-train and then drug-to-race. We need this legislation to end the rampant injury-masking and performance-enhancing drugging of horses because the horse racing industry has demonstrated an inability or unwillingness to regulate itself.

Thank you Chairman Terry, Ranking Member Schakowsky, and members of the Committee for allowing me to testify today. I ask that my full written remarks be included in the hearing record.

My name is Sheila Lyons and I am a veterinarian who specializes in equine sports medicine and physical medicine and rehabilitation. My private veterinary consulting practice is both national and international in scope which provides me with an overview of the horse racing industry and the veterinary profession that includes many distinct regulatory jurisdictions. I am the founder of the American College of Veterinary Sports Medicine and Rehabilitation, a member of the International Society of Physical Medicine and Rehabilitation, and a member of the International Federation of Sports Medicine. I provide education to veterinary students, veterinarians, physical therapists, farriers and horsemen across the nation and internationally. My patients have included some of the world's finest thoroughbred racehorses but I have regularly provided veterinary services to horses at every level of the sport horse industry for nearly thirty years.

I want to thank Congressman Pitts, Congressman Whitfield, Congresswoman Schakowsky, and Congresswoman Eshoo for co-sponsoring the bill known as the Horseracing Integrity and Safety Act of 2013 for consideration by the United States House of Representatives. This legislation not only provides a "dream solution" to the ethical and safety problems plaguing the United States horseracing industry, but its implementation is absolutely essential if the industry is to survive and regain its position as an international leader in the sport. The horse racing industry in the United States has reached its tipping point and if we wait any longer for solutions to appear I believe it will be too late to salvage what was once a great sport and a thriving business in this country. We used to be the leaders that others wished to emulate. Now we are seen as the jurisdiction where racing

records are suspect of having more to do with performance enhancing and injury masking drugs than excellence in sport.

We have been waiting for decades for promised reforms to materialize through self-regulation. The first Congressional hearings took place on this same topic in May of 1982. At that time industry representatives made the same promises to Congress and to the American people. They assured us that change was imminent and that the industry could police itself and integrity and safety would improve. Well, the situation has, indeed, changed – but not for the better. Instead the sport horse industry has seen more than three decades of steady decline. They asked for a little more time to produce these improved results and the federal government gave it to them. I believe that thirty years is time enough. It is time to act on behalf of the public, the horses and the honest people who have been driven out of the horse racing industry because they find it impossible to compete in an arena which is rigged by corruption and unethical veterinary practices.

I fully support the Horseracing Integrity and Safety Act of 2013 and its mandate of drug free horse racing; its designation of a national and independent regulatory authority; its requirement that appropriate penalties be enforced without bias; and this legislation's clear and unambiguous message to the horse racing industry, veterinary community and the public that cheaters will not prosper and drugs may only be administered or prescribed for racehorses under the strict ethical and professional guidelines known as the veterinarian-client-patient relationship.

## **The Veterinarian-Client-Patient Relationship**

The unique authority and privilege that veterinarians have to administer, prescribe and dispense medication is granted not through racing commissions but through licensure by state veterinary boards. Once licensed, veterinarians are required by law to strictly adhere to the standards of practice that regulate our profession. There are no exemptions for veterinarians who work with racehorses. We are required by law to keep comprehensive patient records which document adherence to these strictly defined standards of practice for every patient, and for each dose of every drug we administer, dispense or prescribe. We must also make these records available to our clients upon request. But this is not what is happening at race tracks today. And this is the most significant drug problem that underlies the intolerable rate of permanent injury and death of racehorses and their riders.

Not unlike the standards governing human medicine, the standards of veterinary practice, which all veterinary licenses are conditioned upon, include a fundamental basis for all veterinary services called the “veterinarian-client-patient relationship”. This requires that a veterinarian must have adequate knowledge of a patient before administering or prescribing drugs for the animal. Such adequate knowledge requires that the veterinarian must examine the patient, make a diagnosis, prescribe medication strictly for the purpose of improving or protecting the health and well-being of the patient, re-examine the patient to determine the success or failure of treatments, and the veterinarian must keep a comprehensive record documenting these professional services. This requirement protects the horse and its rider from serious injury because it prohibits the unlawful choice to simply administer drugs to racehorses upon trainer request in order to mask injury to accommodate the racing and training of injured, unsound or unfit horses.

The pervasive use of injury masking and performance enhancing drugs in horse racing in the United States has created a crisis in the horse racing industry and is destroying the reputation of a once vibrant sport. Veterinarians are often asked by horsemen to provide quick fixes for injured horses and too often they oblige these unethical requests. Racing commissions, in their attempt to regulate and moderate the use of drugs, have developed guidelines for the administration of many powerful pharmaceuticals but the only responsible policy is a complete ban on all drugs in racing. This anti-doping policy will serve to regain the public's confidence by instituting measures which assure the safety of horses and riders and restore the integrity of the multibillion dollar pari-mutuel wagering industry. Some will try to tell you that a no-drug rule will harm horses by making responsible veterinary treatments illegal but this is not the case. These apologists for the *status quo* have literally run this industry into the ground often times to protect vested interests. The time for a new direction has arrived.

Much has been made in this prolonged debate of the idea that there are certain drugs that are deemed therapeutic and therefore they should be allowed in racing. It is further argued that denying racehorses these medications would be inhumane. It is important to remember that no medication is therapeutic in it of itself. It is the context in which a drug is administered which determines its fate as either therapeutic, injury masking or performance enhancing. Examples of this were clearly presented in The New York Task Force on Racehorse Health and Safety Report, (links to this report and excerpts from which I have included in the attached appendix of scientific papers). The Task Force's expert review of twenty-one fatal breakdowns concluded that "Based upon the information provided, there may have been opportunities to prevent 11 of the 21 fatalities." The task force findings repeatedly found that legal medications had been administered to horses but the horse raced before there was an opportunity to determine the success of the

therapy and the medication impaired the regulatory veterinarian's ability to detect the signs of injury in the pre-race examination. In other words, the medication may have removed the acute signs of injury but the horse raced before it could be known if the underlying condition had resolved. This is injury masking and it leads in many cases to the inhumane treatment of animals and death on the racetrack. Enforcement of the standards of licensed veterinary practice and the requirement that all drug administration must be done within the context of a valid veterinarian-client-patient relationship will prevent such abuses as the patient would be required to be rested until the efficacy of the drug therapy is known through re-examination by the veterinarian to determine that the horse has fully recovered and is sound without the effects of injury masking medications.

My experience as a veterinary consultant with over thirty years of experience in equine sports medicine and rehabilitation both in the United States and abroad has revealed that when drug use is prohibited in racing, drug abuse declines overall. When drugs cannot be used to mask injury on race day it removes the incentive for the training of unsound horses. This is in contrast to our current system where the recklessly permissive use of powerful pharmaceuticals to both enhance performance and mask injury has encouraged horsemen to drug-to-train and then drug-to-race. We need this legislation to end the rampant injury-masking and performance-enhancing drugging of horses because the horse racing industry has demonstrated an inability or unwillingness to regulate itself. In addition, state veterinary boards often lack the resources, mechanisms or will to intervene in areas that come under the jurisdiction of horse racing regulators. The Horseracing Integrity and Safety Act of 2013 will ensure that horseracing regulation will be fully respectful of and compliant with state veterinary board regulations through its requirement that the veterinary-client-patient relationship is established for the treatment of all racehorses.

I am often asked why I am of the opinion that it is dangerous to allow the use of anti-inflammatory medications at low or moderate doses during racing and training, especially in view of the fact that many of us take similar medications to relieve minor pain associated with sports or other physical activities. Let me offer just one example which may help to clarify the difference and the need for extreme caution when prescribing and allowing the use of such drugs in racehorses. In my practice, I have evaluated numerous patients that have suffered incomplete non-displaced fractures in their lower limbs. Common sense might suggest that these horses would most likely present with significant lameness and severe localized pain and swelling, but in fact many of them present with unsoundness that is so subtle it can be easily missed and easily dismissed. When examining a racehorse patient with a nonspecific complaint of simply not training well that day and perhaps having some minor heat detected in the lower limb, I will sometimes have to listen to the sound as the horse trots on a hard surface to detect a subtle difference in the impact of the footfall which suggests the softer landing limb may be painful or unstable. Their gait and posture can appear nearly normal and without further expert examination it would be easy to dismiss the problem as minor training related soreness. Further diagnostic testing with radiography has revealed the presence of non-displaced incomplete fractures in many such cases. In other words, the horse has a crack in a bone. These fractures will become complete and lead to catastrophic and often fatal injury if the horse continues to train or race. Often when horses break down during morning training the horsemen will say that the animal seemed fine or was just a "little bit off" and they just went out for an easy gallop and the leg snapped in two. Science holds that many of these incidents involve horses that had pre-existing incomplete fractures which went undetected and were further masked through the indiscriminant use of anti-inflammatory medication. So this is just one example of a common racehorse injury which illustrates that no degree of unsoundness should be medicated away without a comprehensive and thoughtful veterinary examination. There is no such



thing as minor unsoundness in the racehorse. The Horseracing Integrity and Safety Act of 2013's reinforcement of the strict adherence to responsible standards of veterinary practice through the bill's repeated reference to the veterinarian-client-patient relationship will put the racehorse veterinarian back in charge of diagnosing and treating injuries responsibly. It will remove all ambiguity that persists about the role of the veterinarian. It will remove the incentive to drug-to-train and drug-to-race. We are only licensed to provide services which promote and facilitate improved health. It is not within our privilege to prescribe drugs to enable unfit and injured horses to train and race and yet, at present, this is the prevalent standard of care in veterinary practice at race tracks across the country.

### **Conflicts of Interest and the Need for an Independent Regulator**

The conflict of interest which exists between the business of horse racing and the implementation of effective and unbiased safety protocols for horses and riders has increased as more tracks have opened in an attempt to have a stake in this profitable interstate pari-mutuel industry. Simply put, as more tracks open, more sound racehorses are needed to fill the races. It has become clear that the sport's reach has extended beyond its ability to safely operate and as a result pressure is put on horsemen and veterinarians to allow unsound horses to race in order to fill the races. Track veterinarians have reported to me that their standards for "racing soundness" diminish every year. Many track veterinarians contacted me following my testimony at the Senate hearing in 2012 to tell stories of conflict of interest which led to horses being allowed to race even when my colleagues advised a scratch and many of these horses raced and fatally broke down.

The New York State Racing and Wagering Board's Task Force Report included the following on Page 49:

“A trainer reported that after observing an entered horse undergo its pre-race exam and receive clearance from the NYRA veterinarian, the trainer promptly submitted a scratch request to the Stewards, stating that the horse appeared unsound during the exam. Given this information, the determination that a number of the fatally injured horses should not have raced, the Task Force is concerned that: 1) the NYRA veterinarians' criteria for the determination of racing soundness are inadequate; 2) there is pressure on the NYRA veterinarians not to initiate scratches; or 3) there is a lack of proficiency in identifying unsound horses.”

Further concerns about a possible conflict of interest were described in the same report on Pages 49-50:

“During its site visit April 19, 2012, the Task Force learned that the NYRA Steward was being required to accompany NYRA veterinarians on a rotational basis during the morning pre-race exams. The Task Force was unaware of any other racetrack or racing jurisdiction where a Steward accompanies a veterinarian performing a pre-race exam. The justification for this procedure is unknown, but raises speculation that there were concerns about the veterinarians being intimidated or their competency questioned. In the case of the latter it would be exceedingly inappropriate to have a layperson assessing a veterinarians' performance.”

A similar conflict of interest exists for the private veterinary practitioner at the track. Countless numbers of my colleagues have told me that they wished the trainers would allow them to examine horses and provide services to improve their health and safety but too often this is not the service that is requested by trainers. Veterinarians who refuse to provide injury masking and performance enhancing services often find it very difficult to remain in business at the tracks. We need the support of a regulator that upholds the standards and ethics in practice for racetrack veterinarians and is unbiased by competing business interests. Only a regulator that is fully independent of the

racing industry can enact the reforms that are essential to improve the integrity and safety of the sport. The Horseracing Integrity and Safety Act of 2013 includes this essential provision.

### **Prevalent Standards of Practice for Racetrack Veterinarians**

As a pre-veterinary student and throughout veterinary school at Tufts I worked at a racetrack in Boston for a veterinarian who had the largest practice there. It was my job to stay with his car and take drug orders all morning from the horsemen while dispensing medications at the trainer's request. The only requests that were to be denied were those from clients who had not paid their bills. Then I spent the day filling syringes with the requested drugs, I would find the right horse and hand the veterinarian the syringes. I had to tell him what was in them so that he would know if they had to be injected into the horse's muscle or the vein. This colleague later became the president of the American Association of Equine Practitioners ("AAEP") which is the largest trade association for equine veterinarians in the world. Of historical significance is the fact that this association originally formed when a small number of horse racing veterinarians got together specifically to provide a united veterinary response to assuage public concern about the welfare of horses in racing. The more things change, the more they remain the same. This practice of veterinarians administering drugs per order of the trainer is still the prevalent standard at race tracks in this country.

In another example which evidences the prevalence of this practice, about ten years ago I provided expert witness testimony for a state attorney general's office in a case that began with DEA violations for a few race track veterinarians who had failed to maintain proper drug inventory, patient records and storage conditions for controlled substances. The veterinarians, in their

interview with the DEA, reportedly defended their suspicious purchase history for the controlled drug, by declaring that “Race track vets are simply drug whores for the trainers.” Contrary to the oath they took as veterinarians, they asserted that they were not required to have a veterinarian-client-patient relationship, a working diagnosis or a record of physical examination and they stated that they only needed to abide by racing industry regulations because their patients were race horses. They were wrong.

I was the only veterinarian with expertise in equine sports medicine willing to testify on behalf of the Attorney General’s prosecutor and the State Veterinary Board. I tried to get colleagues to help but despite agreeing with the seriousness of the violations of standards of practice, not one would publicly take the only professionally defensible position because they would not speak out against the racing industry’s wishes and the veterinary profession’s commercial interests. Each colleague warned that by doing so I would invite professional and political difficulties for myself. What followed was a reaction of the racing industry to “look at the issue”. In California, shortly after the decision, an industry association led by a race track veterinarian introduced state legislation proposing that sport horses and their veterinarians be exempted from this requirement for meeting the strict standards of practice regarding the administration and prescription of drugs. Fortunately it failed. What this showed is that some real clout when it comes to getting rid of illegal anti-therapeutic and indiscriminate use of drugs in racehorses lies in the agency that *conditionally* grants licensed veterinarians the authority to prescribe, dispense and administer drugs to horses in the first place. If regulations are honored by racing regulators and are enforced by these state veterinary licensing boards, we could end all discussion about drugs and racehorses as it would be moot because it could not occur. The Horseracing Integrity and Safety Act of 2013 will add an

additional level of support through its clear language stating that the veterinarian-client-patient relationship must be established for all veterinary services provided to racehorses.

Conducting a thorough physical examination of a patient; keeping comprehensive medical records in accordance with state veterinary licensing regulations; having a working diagnosis that must be supported by examination findings; recording a therapeutic plan; and reassessing the patient to determine the success or failure of these treatments while under a veterinarian's care should all be enforced. And if horses are unwell and in need of drug therapy, then on this basis alone, they should not be allowed to race. If they are well, they cannot be given medication under the law which regulates my profession. *"Racehorse" is not a diagnosis*, and a veterinarian must meet a higher standard of care in practice before administering medication.

I once proposed, in a devil's advocacy position, that if at race tracks the veterinary profession wishes to waive the condition of necessitating the veterinarian-client-patient relationship then we should simply designate veterinary technicians to administer drugs at the trainers' request and stay out of this non-medical practice, and of course, not benefit financially from this "business". My colleagues disagreed.

I was disappointed when at the conclusion of your hearing in 2008, in response to a final question from a Committee Member, not one member of the panel placed the responsibility on the only participant who has the authority to provide the drugs in the first place - it is strictly the veterinarian who is absolutely and solely responsible. We can say no.

## **Upholding the States' Authority To Regulate the Practice of Veterinary Medicine**

The Horse Racing Integrity and Safety Act of 2013 supports and defers to the authority and government oversight that state veterinary licensing boards are in place to provide. The solution to ending the current industry practice of illegal and indiscriminate drugging of racehorses by trainer request is already available through the enforcement of regulations that govern the practice of veterinary medicine. This legislation provides the essential key to returning the absolute authority over the regulation of the practice of veterinary medicine squarely back with each state veterinary board by banning all drugs during racing, through its emphasis of the common veterinary licensing board language and meaning of the veterinarian-client-patient relationship, and through its condition of uniform and effective enforcement through impactful penalties for violators of the no-drug rules or any departure from the veterinarian-client-patient relationship in the provision of veterinary services to racehorses. In so doing, the current illusion that racing commissions have any say whatsoever regarding which drugs a veterinarian may administer to a patient will be removed along with any confusion about which regulatory authority is in charge. The state veterinary boards will re-emerge as the effective and sole authorities and regulators over the practice of veterinary medicine in each state. These professional licensing boards already have Veterinary Practice Acts which clearly define and describe the standards of practice. Through their enforcement authority over veterinary licensees these state boards will ensure that without exception the members of our profession will uphold the *Veterinarian's Oath* and live up to public's expectation for ethics and integrity in the practice of veterinary medicine. The Horse Racing Integrity and Safety Act of 2013 will fully support, uphold and assist the states' regulation over licensed veterinary professionals by endorsing and enforcing the standards of practice by racetrack veterinarians.

## **Regulation Of Veterinary Medication and Services By Racing Regulators**

Regulatory agencies are necessary for all sports. But racing industry regulations should simply assert a higher or additional standard when therapeutic drugs are administered responsibly through the authority of licensed veterinarians. Regulations should require that if I have a patient that needed, for example, an anti-inflammatory and pain killing drug for appropriate medical therapy, as the treating veterinarian I should report this treatment along with its therapeutic context to the horseracing regulatory authorities and this patient should not be allowed to race until the drug is out of its system. The patient should also be managed in accordance with my prescription for training and management until re-examination assures that the horse has fully recovered and is safe to resume regular training. What we have today is a situation that has run amuck where veterinarians and horsemen look to the “limits” set by racing commissions for drug levels and dosing schedules as permission to administer them, anti-therapeutically and outside of the standards of licensed veterinary practice as long as they do not exceed those limits. This illegal practice of drugging horses “up to the limits” is killing our horses and brings shame to the practice of veterinary medicine. It amounts to nothing less than race fixing through animal abuse.

In the racing jurisdiction of Hong Kong, the only veterinarians who are authorized to provide veterinary treatments and services are its official regulatory veterinarians. Their system assures that the veterinary professionals who determine whether a horse is fit to race are the ones who have full knowledge of the horse’s condition. Records of veterinary treatments and diagnoses are disclosed to the public so that they can consider the health of the animal before making a wager on a race.

## **Veterinary Record Keeping as a Safeguard**

I propose that we require all licensed veterinarians who work with racehorses to submit their veterinary records, in real time, on all patients. This data would be stored in such a manner as to fully protect confidentiality while enabling regulatory veterinarians' access to this pertinent medical history for each racehorse. This is essential to the regulatory veterinarians' ability to conduct effective pre-race examinations in order to assure racing soundness and safety in the sport. Currently these veterinarians are operating blindly. Full veterinary record disclosure would also enable us to know what drugs are being administered and to understand the therapeutic context of all treatments.

Another benefit of this required record keeping would be the priceless epidemiological data generated that could begin to answer the more important questions of cause and effect, genetics and weakness or strength of horses for racing, and we would finally begin to understand what impacts equine safety and injury which will enable the development of effective solutions which benefit the horses, the owners and trainers, the riders, and the industry itself.

For an industry that was built upon the collection and distribution of statistics relating to how fast horses run distances measured in fractions of a second and the integration of data related to surface conditions and pedigree, the horse racing industry has been curiously bad at even agreeing to collect the most important data of all - the statistics that relate to the most important factor that affects each horse - its health, injuries and success or failure of veterinary treatments including medications. Medical science advances through the collection of all clinical data on all relevant patients so that critical analysis can reveal patterns that speak to our most basic or sometimes urgent questions



regarding the factors that impact, for example, the high injury rate and incidence of catastrophic breakdown of these horses. Not only has the industry itself only recently begun to collect and share data on fatal breakdowns, but most race track practicing veterinarians fail to create or maintain any records whatsoever outside of billing records which simply list the drugs administered along with the date of service and the payment demand to the owner. This violates the standards of practice that veterinarians' licenses are conditioned upon. More egregiously, it fails the veterinary profession's responsibility to advance its understanding of critical equine health related influences, it fails the racing industry and it fails the horse itself because without this essential data we can never begin to apply principles of science to improve our understanding and ability to protect and improve the health and welfare of racehorses.

I have been told by my stakes-horse owning clients that they would be inclined to invest more in the industry if we kept the kind of records on all horses that I have described so that over time the problems that plague the sport and their racing stables could be understood and eliminated through science. The best way to never find something is to never look for it. Once we start creating and keeping all veterinary records on every horse we will have a place to look for the answer to the question about what factors influence catastrophic breakdown and permanently disabling injuries of these horses.

In spite of all the claims that various commissions, racing associations and horseman's groups have made about their priority to determine the reason that so many horses die on the racetrack, few racing jurisdictions even mandate that necropsies are to be performed on all horses that die on the track. The New York Task Force repeatedly noted for every one of its reviews of fatalities: "The absence of a complete necropsy precludes the understanding of the horse's musculoskeletal health."

## **International Regulation of Drugs in Racehorses**

I recommend to my racing clients that they race in Europe or elsewhere since the USA is the only major racing jurisdiction that supports this drug use outside of the standards of licensed veterinary practice. I will not allow them in my patients and yet the playing field is unreasonably unlevelled when they must compete against drugged horses. It has been my experience that clients want this better system of preparing their horses scientifically and protecting them from the abuse of drugs and overtraining. Real sports medicine works. Veterinarians can restructure their practices to strictly provide services that improve the health, athletic fitness, strength and protect racehorses from injury. This approach brings the additional benefit of optimized racing performance through true soundness and fitness as opposed to the false perception of soundness achieved through drug abuse in these athletes. This will only be possible if all drugs are banned and enforcement is strong to dissuade horsemen and veterinarians from the prevalent and unethical injury-masking and performance-enhancing drug based practices. The Horseracing Integrity and Safety Act of 2013 will achieve this.

## **Permanent Injury Leads to Unwanted Horses and Overburdened Shelters**

Through my nonprofit organization, Homecoming Farm, I developed a new veterinary specialty and offer educational programs through The American College of Veterinary Sports Medicine and Rehabilitation® (“ACVSMR”) in association with physician colleagues who developed the analogous human medical specialty field. Our educational programs partner veterinary student interns with equine retirement facilities where they provide expert rehabilitation services to the horses. This structure enables research and offers priceless education to these students. For over

two decades I have provided this free veterinary care to retired racehorses that end up in shelters after their racing careers are over and if anyone has any doubt about the long term consequences of this anti-therapeutic, reckless and illegal use of drugs in racehorses, I can provide records to prove that the evidence is overwhelming that these horses are systematically and permanently harmed. And these are the lucky ones that were not shuttled off to slaughter.

### **Risk To Horse and Rider**

Not long ago I discussed the state of the horse racing industry with an owner who has been a great asset to the sport for many years. He said that as he saw it, there were only two participants in the horse racing industry that had “skin in the game”. They were the horse owners and the race track owners. I agree with his arithmetic because I see exactly two participants as well. But these two are unique because they have their “actual skin in the game”. It is the horse and its rider. These participants’ lives are put in completely unnecessary and extreme danger through the indiscriminate use of injury-masking and performance-enhancing drugs. If no other voice is heard on the need to eliminate drug use in racing through the Horseracing Integrity and Safety Act of 2013, I think it should be theirs. As an expert in the health and welfare of horses and on behalf of my patients, I fully support this legislation.

A few years ago I asked a regulatory veterinarian what the hardest part of the job was. My colleague’s answer surprised and impacted me. She said it was the look of terror on the jockey’s face in the moments just before the horses are loaded into the starting gate. She said they circle their horses directly in front of her while nervously asking “Is it okay?”, “Everything all right?”, while knowing that my colleague has the authority to scratch any unsound horse and this is the last

chance to detect the signs of lameness and perhaps save their lives. This veterinarian explained that the riders know full well that the horses they are on are often drugged to mask injury and she knows it too but the regulatory veterinarians are not given access to this critical information and the drugging often falls within permitted use under racing commission regulations. Without being able to evaluate the horses' soundness while drug free neither veterinarian nor rider can confidently identify the horses that have a high risk of breakdown. She said that daily occurrence was the hardest part of being a track veterinarian.

The New York State Task Force also noted a concern that the jockeys may fear retribution for reporting that the horses that they are riding before a race are unsound. The following excerpt of the analysis of a racehorse's fatal breakdown is found on Page 19 of the Task Force Report:

“A review of the race video indicated that Inismore appeared to be traveling poorly from the start of the race and pre-examination findings indicated a noteworthy change in this horse's clinical presentation for the race in which she was subsequently injured. A follow-up interview with the jockey indicated that he recognized that the filly was unsound in the post parade, but did not report it to a racing official to initiate a scratch for fear of economic reprisal (manifested as lost riding opportunities from trainers). Despite his reservations about Inishmore's soundness, the jockey rode her competitively during the race. The Task Force is troubled that a jockey persevered on a horse he believed to be unsound, risking himself and others on the racetrack. Based upon the information provided, the Task Force believes that represented a missed opportunity to prevent this injury.”

Horse racing can be a humane and wonderful sport for the horses and for the horsemen as well as a thriving business. The good news is that the solution to improved health and safety is already available to every racehorse in this country. It can only come when the standards of veterinary practice are adhered to at all times by the veterinarians who serve their needs so that racehorse describes the type of athletic patients we treat as opposed to a diagnosed condition to be treated with drugs. Adherence to these standards and appreciation of the benefits of protecting horses from injury while enhancing their performance through optimized health and fitness can only emerge if drugs are banned in the sport. This critical change can only come through The Horseracing Integrity and Safety Act of 2013.

## **Lasix Drug Use in Race Horses**

Lasix (Salix or furosemide) is a powerful diuretic that is administered to racehorses approximately four hours before race time. It is used as a presumptive aid to prevent hemorrhage in a horse's lung when it races. Lasix is banned in all other major international racing jurisdictions. This drug is known to have performance-enhancing effects on racehorses. Lasix became popular with trainers not because it prevents bleeding but because it is recognized as a performance enhancing drug.

While only a small percentage of racehorses have ever been definitively diagnosed with severe exercise induced pulmonary hemorrhage ("EIPH"), over 98% of horses racing in America today race on this performance-enhancing drug. Despite its pervasive and continuous use, Lasix has not ended EIPH in the small percentage of horses that are severely affected.

The permissive use of Lasix has however, led to an under-reporting of the true incidence of this condition. Previously when horses had to be examined by regulatory veterinarians to diagnose EIPH in order to be permitted to use the performance-enhancing drug, trainers were eager to report their horses as bleeders and who could blame them? It was a common practice for trainers to illegally take a blood sample from a horse and squirt some of this blood up its nostril after training exercise to make it appear as if the horse had bled from its lungs. Officials, upon seeing this evidence would declare the horse a bleeder. Today many horses race on the drug and experience EIPH nevertheless, but the trainers resist reporting this genuine medical condition to authorities because the horse will automatically be placed on the regulatory veterinarian's list and be banned from racing and speed work until time has passed and official veterinary examination and monitoring during training demonstrates fitness to resume racing.

Necropsy reports that have been made public have reported the finding of extensive pulmonary congestion and hemorrhage and yet we never see statements made by racing authorities about the clear failure of Lasix to prevent bleeding and asphyxiation associated with these racehorse fatalities. When horses are asphyxiated during speed work they will suffer catastrophic musculoskeletal injury because they experience a condition that has been compared to waterlogging or drowning which fully deprives them of oxygen while galloping at full speed.

Lasix has contributed to many racehorse health problems including generalized dehydration; electrolyte imbalance and depletion; cardiac arrhythmias; cardiac failure; heat stroke and exhaustion, racing fatigue and poor performance in some animals yet performance enhancement in others. My own pilot study revealed an effect on a horse's blood concentration that closely resembles the known effect of erythropoietin ("EPO"), the well-known and universally banned performance-enhancing drug.

The evidence that we have clearly shows that in the period following the permissive allowance of Lasix and other drugs' administration in all USA racehorses, we have seen an undeniable decline in general health, racing fitness, soundness and career starts for our horses. We have also realized a rapid decline in the international perception or reputation of the USA bred and managed thoroughbred as breeding stock and as athletes. Our equine "product" is universally perceived internationally as being inferior, that they rely on drugs to train and race, that their race records have little meaning due to the use of drugs, and that our thoroughbreds are fundamentally and intrinsically unsound. The international horsemen regard our breeding programs as ones that produce bleeders due to the breeding stock having raced on Lasix, which makes their race record

and intrinsic soundness appear dubious. When I consult at international venues the question that I am always asked is why the United States allows the use of drugs and how can I possibly provide effective veterinary services in such an environment.

EIPH, or NPPE, which stands for “negative pressure pulmonary edema”, conditions described in medical literature, are not primary diseases. They are pathological conditions that can occur as a consequence of many underlying problems. One undeniable underlying cause is upper airway obstruction which can be due to an inherited condition called laryngeal hemiplegia (roaring); it can be caused by abnormal positioning of the tongue and subsequent displacement of or injury to the soft palate due to harsh riding and the natural avoidance of a bit; it can be the result of lung or bronchial pathologies including infections or allergies; it can be caused by lack of cardiovascular fitness and generalized fatigue, and is associated with many other conditions including musculoskeletal unsoundness and anti-inflammatory and other drug administration. Until the cause of EIPH is recognized and removed, all treatments are going to be ineffective. Just as we too often see for lameness problems in racehorses – trainers and veterinarians reach for drugs to treat the symptoms of disease while abdicating their responsibility to determine its cause. I see little chance for the occurrence of EIPH to be eliminated until we observe the legal standards in practice for all veterinarians who work with racehorses on behalf of the individual horses and in professional compliance as the public expects. There is neither a short cut nor an ethical way around the appropriate standards of veterinary care applied to each individual horse. The Horseracing Integrity and Safety Act of 2013 will achieve that result.

There is more scientific evidence to suggest that Lasix does not prevent EIPH in a statistically significant way than there is in support of its use as an EIPH preventative. The proposed theory that



Lasix advocates promote in support of permitting its use in every racehorse has been clearly disproved and this has been published in the scientific literature. You will find summaries of scientific papers in the appendix of this testimonial record which evidence this scientific conclusion.

There is also abundant professional literature going back at least thirty years to document many serious health problems linked to Lasix administration. My own review of scientific publications discovered over two hundred scientific papers that suggest a link between Lasix use and - increased risk of fracture; loss of electrolytes leading to cardiac abnormalities and other medical crisis and deaths; pathological fatigue and weakness; poor recovery from exercise; and other performance affecting or life threatening consequences associated with this drug's use. You will find summaries of scientific papers in the appendix of this testimonial record which evidence this scientific conclusion.

Dehydration and the loss of vital electrolytes is the mechanism of action of this potent diuretic. But until we keep and analyze all veterinary record data on every racehorse, we will never be able to know the true statistics related to the causal effect of Lasix on our racehorses' deteriorating health and deteriorating performance. Horses die of sudden cardiac failure every year, typically following speed work exercise or racing but these cases are typically categorized as "idiopathic" which means of undetermined cause and yet neither investigations are made, nor statistics kept on the possible relationship between Lasix administration and cardiac failure. The human and general scientific literature and even the package insert that accompanies this drug warn of this potential life threatening complication.

The statistically significant studies that have been conducted and published conclude that Lasix is performance-enhancing in horses. You will find a summary of a scientific paper in the appendix of this testimonial record which revealed this scientific conclusion when it evaluated the performance of over 22,500 racehorses. This undisputed fact underlies the loss of international respect for our top horses' racing performances as being influenced by this performance enhancing drug.

Since there are many causes of EIPH there will be no single drug type that will provide a cure. In fact the cure may not come in the form of a drug at all. We have gone too far down this unproductive and unscientific path which has led to the dismal state of safety for horses and riders today. The only solution is to return to a well-being centered business of horse management, breeding and racing. It will not be business as usual and many trainers and owners will not be happy with the enforcement of drug regulations that insist upon standards of practice being adhered to for management of all racehorses. I believe that the true horsemen will rise and prosper in an industry based upon the foundation of the horses' optimized health and intrinsic racing ability.

A ban on Lasix would improve the health and welfare of the horses, remove the most severely affected animals from the sport and the breeding programs, restore integrity and fairness to the sport and level the playing field without forcing honest horsemen to use the drug just to be able to compete, while putting the United States racing industry back in line with all major racing jurisdictions internationally. The Horse Racing Safety and Improvement Act of 2013 allows for a fair and safe transitioning period for horses that have already become dependent upon the drug for their performance and by allowing them to continue using it for a reasonable time until it is fully banned.

## **Anti-Inflammatory Drugs: Corticosteroids and NSAIDS**

Anti-inflammatory drugs are often administered by veterinarians at the trainer's request in order to enable training and racing of unfit and unsound horses. These drugs can mask the signs of injury and physical instability thus predisposing horses to catastrophic breakdown. They should be restricted for use in treating diagnosed conditions and used only in accordance with the standards of practice and as appropriate and responsible therapy by licensed veterinarians. Examples of the most commonly used drugs of this class would include NSAIDs such as phenylbutazone; Banamine; and cox-2 inhibitors. The Horseracing Integrity and safety Act of 2013 would ensure that these standards are strictly adhered to by veterinarians through its requirement that a valid veterinarian-client-patient relationship is only context in which these prescription drugs may be administered to racehorses.

Corticosteroid abuse in racehorses is rampant. These potent anti-inflammatory and pain reducing drugs can interfere with the body's natural ability to heal tissue and remodel bone in response to training and racing and their indiscriminate administration by veterinarians and trainers often leads to irreparable osteoarthritic damage to the horses' joints leaving the horse with permanent lameness. Interference with the natural healing process and masking pain has enabled the widespread practice of overtraining unsound horses and introduces great risk to the horses and riders' safety. Review of postmortem records of horses that died in racing often reveals a history of corticosteroid induced pathologies.

The New York Task Force, in their review which was conducted by order of the Governor and in response to the public outcry over a high number of fatalities at Aqueduct racetrack found that the

abuse of these injury masking drugs was a likely contributor to the fatal breakdown of several racehorses.

In their report on Page 17 it states:

“Given the diagnostic workup and an IA corticosteroid injection of the left front fetlock seven days prior to the race, the Task Force questions whether Speight of Hand should have started. Based upon the information provided, the Task Force believes that it is likely that an opportunity may have been missed to prevent this injury. Specifically, the interval from treatment to race was insufficient to assess the horse’s response to treatment. Also, the pre-race examination findings were likely confounded by this treatment.”

I have been a veterinary consultant for numerous racehorse patients that have had their joints destroyed not by the sport, but by the reckless use of corticosteroid injected directly into acutely or chronically damaged joints and tendons. These drugs are administered so frequently in many racehorses and with reckless abandon for the welfare of the horse that the cartilage erodes and the joints fuse. In some patients life threatening metabolic and hormonal abnormalities occurs. Corticosteroid administration is also associated with the development of laminitis in horses. Corticosteroid and Lasix administered together as is so often the practice with racehorses can lead to drug-induced debilitating or life threatening electrolyte imbalances and loss of calcium.

Typically aged at two to six years, racehorses present as young, vibrant, physically whole, metabolically active and rapidly developing animals with the natural ability to remain healthy and sound. Just looking at the rampant unsoundness seen at our race tracks makes it clear that our currently permissive and indiscriminate drug use is causing great harm. These are not untoward or rare side effects. This is precisely what veterinary medical science informs us will occur when we use these drugs in this indiscriminate and anti-therapeutic way. This is the reason that such drugs

are restricted for use only by licensed veterinarians in the first place. This is also the reason that the standards of practice, the veterinarian-client-patient relationship, and the Veterinarian's Oath must be honored when administering drugs to racehorses. The Horseracing Integrity and Safety Act of 2013 will ensure this ethical standard is enforced.

### **Illicit Drug Abuse in Horse Racing**

The United States horseracing industry also suffers from the abuse of drugs and substances that are strictly illicit. Such substances would have no responsible use in racehorse practice and they enhance performance. Recent examples include the detection of a drug called dermorphin which is reported to be much more potent than morphine. It has the unique effect in horses of increasing speed. An exercise rider was killed when the horse he was exercising during training hours fatally broke down, breaking both front legs. This horse was reportedly trained by a horseman who had been notified that the testing laboratory had detected dermorphin in another of his horses yet he was allowed to continue to train and race after obtaining a stay of his suspension. This tragic incident and loss of human and horse lives underscores the need to have a central regulatory body that has the authority to enact swift penalties for drug violations of this most serious kind.

Cheaters will always seek out the next substance to use to gain an unfair edge in horse racing. For this reason we must pool our national resources in technology, science and expertise so that we can have the greatest impact to deter and detect attempts to win races by using illicit substances. The United States Anti-Doping Administration ("USADA") is the only agency with the expertise and record of success required to police the sport of horseracing in the United States. The Horseracing Integrity and Safety Act of 2013 will be able to designate the best independent authority to regulate

the sport. This is a choice that would never be possible by consensus of the numerous state regulatory agencies in the highly unlikely event that they decided to create a national regulator.

At the recent House of Representatives Commerce Committee hearing, the veterinarian who testified on behalf of the American Veterinary Medical Association (“AVMA”) offered that one reason he opined that the anti-soring bill (“PAST”) was necessary is because an industry is unable to police itself. It is another example of an equine sport having regulations in effect that are not enforced and where most of the inspectors are provided by the industry itself. The same inability to be capable of policing one’s own industry is at the foundation of the high rate of death and injury in horse racing. The Horseracing Integrity and Safety Act of 2013 will resolve this problem by establishing an independent regulator for the sport.

### **Veterinary Record Keeping Requirement**

The purpose of a medical record is simple. It is to protect the patient. While state veterinary boards define and detail the requirements in record keeping for all veterinarians, the principle objective is to record all data so that records not only reflect objective test results and diagnostic and therapeutic treatments and medications, but also assist and reveal the thought process of the licensed veterinarian. The fact that few records outside of billing records are ever even made for these racehorses betrays the fact that many racetrack practicing veterinarians are seemingly not applying a clinical thought process to help the horse to recover from illness or injury. They simply report the administration of drugs without any evidence of a plan or thoughts about the clinician’s responsibility to always deliver veterinary service to restore or protect their patient’s health.

Electronic record keeping can be completed by veterinarians and horsemen in just a few minutes a day. The collection, storage and transfer of this critical veterinary record data for official use would also facilitate its seamless and immediate availability as horses move from one race track, state or country to another. This transparency would also provide proof to the public that racehorses are being treated with the same high standards of veterinary practice that it expects through strict adherence to regulations as defined by each state's department of professional regulation as a condition of veterinary licensing. No examination or diagnosis that supports the appropriate choice of a drug? Then no drug administration should appear in these records.

More and more we are discovering that products are readily available and are being marketed and sold to racehorse trainers that may have evaded official classification as drugs. These substances are marketed under the guise of "supplements" but many promise performance enhancing benefits. Many horsemen's and racing journals contain advertisements for these products, in stark contrast to their proclamations that they are opposed to all performance enhancing practices and in favor of ridding the sport of such cheating. The requirement of keeping complete records on everything administered, fed, or applied by any means to a horse would close the current loophole in the detection of illicit injury-masking and performance-enhancing substances. Everything but "hay, oats and water" should be required to be recorded in real-time each horse's electronic record. Any evidence of the administration of a substance or treatment of any kind that is absent from the report should trigger immediate penalties against the trainer independent of any positive drug test finding. The strict adherence to record keeping requirements should be a condition of the trainer and veterinarian's pari-mutuel license. This record keeping requirement is addressed in the Horseracing Integrity and safety Act of 2013's insistence that the veterinarian-client-patient relationship must be in place for all veterinary practices. This would include record keeping which contains the

management history for each racehorse patient and any so-called supplement fed to the horse by the trainer.

### **Public Perception and Drugs in Horse Racing**

Horse racing is losing former fans rapidly while gaining few new ones. The public's perception and often indeed the reality of horses being drugged in order to enable racing can only be removed by banning all drugs on race day and in the days leading up to races through a zero tolerance in drug testing. In my personal life when I meet people who have nothing to do with horse racing, the one question I know I will be asked is- why do we allow trainers to drug horses so they can race, and why would I be involved in any so-called sport that cares so little about the health and safety of the horse? Indeed, the public may choose to take matters into their own hands as they did for greyhound racing when similar animal welfare concerns went unaddressed by the sport's regulators, despite repeated promises to the contrary. Voters chose to outlaw the sport in their states and similar talk has begun amongst the public to ban horse racing since it repeatedly fails to address the serious animal welfare related issues. The public has had enough. I believe that the Horseracing Integrity and Safety Act of 2013 has the potential to literally save the industry from a potential widespread ban that could occur if this legislative solution is not enacted.

### **Transparency**

The uniquely sequestered nature of the back side of a race track prevents the public (and state veterinary licensing boards) from seeing what goes on behind the guarded stable gates. The only evidence available to review in order to decide if the sport of horse racing has integrity and treats



horses humanely comes when the public watches the races. The public outcry for reform of this industry is the direct result of horrific breakdowns and deaths that have occurred in full public view. Also visible is the never ending procession of crippled horses arriving at equine shelters that require lifelong care because permanent injury leaves them unable to be appreciated by second homes as riding horses. The public is the largest supporter of these equine shelters and they are asked to donate money regularly to enable permanently injured horses to live out their years in full retirement. This burden is not only unfair, it is impossible to meet.

The Horseracing Integrity and Safety Act of 2013 will provide the public with assurances that have been long overdue. Assurance that the horses are racing without injury-masking and performance-enhancing drugs. Assurance that any trainer, owner or veterinarian who violates the rules will be swiftly and permanently removed from the sport. Assurance that only responsible veterinary services that improve or protect the horse will be provided to racehorses and that the state veterinary boards are monitoring and enforcing the regulations that define standards of practice for veterinarians who work with racehorses without interference from racing commissions.

Businesses including those of horse trainers, that have nothing to hide, hide nothing. In addition to the clear benefit to individual horse health care and safety, the keeping and continuous review of records of the real-time reporting of everything but the proverbial “hay, oats and water” administered to these horses will be essential to regaining and nurturing the public trust in horse racing. State veterinary boards could also use these records to investigate, enforce and oversee the standards of practice for racehorse veterinarians.

## **A Change in Business**

The sport of horse racing is expensive for any owner and when the incentive and ability to acquire, race and drug-abuse lame horses for profit is removed the sport will shrink in size but strengthen by becoming more appealing for owners who want to become involved in an ethical and quality sport and business. This is where the strength and future of the industry lies. The cost to breed, train and race horses is necessarily high. Risk will always be great. Just as there is a significant chance that an impressively bred and extremely expensive yearling may never succeed on the track, racehorse owners must also accept that the risk of a horse developing unsoundness that may limit or end its potential as a racehorse is all part of the sport. Drugging it to mask injury and race while unsound will no longer be an option for owners and trainers through this important legislation.

Many trainers and racehorse owners have adapted their business model to fit an industry that expects a high turnover of horses with a high attrition rate through breakdowns or other career ending injuries. They will need to adjust their businesses to value individual horses and manage their stables through an expertly guided health and well-being centered training and racing programs. Veterinarians are well prepared and eager to offer such ethical services to their clients.

## **Breakdown Statistics**

It has been estimated that 24 horses die each week on American race tracks. This calculation came from the comprehensive review of official racing charts. While this figure is extremely disturbing and intolerable in a society that values the humane treatment of animals, the numbers are actually much higher. The omission in this statistic comes from the fact that many horses suffer catastrophic

injury which is not fully realized until the horse has returned to its stall following training. Many of these fatally injured horses leave the track in private vans and simply go missing from the thoroughbred racing database. The record keeping system that I propose would be able to collect these statistics by requiring that every horse leaving the race track be examined by a regulatory veterinarian. The keeping of this data would also serve to alert track officials and the public to trainers that have atypically high breakdown rates so they can investigate and deal with them.

### **Enforcement**

Currently the enforcement of racing regulations through an inconsistent and irregular system of penalties is wholly insufficient and completely ineffective as a means to remove chronic offenders from the sport and to act as a deterrent. The Horseracing Integrity and Safety Act of 2013 will create the essential authority to remove the cheaters from the sport and to levy significant fines for medication violations.

Today most trainers are allowed to serve their short suspensions for repeat drug violations at their convenience while assistant trainers continue to operate their training businesses and race the horses without interruption. Horse owners have little incentive to hire trainers with clean records because the advantages gained by violating the medication regulations seem to outweigh the inconvenience of the trainer of record occasionally taking a forced vacation while business as usual continues at the track. I have provided veterinary services to horses that train at an unlicensed training track in Florida. The stable area looked like a “who’s who” of banned racehorse trainers. It is located just blocks away from a major licensed training center so the banned trainers never miss a day and simply keep additional stalls at this facility while service their suspensions. Their assistants are

designated as the trainer of record during these brief periods, but the fact is that the ban does not remove the trainer from the business except in a meaningless technical way.

In nearly thirty years of practice I am aware of only three veterinarians who have been sanctioned for violations related to the drugging of horses with illegal performance-enhancing and injury-masking medications. Each suspended veterinarian continued to practice illegally by treating horses that train at unlicensed training centers or simply moved to other racing jurisdictions.

Referring violators to state and federal authorities for investigation and possible prosecution for crimes will be accommodated more easily with the uniform and unambiguous no-drug rule provided by this legislation. In addition, the motivation of an independent anti-doping regulator will be to win the battle against the cheaters and they will be unbiased by any conflict of business interest which prevails in our current system.

Being a racehorse trainer, owner or veterinarian is not a right but a privilege conditioned upon playing by strict rules. Olympic medals in equestrian events are revoked when medication violations are discovered. In the cases where medals had to be returned that I am aware of, the regulators all agreed that the positive “foreign substance” detected in the horse’s drug test could only have been the result of innocent contamination and could not have affected the outcome of the horse’s performance and placing. But the rules are the rules and these ethical sportsmen and women accept the severe penalty of Olympic Medal revocation because they know it is the only way to maintain the integrity of the sport. They accepted the absolute responsibility of playing by strict rules when they decided to compete. By contrast, drug violations in horse racing accumulate

with little or no punishment while the monetary gain for winning is much greater than in any other equestrian sport.

### **The Public Ethic**

The moment many racehorses fail to be of business value to their owners, they instantly become the burden of the charitable sector. We know the public cares about the wellbeing of racehorses because the overwhelming demographic that supports equine retirement shelters are Americans living on social security or other limited and fixed incomes. These ethical people will sacrifice their own needs in order to send a donation to a shelter because they want to know that former racehorses can have a safe retirement. These good people do not want to ride or own a horse, go to the races, or bet on one. But they will send money to charities to help buy some hay for former racehorses. To me this speaks emphatically to say that the American people care deeply about these animals and they want to know that racehorses are safe and well cared for. The Horseracing Integrity and Safety Act of 2013 will give them that assurance. It will also ensure that when horses retire from the sport they can do so with their bodies intact so they can transition to pleasure riding or horse show homes instead of becoming an instant public burden.

### **Scientific Publications In Support of My Testimony**

- I. Effect Of Furosemide On Performance Of Thoroughbreds Racing In The United States And Canada. Gross DK, Morley PS, Hinchcliff KW, Wittum TE.
- II. Furosemide Reduces Accumulated Oxygen Deficit In Horses During Brief Intense Exertion. K. W. Hinchcliff, K. H. McKeever, W. W. Muir, and R. A. Sams
- III. Furosemide-Induced Changes In Plasma And Blood Volume Of Horses. K. W. Hinchcliff, K. H. McKeever, W. W. Muir III
- IV. Effects Of Dehydration On Thermoregulatory Responses Of Horses During Low-Intensity Exercise. J. R. Naylor, W. M. Bayly, P. D. Gollnick, G. L. Brengelmann, and D. R. Hodgson
- V. Review Of Furosemide In Horse Racing: Its Effects And Regulation. L.R. Soma<sup>1</sup>, C.E. Uboh<sup>2</sup>
- VI. Hemoconcentration and Oxygen Carrying Capacity Alteration in Race Horses Following Administration of Furosemide Prior to Speed Work, A Pilot Study. Sheila Lyons DVM, FACVSMR
- VII. The Use of Blood Doping as an Ergogenic Aid. Sawka, Michael N. Ph.D., FACSM, (Chair); Joyner, Michael J. M.D.; Miles, D. S. Ph.D., FACSM; Robertson, Robert J. Ph.D., FACSM; Spriet, Lawrence L. Ph.D., FACSM; Young, Andrew J. Ph.D., FACSM
- VIII. Fracture Risk In Patients Treated With Loop Diuretics. L. Rejnmark, P. Vestergaard, L. Mosekilde
- IX. Soft Palate Problems And Bleeding In Racehorses? The Answer Is On The Tip Of The Horse's Tongue. Robert Cook FRCVS, PhD
- X. An Endoscopic Test For Bit-Induced Nasopharyngeal Asphyxia As A Cause Of Exercise-Induced Pulmonary Haemorrhage In The Horse. Robert Cook FRCVS, PhD
- XI. New York State Racing and Wagering Board Task Force On Racehorse Health and Safety, Official Report, Investigation Of Equine Fatalities At Aqueduct 2011-2012 Fall/Winter Meet. Excerpt of Pages 16-34, "B. The Individual Fatalities"

## **Appendix of Scientific Publications By Subject**

- 1) Lasix is Performance-Enhancing: I, II, III, V, VI
- 2) Lasix is Harmful to the Health and Safety of the Horse in Racing: III, IV, VI, VIII, IX
- 3) Lasix Use Has Not Ended the Occurrence of Exercise Induced Pulmonary Hemorrhage: V, IX
- 4) Lasix Increases Risk of Fracture: VIII
- 5) Conflicts of Interest Affecting Safety In Horse Racing: XI
- 6) Injury Masking Drug Use and Fatal Breakdowns in Racehorses: XI
- 7) Regulatory Failure of the Current Horse Racing Industry: XI

## I

J Am Vet Med Assoc. 1999 Sep 1;215(5):670-5.

Effect of furosemide on performance of Thoroughbreds racing in the United States and Canada.

Gross DK, Morley PS, Hinchcliff KW, Wittum TE.

Source

Department of Veterinary Preventive Medicine, College of Veterinary Medicine, The Ohio State University, Columbus 43210, USA.

Abstract

**OBJECTIVE:**

To determine the effect of furosemide on performance of Thoroughbreds racing on dirt surfaces at tracks in the United States and Canada.

**DESIGN:**

Cross-sectional study.

**ANIMALS:**

All Thoroughbreds (n = 22,589) that finished a race on dirt surfaces at tracks in the United States and Canada between June 28 and July 13, 1997 in jurisdictions that allowed the use of furosemide.

**PROCEDURE:**

Race records were analyzed by use of multivariable ANOVA procedures and logistic regression analyses to determine the effect of furosemide on estimated 6-furlong race time, estimated racing speed, race earnings, and finish position. Principal component analysis was used to create orthogonal scores from multiple collinear variables for inclusion in the models.

**RESULTS:**

Furosemide was administered to 16,761 (74.2%) horses. Horses that received furosemide raced faster, earned more money, and were more likely to win or finish in the top 3 positions than horses that did not. The magnitude of the effect of furosemide on estimated 6-furlong race time varied with sex, with the greatest effect in males. When comparing horses of the same sex, horses receiving furosemide had an estimated 6-furlong race time that ranged from 0.56 +/- 0.04 seconds (least-squares mean +/- SE) to 1.09 +/- 0.07 seconds less than that for horses not receiving furosemide, a difference equivalent to 3 to 5.5 lengths.

**CONCLUSIONS AND CLINICAL RELEVANCE:**

Because of the pervasive use of furosemide and its apparent association with superior performance in Thoroughbred racehorses, further consideration of the use of furosemide and investigation of its effects in horses is warranted.

J Am Vet Med Assoc. 1999 Dec 1;215(11):1580; author reply 1580-1.

PMID: 10476714 [PubMed - indexed for MEDLINE]



## II

Journal of Applied Physiology [www.jappl.org](http://www.jappl.org)

Journal of Applied Physiology October 1, 1996 vol. 81 no. 4 1550-1554

### EXERCISE AND MUSCLE

Furosemide reduces accumulated oxygen deficit in horses during brief intense exertion

K. W. Hinchcliff,

K. H. McKeever,

W. W. Muir, and

R. A. Sams

+ Author Affiliations

1 Exercise Physiology Laboratory, Department of Veterinary Clinical Sciences, College of Veterinary Medicine, The Ohio State University, Columbus, Ohio 43210-1089

Submitted 2 January 1996.

accepted in final form 7 May 1996.

Abstract Hinchcliff, K. W., K. H. McKeever, W. W. Muir, and R. A. Sams.

Furosemide reduces accumulated oxygen deficit in horses during brief intense exertion. *J. Appl. Physiol.* 81(4): 1550–1554, 1996.—We theorized that furosemide-induced weight reduction would reduce the contribution of anaerobic metabolism to energy expenditure of horses during intense exertion. The effects of furosemide on accumulated O<sub>2</sub> deficit and plasma lactate concentration of horses during high-intensity exercise were examined in a three-way balance randomized crossover study. Nine horses completed each of three trials: 1) a control (C) trial, 2) a furosemide-unloaded (FU) trial in which the horse received furosemide 4 h before running, and 3) a furosemide weight-loaded (FL) trial during which the horse received furosemide and carried weight equal to the weight lost after furosemide administration. Horses ran for 2 min at ~120% maximal O<sub>2</sub> consumption. Furosemide (FU) increased O<sub>2</sub> consumption ( $\text{ml} \cdot 2 \text{ min}^{-1} \cdot \text{kg}^{-1}$ ) compared with C ( $268 \pm 9$  and  $257 \pm 9$ ,  $P < 0.05$ ), whereas FL was not different from C ( $252 \pm 8$ ). Accumulated O<sub>2</sub> deficit ( $\text{ml O}_2$  equivalents/kg) was significantly ( $P < 0.05$ ) lower during FU ( $81.2 \pm 12.5$ ), but not during FL ( $96.9 \pm 12.4$ ), than during C ( $91.4 \pm 11.5$ ). Rate of increase in blood lactate concentration ( $\text{mmol} \cdot 2 \text{ min}^{-1} \cdot \text{kg}^{-1}$ ) after FU ( $0.058 \pm 0.001$ ), but not after FL ( $0.061 \pm 0.001$ ), was significantly ( $P < 0.05$ ) lower than after C ( $0.061 \pm 0.001$ ). Furosemide decreased the accumulated O<sub>2</sub> deficit and rate of increase in blood lactate concentration of horses during brief high-intensity exertion. The reduction in accumulated O<sub>2</sub> deficit in FU-treated horses was attributable to an increase in the mass-specific rate of O<sub>2</sub> consumption during the high-intensity exercise test.

Footnotes Address for reprint requests: K. W. Hinchcliff, Exercise Physiology Laboratory, Dept. of Veterinary Clinical Sciences, College of Veterinary Medicine, The Ohio State University, 601 Vernon L. Tharp St., Columbus, OH 43210-1089.

This study was supported by a grant from the Grayson-Jockey Club Research Foundation. Present address of K. H. McKeever: Dept. of Animal Science, Cook College, Rutgers University, Piscataway, NJ 08855.

### III

#### Furosemide-induced changes in plasma and blood volume of horses

K. W. HINCHCLIFF,

K. H. McKEEVER,

W. W. MUIR III

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#### Author Information

Department of Veterinary Physiology and Pharmacology, and Department of Veterinary Clinical Sciences, College of Veterinary Medicine, The Ohio State University, Columbus, OH 43210, USA

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#### Abstract

The effect of furosemide administration (1mg/kg body weight, i.v.) on plasma and blood volumes in 6 intact and 4 splenectomized horses was measured using Evans blue dye dilution, hematocrit, and hemoglobin and plasma total solids concentrations. Body weight decreased by  $33.6 \pm 3.3$  and  $33.7 \pm 0.8$ g/kg 4h after furosemide administration to intact and splenectomized mares, respectively. Plasma volume, estimated by Evans blue dye dilution, was reduced by  $8.3 \pm 3.3\%$  (mean  $\pm$  SE) 4h after furosemide administration. The reduction in plasma volume was first detectable 5-10 min after furosemide administration and was greatest 15-30 min ( $13.0 \pm 0.8\%$ ) after dosing. This study demonstrates that furosemide produces significant and rapid reductions in plasma volume in horses. These decreases in plasma volume only partially resolve 4h after furosemide administration.

## IV

### Effects of dehydration on thermoregulatory responses of horses during low-intensity exercise

J. R. Naylor,

W. M. Bayly,

P. D. Gollnick,

G. L. Brengelmann, and

D. R. Hodgson

+ Author Affiliations

Department of Veterinary Clinical Medicine and Surgery, College of Veterinary Medicine, Washington State University, Pullman 99164.

#### Abstract

Effects of dehydration on thermoregulatory and metabolic responses were studied in six horses during 40 min of exercise eliciting approximately 40% of maximal O<sub>2</sub> consumption and for 30 min after exercise. Horses were exercised while euhydrated (C), 4 h after administration of furosemide (FDH; 1.0 mg/kg i.v.) to induce isotonic dehydration, and after 30 h without water (DDH) to induce hypertonic dehydration. Cardiac output was significantly lower in FDH (144.1 ± 8.0 l/min) and in DDH (156.6 ± 6.9 l/min) than in C (173.1 ± 6.2 l/min) after 30 min of exercise. When DDH, FDH, and C values were compared, dehydration resulted in higher temperatures in the middle gluteal muscle (41.9 ± 0.3, 41.1 ± 0.2, and 40.6 ± 0.2 degrees C, respectively) and pulmonary artery (40.8 ± 0.3, 40.1 ± 0.2, and 39.7 ± 0.2 degrees C, respectively). Temperatures in the superficial thoracic vein and subcutaneous sites on the neck and back and peak sweating rates on the neck and back were not significantly different in DDH and C. In view of higher core temperatures during exercise after dehydration and decrease in cardiac output without concomitant increases in peripheral temperatures or reduced sweating rates, we conclude that the impairment of thermoregulation was primarily due to decreased transfer of heat from core to periphery.

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Review of furosemide in horse racing: its effects and regulation†

L.R. Soma<sup>1</sup>,

C.E. Uboh<sup>2</sup>

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Author Information

1

University of Pennsylvania School of Veterinary Medicine, New Bolton Center Campus, Kennett Square, PA,

2

Pennsylvania Equine Toxicology and Research Laboratory, West Chester University, Department of Chemistry, West Chester, PA, USA

\* Lawrence R. Soma University of Pennsylvania School of Veterinary Medicine, New Bolton Center Campus, Kennett Square, PA 19348, USA.

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Abstract

Furosemide has been used empirically and has been legally approved for many years by the US racing industry for the control of exercise-induced pulmonary haemorrhage (EIPH) or bleeding. Its use in horses for this purpose is highly controversial and has been criticized by organizations outside and inside of the racing industry. This review concentrates on its renal and extra-renal actions and the possible relationship of these actions to the modification of EIPH and changes in performance of horses. The existing literature references suggest that furosemide has the potential of increasing performance in horses without significantly changing the bleeding status. The pulmonary capillary transmural pressure in the exercising horse is estimated to be over 100 mmHg. The pressure reduction produced by the administration of furosemide is not of sufficient magnitude to reduce transmural pressures within the capillaries to a level where pressures resulting in rupture of the capillaries, and thus haemorrhage, would be completely prevented. This is substantiated by

clinical observations that the administration of furosemide to horses with EIPH may reduce haemorrhage but does not completely stop it. The unanswered question is whether the improvement of racing times which have been shown in a number of studies are due to the reduction in bleeding or to other actions of furosemide. This review also discusses the difficulties encountered in furosemide regulation, in view of its diuretic actions and potential for the reduction in the ability of forensic laboratories to detect drugs and medications administered to a horse within days or hours before a race. Interactions between nonsteroidal anti-inflammatory drugs (NSAIDs) and furosemide have also been examined, and the results suggest that the effects of prior administration of NSAID may partially mitigate the renal and extra-renal effects which may contribute to the effects of furosemide on EIPH.

## VI

An unpublished pilot study was conducted to test the hypothesis that furosemide administration causes dehydration and increases the hematocrit in racehorses. This pilot study is being used for validation of my application to carry out a statistically meaningful test of this hypothesis and in the collection of other measurable physiological parameters involving more than a thousand horses under racing conditions in the USA and in multiple racing jurisdictions.

Author Sheila Lyons DVM, FACVSMR

### Hemoconcentration and Oxygen Carrying Capacity Alteration in Race Horses Following Administration of Furosemide Prior to Speed Work

**ABSTRACT:** The measurement of packed red blood cell volume (PCV, Hct or hematocrit) and plasma osmolality immediately preceding and then four hours after intravenous administration of 250mg furosemide in 12 race horses was performed in order to assess the level of dehydration caused by this diuretic. The World Anti-Doping Agency (WADA) has established blood testing parameters for the indication of performance enhancement due to the artificially enhanced oxygen carrying capacity secondary to hemoconcentration in human athletes. Diuretics such as furosemide are banned by the WADA but artificial hemoconcentration has been achieved through the illegal use of EPO, the practice of blood doping, and other banned methods and practices. Since horse racing permits the use of furosemide, this pilot study was conducted to test the theory that the horse racing performance enhancement effect, which has been evidenced in the scientific literature for this drug, may be due to dehydration and improved oxygen carrying capacity achieved through hemoconcentration. The results were an increase in PCV of 6-18% with a nonlinear increase in plasma osmolality in each of the 12 horses tested in this pilot study. The WADA has established the hemoconcentration effect of EPO to be in the range of 6-11% which is considered performance enhancement in human athletics. Therefore, it appears through this pilot study that the administration of furosemide at the dosages used for horse racing supports a theory of performance enhancement through artificially enhanced oxygen carrying capacity due to hemoconcentration. A further study involving the testing of several thousand racehorses entered in races in multiple racing jurisdictions is planned by this investigator and warranted in the interest of fairness in horse racing.

## VII

Medicine & Science in Sports & Exercise:

October 1996 - Volume 28 - Issue 10 - pp 127-134

ACSM Position Stand: The Female Athlete Triad

ACSM Position Stand: The Use of Blood Doping as an Ergogenic Aid

Sawka, Michael N. Ph.D., FACSM, (Chair); Joyner, Michael J. M.D.; Miles, D. S. Ph.D., FACSM;

Robertson, Robert J. Ph.D., FACSM; Spriet, Lawrence L. Ph.D., FACSM; Young, Andrew J. Ph.D., FACSM

### Abstract

Blood doping has been achieved by either infusing red blood cells or by administering the drug erythropoietin to artificially increase red blood cell mass. Blood doping can improve an athlete's ability to perform submaximal and maximal endurance exercise. In addition, blood doping can help reduce physiologic strain during exercise in the heat and perhaps at altitude. Conversely, blood doping is associated with risks that can be serious and impair athletic performance. These known risks are amplified by improper medical controls, as well as the interaction between dehydration with exercise and environmental stress. Finally, the medical risks associated with blood doping have been estimated from carefully controlled research studies, and the medically unsupervised use of blood doping will increase these risks. It is the position of the American College of Sports Medicine that any blood doping procedure used in an attempt to improve athletic performance is unethical, unfair, and exposes the athlete to unwarranted and potentially serious health risks.

## VIII

### Fracture risk in patients treated with loop diuretics

Journal of Internal Medicine

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1. L. REJNMARK,
2. P. VESTERGAARD,
3. L. MOSEKILDE

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Abstract.

**Background.** Loop diuretics (LD) increase renal calcium excretion. Discrepant results on associations between LD and fracture risk have been reported.

**Objective.** To assess the fracture risk in users of LD.

**Design and subjects.** A population-based pharmaco-epidemiological case–control design with fracture in year 2000 as outcome and use of LD during the previous 5 years as exposure variable. We used nationwide computerized registers to assess individual use of LD and related these data to individual fracture data and information on potential confounders. We compared 64 699 cases aged 40 years or more who sustained a fracture during year 2000 with 194 111 age- and gender-matched controls.

**Results.** A total of 44 001 subjects used LD. Ever use of LD was associated with a crude 51% (OR 1.51; 95% CI 1.48–1.55) increased risk of any fracture and a 72% (OR 1.72; 95% CI 1.64–1.81) increased risk of hip fracture. The risk estimates were reduced after confounder adjustment, i.e. adjusted risk of any fracture was increased by 4% (OR 1.04; 95% CI 1.01–1.07) and risk of hip fracture by 16% (OR 1.16; 95% CI 1.10–1.23). In current users, a tendency towards a decreased fracture risk with increased dose was observed, whereas in former users risk of fracture increased with increased dose. Use of furosemide was associated with higher risk estimates than use of bumetanide.

**Conclusion.** Treatment with LD affects fracture risk. Special attention should be paid to patients in whom treatment with LD is initiated or stopped, as they may be at an increased risk of fracture.



## IX

What Causes Soft Palate Problems And Bleeding In Racehorses?:

The answer is on the tip of the horse's tongue

Robert Cook FRCVS, PhD<sup>1</sup>

- In March 2011, the RCI (Association of Racing Commissioners International) urged U.S. racing's administrators, within the next five years, to phase out bleeding medication on race days.
- In May 2011, Senator Udall introduced the Interstate Horseracing Improvement Act of 2011 in the Senate, "to end the use of performance-enhancing drugs in the sport of horse racing."

The RCI informs racing's administrators that it considers the use of bleeding medication to be unacceptable. I agree. Furthermore, it seems that if racing's administrators do not ban race-day drugs, the government will intervene. Perhaps the threat of federal regulation will provide the necessary impetus to action. As Samuel Johnson observed, "When a man knows he is to be hanged in a fortnight, it concentrates his mind wonderfully." Sadly, as judged by published reports from the summit meeting at Belmont Park on June 13 and 14<sup>th</sup>, 2011, only baby steps forward were taken.

Yet there is a simple solution. Most other countries have solved the problem - race-day drugs are banned. I have to wonder why racing's administrators in the U.S. are so puzzled by the problem. Why, in this country, do they support a pharmaceutical approach to bleeding (Salix) when it is evident that the therapy fails to cure and, in the attempt, only succeeds in harming the horse and damaging the sport?

Our addiction to drugs for bleeding might be justifiable if the 'treatment' was rational and based, as all treatments should be, on removal of the cause. Failure to focus attention on the cause is, I believe, a source of confusion in our thinking about the problem. So-called exercise-induced pulmonary hemorrhage (EIPH) remains an unresolved problem because removal of the cause is a prerequisite of treatment and the only consensus in racing on this vital question is that the cause is supposedly unknown. As explained below, it is I believe no coincidence that dorsal displacement of the soft palate (DDSP) and EIPH, two serious problems of the racehorse are both common and of unknown cause. The two problems are related. Elevation of the soft palate, with or without DDSP, is the major cause of EIPH.

This article is offered in the hope of clarifying the question of cause and thereby emphasizing the need to discontinue ineffectual and unnecessary race-day drugs. Bleeding is a management problem.<sup>2</sup> It requires a management not a pharmaceutical solution. This is something for racing's administrators to solve, not racetrack veterinarians. In the U.S. discontinuation of race-day drugs is

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Professor of Surgery Emeritus, Cummings School of Veterinary Medicine, Tufts University, Grafton, MA

Chairman, BitlessBridle Inc. [www.bitlessbridle.com](http://www.bitlessbridle.com)

Telephone: (443) 282 0472 or (410) 778 4785 Email: [drcook@bitlessbridle.com](mailto:drcook@bitlessbridle.com)

<sup>2</sup> A better name than exercise-induced pulmonary hemorrhage would be man-induced pulmonary hemorrhage

the first priority. Worldwide, racing's administrators should focus on the second priority – another management change. In my opinion, a rule update (approval of the crossunder bitless bridle for racing) would not only significantly reduce the prevalence of bleeding but would virtually eliminate dorsal displacement of the soft palate and many other disease and behavioural problems. At the same time it would reduce accidents and vastly improve the welfare of the horse. As though this was not sufficient inducement for change, performance would be improved. The bit is a handicap to performance. For both the athletes involved, racing would become healthier, happier and safer and – for other stakeholders - more pleasurable, honourable and profitable.

This opinion is given by a veterinary researcher who was the first to publish evidence indicating that racehorses with 'nosebleeds' were bleeding from the lungs (Cook 1974) and someone who has retained an intense interest in the cause of bleeding ever since. I realise that I am promoting a minority opinion on cause but, in my defence, science in general depends for progress on tenable minority opinions. Science advances by a process of disagreement. I am disagreeing with the status quo on cause.

There was much regret expressed, in the early reports from the Belmont Summit of the lack of consensus. But advance in science does not depend on a majority vote. It depends on evidence. All it needs is for racing's administrators to consider the evidence. Let's remember that the consistency of a hypothesis depends, not so much on the evidence to support it, but on the inability to refute it. A scientific hypothesis that cannot be refuted deserves to stand, at the present state of knowledge. Down the road, any hypothesis may have to be adjusted in the light of new evidence or even abandoned altogether. But until such time as conflicting evidence is discovered, an unrefuted hypothesis constitutes the best guide to action. This said, my working hypothesis is that pulmonary 'bleeding' in the racehorse is caused by any upper airway obstruction. I have tried diligently to refute this hypothesis and failed. As far as I am aware, so have others, as no publications have appeared to provide contrary evidence. .

The syndrome that became known as EIPH has been written about extensively in the veterinary literature. Most of the research articles have focused on its supposed alleviation with a diuretic (Salix). Relatively little has been published on its cause.

Two competing explanations have been proposed for the cause. Both focus on the air/blood barrier of the lung. The word 'barrier' in this context does not carry the meaning of 'impassable.' It refers to the infinitely delicate lining membrane of the lung's air sacs that separate the dense network of small blood vessels in the lung from the air sacs of the lung. The membrane can be thought of as the lung's highly specialised 'skin' exposed to the atmosphere. When the membrane works correctly (in health), it allows for the exchange of oxygen and carbon dioxide. Under normal conditions, it is thin enough to allow for gas exchange and thick enough to prevent the escape of fluids. The balance is critical.

I will call the two possible causes 'A' for air and 'B' for blood. 'A' stands for the pressure of air in the air sacs when the horse breathes in and 'B' for the pressure of blood in the capillaries. The 'A' supporters believe that 'bleeding' is caused by an abnormally low air pressure. The 'B' supporters believe that it is caused by an abnormally high blood pressure. 'A' implies too much suction force on the air side (the outside) and 'B' too much fluid force on the blood side (the inside). Though I promoted the 'A' explanation, the 'B' explanation has held sway over the years and been the most popular. The unsuccessful attempts to eliminate EIPH by reducing blood pressure are based on the B explanation.

Some ‘B’ supporters have suggested that high blood pressure during racing is an inherent part of the Thoroughbred’s make-up and that bleeding is inevitable or ‘normal.’ I find this unacceptable, because it is not consistent with equine physiology. Airways are for air, not blood. EIPH is not an accurate name for the syndrome. It is neither exclusively ‘*exercise-induced*’ nor a true ‘*hemorrhage*.’ So-called EIPH can occur in the stable when a non-exercising horse is accidentally asphyxiated. The fluid is not blood but edema fluid, albeit heavily blood-stained. Bleeding is not a problem exclusive to the discipline of racing and, in considering the cause, it is helpful to keep this in mind.

The ‘A’ explanation is consistent with the known facts about bleeding. An abnormally negative pressure in the small airways results from any obstruction of the upper airway, i.e., anywhere from nostril to first rib. A rational treatment based on this explanation requires removal of the airway obstruction. The benefits that such a step would bring racing are enormous. They extend far beyond ‘bleeding.’

Breathing is a suck/blow process. Air is sucked into the lungs during the negative pressure of inspiration as the diaphragm flattens. It is blown out again on expiration, under positive pressure, when the diaphragm relaxes. Too great a suction pressure when breathing-in affects the ‘skin’ of the horse’s lung in the same way as a ‘hickey’ on human skin. The only difference is that, in man, the effect is a subcutaneous bruise whereas in the horse, as the ‘skin’ of the air sac is fifteen times thinner than a sheet of airmail paper, red blood cells are sucked straight through the pores of the membrane, accompanied by edema fluid. The lung’s ‘skin’ leaks. It can be thought of as ‘sweating blood.’ This blood-stained fluid forms a puddle in the windpipe at the entrance to the chest. After a race, when the horse drops its head to drink, it may drain out at the nostrils and the horse appears to have had a nosebleed. In my opinion, the basic pathology of ‘bleeding’ in the Thoroughbred (or any other breed – for EIPH occurs in all disciplines) is water-logging of the lung (pulmonary edema). The cause is strangulation.

99% of racehorses ‘bleed’ when they run. Whatever causes EIPH has to be very common. Initially, I taught that paralysis or partial paralysis of the voice box (recurrent laryngeal neuropathy - RLN) was the major cause. Regrettably, RLN, commonly known as ‘roaring’ is common enough to be considered as the culprit. I still maintain that RLN plays a part, especially when the neuropathy is advanced. However, in the last 13 years I have discovered that there is an even more common and serious cause of upper airway obstruction. It has been staring man in the face for 5000 years. I refer to the horse’s bit. The good news is that whereas RLN is untreatable (and in my opinion inherited), the bit could be removed if the rules of racing were updated. After 5000 years of bit usage such a proposition will sound like heresy or even madness, “yet there is method in’t.” I repeat, bitless racing and training would be safer for horse and rider, accidents would be reduced, performance enhanced and the horse’s quality of life improved.

Some readers may question how a bit in the mouth could possibly obstruct the airway. It must be remembered that though the bit can only lie on the tip of the tongue which, together with the body of this large and muscular sense organ are indisputably in the mouth, the long root of the tongue lies in the throat. Indirectly, the bit grabs a horse in the throat. When a horse avoids the bit by withdrawing the tip of its tongue (a common evasion) the bulky root of the tongue bulges upwards in the throat. This in turn elevates the soft palate (which lies on the tongue’s root) and obstructs the airway. In England, trainers describe an attack of suffocation from such a cause as a horse

‘swallowing its tongue’ and ‘choking up.’ There are many other mechanisms whereby a bit obstructs the airway, including bit-induced poll flexion (see ‘Further Reading’).

I declare a conflict of interest but without apology. I know that by removing the bit, horsemen can do much for the horse, themselves and the reputation of racing. EIPH would not be entirely eliminated (as RLN and a few uncommon sources of airway obstruction would still occur) but I predict that its frequency would be significantly reduced. A significant bonus is that there would be a major reduction in the occurrence of dorsal displacement of the soft palate (DDSP) which, like the even more common elevation of the soft palate, is almost exclusively caused by the bit. DDSP and EIPH are both predominantly management problems. For the same reason, there would be a major reduction in the incidence of epiglottal entrapment. Until the bit is removed, we shall never know how much this might also reduce the occurrence of catastrophic musculo-skeletal accidents and breakdowns caused by bit-induced pathophysiology, pain and fatigue.

In closing, I make two recommendations. First, I propose that a more accurate name for EIPH would be ‘Negative Pressure Pulmonary Edema (NPPE).’ Secondly, I recommend that readers carry out an Internet search for a relatively uncommon but life-threatening disease in man by this name. Readers will find that so-called EIPH in the horse is analogous to NPPE in man. They will also be able to read many descriptions of the mechanism whereby this occurs. Though upper airway obstruction is the primary cause, a secondary effect of upper airway obstruction is to raise pulmonary blood pressure. ‘A’ and ‘B’ mechanisms are both involved.

Administrators of racing and other stakeholders will have much to think about as a result of the RCI press release. If I can help by answering questions I would be glad to do so in writing or by telephone.

Further reading: An asterisk after the reference indicates that the article is available online at [www.bitlessbridle.com](http://www.bitlessbridle.com)

1. Cook, W.R.: Epistaxis in the racehorse. *Equine Veterinary Journal*, 5:45-58, 1974.
2. Cook, W.R.: The biomechanics of intermittent suffocation at exercise in the horse. *Der Praktische Tierarzt*, 4:288-294, 1982.
3. Cook, W.R., Williams, R.M., Kirker-Head, C.A. and Verbridge, D.J.: Upper airway obstruction (partial asphyxia) as the possible cause of exercise induced pulmonary hemorrhage in the horse: an hypothesis. *Journal of Equine Veterinary Science*, 8:11-26, 1988.
4. Cook, W.R.: Hypotheses on exercise-induced pulmonary hemorrhage in horses. *Journal of the American Veterinary Medical Association*, 193:8-10, 1988. (Letter to editor)
5. Cook, W.R.: Exercise-induced pulmonary hemorrhage in the horse: An animal model for idiopathic primary pulmonary hemosiderosis in man (Abstract). *Journal of Investigative Surgery*, 1:228, 1988.
6. Cook, W.R.: Etiology of exercise-induced pulmonary hemorrhage in the horse. *Journal American Veterinary Medical Association*, October, 1992 (letter to the editor).
7. Cook, W.R.: “*Specifications for Speed in the Racehorse; the Airflow Factors*”. Russell Meerdink, Inc., Menasha, WI, 1989.
8. Cook, W.R.: “Ban Lasix and find cause of bleeding.” *Thoroughbred Times*, 6:18,1990.
9. Cook, W.R.: Questions theory on cause of exercise-induced pulmonary hemorrhage. *Journal of the American Veterinary Association*, 201:1661-1662, 1992.

10. Cook, W.R.: Exercise-induced pulmonary hemorrhage in the horse is caused by upper airway obstruction. *Irish Veterinary Journal*, 46:160-161, 1993
11. Cook, W.R.: "Don't abandon the facts." *Thoroughbred Times* 9: #14 April 2, 1993
12. Cook, W.R.: "There are times treatment and prevention are inappropriate." *Thoroughbred Times*, September, 1993.
13. Verbridge, D.J., Cook, W.R., and Kirker-Head, C.A.: Measurement and comparison of cervical tracheal pressures in two exercising horses. *The Equine Athlete* 9, 16-19. 1996
14. Cook, W.R., "Another view on bleeding; asphyxia is suggested as the cause of pulmonary edema" *Thoroughbred Times*, p52, November 9, 1996
15. Cook, W.R.: Death in the Afternoon: *Thoroughbred Times*, 5 September, p21 1998\*.
16. Cook, W.R.: EIPH or AIPE? *Equine Athlete* March/April 1997, p23\*
17. Cook, W.R. Breakdowns, bleeding and bits. *Thoroughbred Times*. 5 September, 1998, p 21\*
18. Cook, W.R.: Pathophysiology of Bit Control in the Horse. *Journal Equine Veterinary Science* 19: 196-204, 1999\*
19. Cook, W.R.: "Asphyxia as the cause of bleeding and the bit as the cause of soft palate displacement" Guest Commentary *Thoroughbred Times*, November 27, 1999, pp18-19\*
20. Cook, W.R.: Why Do Horses' Lungs Bleed? Published online 1999\*
21. Cook, W.R.: A solution to respiratory and other problems caused by the bit. *Pferdeheilkunde*, 16, 333-351, 2000\*
22. Cook, W.R.: Bit-induced asphyxia in the horse: Elevation and dorsal displacement of the soft palate at exercise. *Journal of Equine Veterinary Science*, 22, 7-14, 2002\*
23. Cook, W.R. : Not Snoring but Suffocating. Published online 2002\*
24. Cook, W.R. and Strasser, H "Metal in the Mouth: The Abusive Effects of Bitted Bridles." Sabine Kells, Qualicum Beach, BC Canada, 2003
25. Cook, W.R.: Treatment for dorsal displacement of the soft palate in horses. *Veterinary Record* December 3, 157, 752, 2005\*
26. Cook, W.R.: Risk & Safety Factors in Flat & Steeplechase Racing Associated With All Bitted Bridles, Compared With the Predicted Risk of Using the Crossover Bitless Bridle. 2005\*

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An Endoscopic Test For Bit-Induced Nasopharyngeal Asphyxia As A Cause Of Exercise-Induced Pulmonary Haemorrhage In The Horse

Robert Cook<sup>1</sup> Professor of Surgery Emeritus, Cummings School of Veterinary Medicine, Tufts University, USA

In their article on sudden death in racehorses, Lyle et al (2012) expressed the hope that their study would stimulate hypothesis-led investigations into possible causes.

Currently, there is no consensus on the first cause of EIPH. Even the mechanisms are debated. But the two leading mechanistic hypotheses are only at odds over the flimsiest of barriers - the pulmonary air/blood barrier. The majority opinion is that ‘bleeding’ occurs because of abnormally high capillary pressure on the blood side of the barrier. Let’s call this the blood pressure hypothesis. The minority opinion is that it occurs because of abnormally low negative pressure on the air side of the barrier - the air pressure hypothesis.

The majority maintain that high pulmonary pressure is an inherent characteristic of the Thoroughbred. In other words, that the first cause of EIPH is the Thoroughbred itself. But EIPH is not confined to the racing Thoroughbred. It also occurs in the racing Standardbred, Arabian and Quarter Horse. It is not even confined to racing as it also occurs in the hyperflexed dressage horse, in the draft horse with a paralyzed larynx and in a horse of any breed that gets cast in its stall with its head twisted. Long before I contracted a conflict of interest, my colleagues and I at Tufts concluded that asphyxia was a possible cause of EIPH (Cook et al 1988).

The ‘blood-pressure-in-the-racing-Thoroughbred’ hypothesis does not lend itself to testing nor to a solution by removal of the supposed first cause. Regrettably, it gives credence to the sad idea that ‘bleeding’ is incurable or even physiological and needs to be ‘managed’ with medication. Because the blood pressure hypothesis is invulnerable to refutation, I conclude that it is not a scientific hypothesis.

In contrast, the air pressure hypothesis is highly vulnerable and eminently refutable. In 1988, we listed a number of ways in which asphyxia could occur, naming recurrent laryngeal neuropathy as the most likely candidate. Since then, I have realized that though this is prevalent enough to match the prevalence of EIPH, the severity of the neuropathy in many cases is insufficient to entirely explain the problem. In the last 15 years, I have come to recognize that the ubiquitous bit is a much stronger candidate for causing asphyxia and that it brings this about by triggering instability and dorsal displacement of the soft palate (Cook 1999, 2002, 2005, 2013, Cook and Strasser 2003). At liberty, the running horse has a closed mouth, sealed lips and an immobile tongue and jaw. I now have evidence that its oral cavity and oropharynx are under negative pressure (Cook 2012, unpublished material). By breaking the lip seal, I believe that the bit triggers a cascade of problems from lip to lung. In anatomical if not physiological order these are - loss of the oral vacuum - dynamic collapse of the nasopharynx (soft palate instability and dorsal displacement) – obstruction of the choanae – gaping of the pharyngeal orifices to the guttural pouch - dynamic collapse of the larynx – dynamic

collapse of the dorsal membrane of the trachea with, over time, permanent distortion of the tracheal cartilages - and EIPH. Shakespeare's phrase is apt, "The lie in the throat as deep as to the lungs." Allen and Franklin (2012) report endoscopic observations, during moments of soft palate instability, consistent with loss of the oral vacuum, i.e., a flattened epiglottis and convexity in the most caudal section of the soft palate. Further light on the effect of the bit is shed by Hong Kong statistics for 2004/2005 (Watkins et al 2008). During the training and racing of 1,358 Thoroughbreds the prevalence of "blood at one or both nostrils" was 5.74%. During swimming, when 1,155 of these same horses - on 150,000 occasions - were (presumably) wearing nothing but a halter, there was no 'epistaxis.'

Exercise-induced pulmonary haemorrhage is not exclusively dependent on exercise and neither is it a true haemorrhage. So-called 'epistaxis' is not blood but edema fluid coloured with red blood corpuscles. A more precise and scientifically useful name would be negative pressure pulmonary edema (NPPE). An internet search reveals that this relatively uncommon but life-threatening emergency in man is analogous to the bizarrely common and potentially fatal EIPH in the racehorse, a subset of NPPE in the horse. The literature on NPPE in man provides an explanation for the abnormally high pulmonary pressure in the horse. In a review of NPPE, Deepika et al (1997) state that the primary mechanism is upper airway obstruction. This generates a markedly negative intrapleural pressure transmitted to the pulmonary interstitium, an increased venous return to the right side of the heart, and a rise of pulmonary capillary pressure. The NPPE evidence in man blends the two competing hypotheses for EIPH in the racehorse, citing air pressure as the causal factor and blood pressure as a secondary effect. I submit that the same blend applies to the horse.

The technology of over-ground nasopharyngoscopy provides a way of putting this to the test. The null hypothesis could be tested that if a horse was first ridden in a bitted bridle there would be no improvement in the patency of the choanae and nasopharynx as judged by endoscopy when the same horse was ridden again under similar conditions in a bitless bridle. If improvement occurred the null hypothesis would be refuted and the air pressure hypothesis supported.

An addition to the standard endoscopy protocol will be necessary in order to evaluate the patency of (at least) one choana and the rostral two thirds of the nasopharynx. To evaluate these critical regions of the airway, a step that is currently omitted, the distal tip of the endoscope must be placed at the caudal end of the nasal cavity. By positioning the endoscope in the caudal half of the nasopharynx only, information on dorsal displacement of the soft palate and laryngeal problems is gathered but some information on rostral palatal elevation will be overlooked and choanal stenosis, a potentially catastrophic ball-valve obstruction due to the Bernoulli effect, can never be documented.

Science advances either by refutation of hypotheses or by the failure of determined efforts to refute them. Science does not advance anything like as convincingly by simply adding evidence in support of a hypothesis. As the air pressure hypothesis has not been refuted in 25 years it seems to have survivor fitness but this could be it has never been tested. But if the air pressure hypothesis survived attempts to refute it with over-ground endoscopy evidence this would assert its claim to be acknowledged and point to the bit as the major cause of NPPE in the horse. Further research into the effect of the bit on the horse is needed to ratify or refute the bit as the cause of NPPE.

Authors' declaration of interests

Chairman and majority owner of Bitless Bridle Inc ([www.bitlessbridle.com](http://www.bitlessbridle.com)).

#### References

- Allen, K. and Franklin, S (2012) "Characteristics of palatal instability in Thoroughbred racehorses and their association with the development of dorsal displacement of the soft palate." *Equine vet J*, 45, 454-459
- Cook, W.R. (1999): Pathophysiology of Bit Control in the Horse. *J. Equine Vet Sci*, 19: 196-204
- Cook, W.R. (2002): Bit-induced asphyxia in the horse: Elevation and dorsal displacement of the soft palate at exercise. *J. Equine Vet Sci*, 22, 7-14
- Cook, W.R. (2005): Treatment for dorsal displacement of the soft palate in horses. *Vet. Rec*, 157, 752
- Cook, W. R: (2013): A method for measuring bit-induced pain and distress in the ridden horse." *Proceedings of the International Society of Equitation Science Conference*. Available at <http://www.bitlessbridle.com/MEASURING%20BIT-INDUCED%20PAIN2013.pdf>
- Cook, W.R., Williams, R.M., Kirker-Head, C.A. and Verbridge, D.J (1988). Upper airway obstruction (partial asphyxia) as the possible cause of exercise induced hemorrhage in the horse: an hypothesis. *Journal of Equine Veterinary Science*, 8:11-26
- Cook, W.R. and Strasser, H (2003) "Metal in the Mouth: The Abusive Effects of Bitted Bridles." Sabine Kells, Qualicum Beach, BC Canada
- Deepika, K, Barrocas, Q.M, Fonseca J.J, and Bikasi, G.B (1997): Negative Pressure Pulmonary Edema after Acute Upper Airway Obstruction. *Journal of Clinical Anaesthesia*, 9, 403-408
- Lyle, C.H, Blissitt, K.J, Kennedy, R.N, McGorum, B.C, Newton, J.R, Parkin, T.D.H, Stirk, A, and Boden, L.A. (2012): "Risk factors for race-associated sudden death in Thoroughbred racehorses in the UK (2000-20007). *Equine vet. J* 44, 459-465
- Watkins, K.L, Stewart, B.D, and Lam, K.K.H (2008): "EIPH and horseracing in Hong Kong - scale of the problem, management, regulation and unique aspects." *Proceedings of a Workshop on Exercise-induced Pulmonary Haemorrhage: State of current knowledge*. p 52-56, Havemeyer Foundation Monograph Series No. 20. R & W Communications, Newmarket, UK



## XI

New York State Racing and Wagering Board Task Force On Racehorse Health and Safety

Official Report, Investigation Of Equine Fatalities At Aqueduct 2011-2012 Fall/Winter Meet

A copy of the full report can be found at: <http://www.governor.ny.gov/assets/documents/Report.pdf>

Excerpt of Pages 16-34, “B. The Individual Fatalities”

### **B. The Individual Fatalities**

The following information was obtained from medical records, interviews with owners, trainers, jockeys, practicing veterinarians, NYRA veterinarians, race charts, race videos and a review of data provided by epidemiologists. As previously noted, Raw Moon and Unruly Storm were anomalies to the rest in that they did not experience musculoskeletal failures. In addition, the Task Force did a cumulative risk assessment for each horse based upon Dr. Parkin’s presentation at the 2011 Jockey Club Roundtable. Dr. Parkin, has identified eight different events or circumstances that are associated with increased risk of fatal musculoskeletal injury in the Thoroughbred racehorse. They are:

- A horse that has not started in a race in the last 15 to 30 days
- A horse that has made its first start in the last nine months, (i.e., a horse still in its first racing season)
- Intact male horses
- A horse that is older (three years of age and up)
- A horse that made its first start as a three year old or older
- A horse with numerous starts in the period between one and six months prior to the current race
- A horse racing at a distance of < seven furlongs
- A horse with a claiming price < \$25,000

The Task Force considered these as potentially useful factors in analyzing each of the fatally injured horses and included them as a part of each case review. The Task Force wishes to emphasize that although it performed a risk profile for each individual horse as a part of its investigation, performing a risk profile using the above--- described factors is not, and should not be, a “stand---alone” procedure in the determination of whether or not a horse should race. A more detailed discussion of the EID is discussed in *Section VIII (C), Equine Injury Database and Other Risk Factors*. The *Conclusion* reached by the Task Force on each individual horse does not take into consideration other factors that may have contributed to these fatalities. These other possible contributing factors are discussed in *Section VI, Other Potential Contributing Factors*.

## Speight of Hand 12/14/11 3rd Race

- i. This intact male horse sustained a fatal injury in his 19th career start.
- ii. He made six race starts in the preceding 12 months, and made no starts in the 30 days prior to the race in which the fatal injury was sustained.
- iii. He had a pre-existing medical condition at the site that was subsequently injured.
- iv. The fetlock was radiographed and injected with an intra-articular (hereinafter "IA") corticosteroid seven days prior to the race. (The Task Force believes it is reasonable to accept this would not have occurred in a horse competing at this level. The horse racing industry ultimately exists by agreement of the public. They have the right to say no. The public has previously shown its willingness and resolve to exercise this right by banning dog racing in several states when similar concerns went unaddressed by that sport's regulators. Horse racing may be next on the list if meaningful reforms and the demand for improved safety are not realized soon.)
- v. The IA injection was not noted in the horse's medical record.
- vi. The trainer did not report the IA injection to the Stewards as required by NYSRWB Rule 4043.2 (i).
- vii. The following risk factors were present:
  - 1) Racing for a claiming price  $\leq$  \$25,000
  - 2) Racing at a distance  $\leq$  seven furlongs
  - 3) Intact male
  - 4) Older horse ( $\geq$  three yrs)
- viii. Speight of Hand was claimed three times during his career, twice in the preceding six months, with the last claim being made one month prior to injury. The claiming process transfers the horse, but not its medical records. It is unlikely that the trainer had knowledge of any medical treatments performed prior to his claiming the horse. This may have compromised the trainer's ability to make informed decisions regarding medication administrations.
- ix. The purse of the race in which this horse was injured was twice his claiming price (purse-to-claim ratio: 2.0).
- x. The intervals between the horse's last five races were 21, 51, 35, and 35 days respectively.
- xi. Blood was collected and analyzed. A urine sample was not collected. There were no reported overages of therapeutic medications and no prohibited substances were detected, based upon the limited screening the testing laboratory was able to perform on the blood sample.<sup>6</sup>
- xii. The absence of a complete necropsy precludes an understanding of Speight of Hand's musculoskeletal health

*Conclusion:* Given the diagnostic workup and an IA corticosteroid injection of the left front fetlock seven days prior to the race, the Task Force questions whether Speight of Hand should have started. Based upon the information provided, the Task Force believes that it is likely that an opportunity may have been missed to prevent this injury. Specifically, the interval from treatment to race was insufficient to assess the horse's response to treatment. Also, the pre-race examination findings were likely confounded by this treatment.

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<sup>1</sup> As discussed more fully in Section VI(G)(4), the reduced volume of plasma obtained immediately post exercise from the fatally-injured horses limited the ability of the testing laboratory to screen for drugs other than non-steroidal anti-inflammatory drugs, corticosteroids, anabolic steroids and local anesthetics.

### **Dreamin of Silver 12/30/11 9th Race**

- i. This gelding sustained a fatal injury in his 3rd career start.
- ii. He made three race starts in the preceding 12 months, with one start in the 30 days leading up to his final race.
- iii. He had a pre-existing medical condition in the joint that was subsequently injured. This horse had a chip fracture arthroscopically removed from the right carpus on 6/22/11. This is an ethical and appropriate procedure that generally results in a good prognosis for a return to racing. Post-surgery, the horse was out of training 107 days. The horse then breezed eight times in the 49 days prior to his first start back.
- iv. IA corticosteroid treatment was administered six days prior to the race.
- v. This treatment was not reported to the Stewards as required by NYSRWB Rule 4043.2 (i)
- vi. Pre-race exam findings record a minor change in the horse's clinical presentation for the race in which it was injured. While this finding alone would not necessarily warrant a scratch, it would justify additional scrutiny. The IA injection six days prior to the race may have compromised the ability of the NYRA veterinarian to properly assess this horse's condition on race day.
- vii. He was injured in his 2nd race after a reduction in class.
- viii. The intervals between his races were 15 and 20 days respectively.
- ix. He was trained his entire career by the same trainer.
- x. The following risk factors were present:
  - 1) No race starts in the preceding 15-30 days
  - 2) First start in the preceding nine months
  - 3) Racing at a distance of  $\leq 7$  furlongs
  - 4) Racing for a claiming price  $\leq$  \$25,000
  - 5) Older horse ( $\geq$  three yrs)
  - 6) The purse of the race in which he was injured was 1.8 times his claiming price (purse to claim price ratio: 1.8).
- xi. The trainer was based at another location. Management decisions were reliant upon information provided by the assistant trainer and the attending veterinarian. It is not possible to know if management decisions regarding this horse would have been different had the trainer been on site.
- xii. Blood was collected and analyzed. No urine sample was collected. There were no reported overages of therapeutic medications and no prohibited substances were detected, based upon the limited screening the testing laboratory was able to perform on the blood sample.
- xiii. The absence of a complete necropsy precludes an understanding of this horse's musculoskeletal health.

*Conclusion:* Based upon the information available, it is the opinion of the Task Force that the physical condition of Dreamin of Silver's carpal joint prior to entry, requiring diagnostic and therapeutic intervention, raises the question whether this horse should have raced six days post treatment. The Task Force believes that it is likely that an opportunity may have been missed to prevent this injury.

Specifically, the interval from treatment to race was insufficient to assess the horse's response to treatment. Also, the pre-race examination findings were likely confounded by this treatment.

### **Inishmore 1/8/12 2nd Race**

- i. This filly<sup>7</sup> sustained a fatal injury in her 5th career start.
- ii. She made five starts in the preceding 12 months but no starts in the 30 days prior to the race in which she was injured.
- iii. Veterinary records indicate that she was treated with non-steroidal anti-inflammatory drugs (hereinafter "NSAIDs") prior to breezing, a practice that may have reduced the trainer's ability to accurately assess her condition and response to high speed exercise.
- iv. There was a noteworthy change in her clinical presentation in the pre-race examination for the race in which she was subsequently injured. While this finding alone would not warrant a recommendation to scratch from the race, it would justify additional pre-race scrutiny. From the examination records provided, it is not known if that occurred.
- v. She appeared to be traveling poorly from the time the gates opened.
- vi. She made all her starts in maiden special weight races.
- vii. The purse for the race was 41% higher than that for the corresponding race in the 2010-2011 meet.
- viii. The following risk factors were present:
  - 1) First start in the preceding nine months
  - 2) Older horse ( $\geq$  three yrs)
- ix. The intervals between her last five races were 23, 16, 14, and 35 days respectively.
- x. No blood or urine samples were collected from this horse.
- xi. The absence of a complete necropsy precludes an understanding of Inishmore's musculoskeletal health.

*Conclusion:* A review of the race video indicated that Inishmore appeared to be traveling poorly from the start of the race and pre-race examination findings indicated a noteworthy change in this horse's clinical presentation for the race in which she was subsequently injured. A follow-up interview with the jockey indicated that he recognized that the filly was unsound in the post parade, but did not report it to a racing official to initiate a scratch for fear of economic reprisal (manifested as lost riding opportunities from trainers). Despite his reservations about Inishmore's soundness, the jockey rode her competitively during the race. The Task Force is troubled that a jockey persevered on a horse he believed to be unsound, risking himself and others on the racetrack. Based upon the information provided, the Task Force believes that this represented a missed opportunity to prevent this injury.

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<sup>2</sup> A filly is a female horse less than five years of age.

### **Mannington 1/12/12 6th Race**

- i. This gelding sustained a fatal injury in his 48th career start.
- ii. He made nine starts in the preceding 12 months and one start in the 30 days prior to the race in which he was injured.
- iii. He was claimed twice in his career, once in the six months leading up to the final race.
- iv. The intervals between his last five races were 25, 65, 30, and 34 days respectively.
- v. The purse of the race in which he was injured was 1.3 times the claiming price (purse---to---claim ratio of 1.3)
- vi. There was a pre---existing medical condition of the front fetlocks.
- vii. The following risk factors were present:
  - 1) Numerous starts in the 1---6 month interval prior to the race
  - 2) No race starts in the preceding 15---30 days
  - 3) Racing at a distance of  $\leq 7$  furlongs
  - 4) Older horse ( $\geq$  three yrs)
- viii. Physical exam findings were within a range consistent with racing soundness. There were no substantive changes in his clinical presentation from previous starts.
- ix. No blood or urine samples were collected from this horse.
- x. The absence of a complete necropsy precludes an understanding of Mannington's musculoskeletal health.

Conclusion: Although there was a pre---existing medical condition in this horse, the Task Force does not have enough information to comment on its significance or potential relevance to the horse's injury. It is not clear from the information available that there was an opportunity to prevent this injury.

### **Scorper 1/14/12 4th Race**

- i. This gelding sustained a fatal injury in his 28th career start.
- ii. He made nine starts in the preceding 12 months and one start in the 30 days prior to the race in which he was injured.
- iii. He was claimed three times in his career, but raced for the same connections for more than six months prior to the race in which he was injured.
- iv. The intervals between his last five races were 35, 30, 28, and 28 days respectively.
- v. The purse of the race in which he was injured was 3.6 times the claiming price (purse---to---claim ratio of 3.6)
- vi. The following risk factors were present:

- 1) Numerous starts in the 1--6 month interval prior to the race
- 2) Racing at a distance  $\leq 7$  furlongs
- 3) Racing for a claiming price  $\leq \$25,000$
- 4) Older horse ( $\geq$  three yrs)
  - vii. There was a pre--existing medical condition in the front fetlocks.
  - viii. There was a noteworthy change in the horse's pre--race examination for the race in which he was subsequently injured. While this change alone would not necessarily warrant a scratch, it would justify additional pre--race scrutiny. From the information provided, it is not known if this occurred.
  - ix. No blood or urine samples were collected from this horse.
  - x. The absence of a complete necropsy precludes an understanding of Scorper's musculoskeletal health.

*Conclusion:* Although there was a pre--existing medical condition, the Task Force does not have enough information to comment on its significance or potential relevance to the injury. It is not clear from the information available that there was an opportunity to prevent this injury. In the opinion of the Task Force, the disproportionate purse for this race may have influenced the management of this horse.

### **Afleet Sue 1/15/12 9th Race**

- i. This filly sustained a fatal injury in her first career start.
- ii. She did not race as a 2--year--old<sup>8</sup>.
- iii. The purse for the race was 31% higher than for the corresponding race in the 2010--2011 meet.
- iv. The following risk factors were present:
  - 1) First start in preceding nine months
  - 2) Racing for a claiming price  $\leq \$25,000$
  - 3) Racing at a distance  $\leq$  seven furlongs
  - 4) First start made at 3yrs of age or older
  - 5) Older horse ( $\geq$  three yrs)

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<sup>3</sup> It is frequently asserted that not racing a horse as a 2--year--old is protective against injury by allowing the horse to "mature" before it races. Numerous scientific studies unequivocally demonstrate the opposite to be true. Horses that raced as 2--year--olds were more likely to perform better than those that did not (More, 1999). Moderate exercise used in race preparation resulted in increased cannon bone density in trained horses when compared to untrained horses (Boyde, 2005). Finally, horses that raced as 2--year--olds: 1) had significantly more race starts than those first raced as 3--year--olds or older; 2) had significantly more years of racing; 3) were more likely to have won or been placed in a race; and, 4) had greater total earnings than those that first raced at a later age (Tanner, 2012).

The horse's 2--year--old year represents a critical "window" for bone remodeling to occur. During this interval, the horse must be trained with exercise of sufficient intensity and duration to stimulate healthy bone conditioning without causing a fracture. However, it is important to remember that each horse is an individual and training programs must be customized to the athletic potential and relative maturity of each horse.

- v. She had a pre-existing medical condition in her front fetlocks.
- vi. Joints were injected IA with corticosteroids two weeks before the race.
- vii. The IA injections were not reported to the Stewards as required by NYSRWB Rule 4043.2 (i).
- viii. While pre-race physical exam findings are within the range consistent with racing soundness, one would anticipate a first time starter to have 'cleaner' legs than described in this record.
- ix. Blood was collected and analyzed. No urine sample was collected. There were no reported overages of therapeutic medications and no prohibited substances detected, based upon the limited screening the testing laboratory was able to perform on the blood sample.
- x. The absence of a complete necropsy precludes an understanding of Afleet Sue's musculoskeletal health.

Conclusion: Although there was a pre-existing medical condition in this horse that required medical intervention two weeks prior to her only start, the Task Force does not have enough information to comment on its significance or potential relevance to the horse's injury. Based upon the information provided, The Task Force cannot conclude that an opportunity was missed to prevent this injury.

#### **Raw Moon 1/15/12 9th Race**

- i. This filly was an anomaly. She did not sustain an orthopedic injury.
- ii. She had one start in the preceding 12 months and this was within 30 days of the race following which she died.
- iii. The interval between her races was 28 days.
- iv. This filly was reported to be healthy with no history of medical or musculoskeletal problems
- v. Both starts were made in Maiden Special Weight races.
- vi. The purse for the race was 31% higher than that for the corresponding race in the 2010-2011 meet.
- vii. The following risk factors were present:
  - 1) First start in the preceding nine months
  - 2) Racing at a distance of  $\leq$  seven furlongs
  - 3) Older horse ( $\geq$  three yrs.)
- viii. Physical exam findings were within a range consistent with racing soundness. There was no substantive change in the horse's clinical presentation from her previous start.
- ix. No blood or urine samples were collected from this horse.
- x. The absence of a complete necropsy precludes an understanding of the filly's musculoskeletal health or her cause of death.

Conclusion: This case was an anomaly in that Raw Moon did not sustain a musculoskeletal injury. In the absence of a complete necropsy, it is not possible to determine the cause of death. It is not clear from the information available that there was an opportunity to prevent this fatality.

## **Fortydeuce 2/2/12 5th Race**

- i. This intact male horse sustained a fatal injury in his 5th career start.
- ii. He made four starts in the preceding 12 months and one start within 30 days of the race in which he was injured.
- iii. He was never claimed and was trained by the same trainer his whole career.
- iv. The intervals between his last five races were 40, 83, 48, and 21 days respectively.
- v. The purse of the race in which he was injured was 2.1 times the claiming price (purse---to---claim ratio of 2.1) and reflected a 63% increase compared to the corresponding race during the 2010---2011 meet.
- vi. The following risk factors were present:
  - 1) First start in the preceding nine months
  - 2) Racing for a claiming price  $\leq$  \$25,000
  - 3) Intact male horse
  - 4) Older horse ( $\geq$  three yrs)
- vii. According to the trainer, this horse had a pre---existing hind limb gait abnormality and back pain.
- viii. This horse had evidence of inflammation in both carpi (one of which was associated with the fatal injury)
- ix. Pre---race physical exam findings were within a range consistent with racing soundness. No substantive change was noted in the horse's clinical presentation from previous starts.
- x. He appeared to be traveling poorly from the time the gates opened.
- xi. Blood was collected and analyzed. No urine sample was collected. There were no reported overages of therapeutic medications and no prohibited substances were detected, based upon the limited screening the testing laboratory was able to perform on the blood sample.
- xii. The absence of a complete necropsy precludes an understanding of Fortydeuce's musculoskeletal health.

Conclusion: In a review of the race video, it appeared that the horse was traveling poorly from the start. Although the rider did not acknowledge reservations about this horse's soundness, he appeared to be riding very cautiously. After finishing a credible second in his last race for \$20,000, he was dropped in class to \$12,500. The trainer's decision to enter the horse at this lower level suggested a lack of confidence in his horse's durability and a disinclination to commit to this horse long---term. The Task Force that the connections' intentions were to lose Forty Deuce in the claiming box sooner believes rather than later. Based upon the information provided, The Task Force believes that an opportunity may have been missed to prevent this injury. Specifically, this horse should not have raced.



### **Sheeds Paisley 2/3/12 9th Race**

- i. This filly sustained a fatal injury in her 4th career start.
- ii. She made three starts in the preceding 12 months and two starts in the 30 days prior to the race in which she was injured.
- iii. She made her first start late in her three year old year.
- iv. She was never claimed and was trained by the same trainer for her entire career.
- v. She routinely trained on medications in the month prior to her injury that may have reduced the ability of the trainer to accurately assess her condition and her response to high---speed exercise.
- vi. The intervals between her last four races were 31, 9, and 12 days respectively.
- vii. The purse value was twice the claiming price for which this horse was entered (purse---to---claim ratio: 2.0).
- viii. The following risk factors were present:
  - 1) First start in the preceding nine months
  - 2) Racing for a claiming price  $\leq$  \$25,000
  - 3) First start made at three years of age or older
  - 4) Older horse ( $\geq$  three yrs)
- ix. Physical exam findings were within a range consistent with racing soundness. There was no substantive change in the horse's clinical presentation from previous starts.
- x. No blood or urine samples were collected from this horse.
- xi. The absence of a complete necropsy precludes an understanding of the horse's musculoskeletal health.

Conclusion: This filly was trained by a well---intentioned trainer who was unaware of management practices identified as having a protective effect against orthopedic injury. Believing it in her best interest, he elected not to race this filly until she was almost four years old, which, in fact, likely increased her risk of catastrophic musculoskeletal injury. She trained on medication in the month prior to injury. This practice may have reduced the ability of the trainer to accurately assess the condition of his horse and her response to high---speed exercise. Based upon the information provided, The Task Force believes that these circumstances represented missed opportunities that could have possibly prevented this injury.

### **Skorton 2/5/12 4th Race**

- i. This gelding sustained a fatal injury in his 10th career start.
- ii. He made nine starts in the preceding 12 months; and none of these starts occurred within 30 days of the race in which he was injured.
- iii. He was never claimed and was trained by same trainer for his entire career.
- iv. The intervals between his last five races were 14, 19, 15, and 35 days respectively.
- v. The following risk factors were present:

- 1) Numerous starts in the 1--6 month interval prior to the race
- 2) First start in the preceding nine months
- 3) Racing at a distance  $\leq$  seven furlongs
- 4) Racing for a claiming price  $\leq$  \$25,000
- 5) Older horse ( $\geq$  three yrs)
- vi. The purse value was 1.8 times the claiming price for this horse (purse to claim price ratio of 1.8).
- vii. He trained on medications that may have reduced the ability of the trainer to accurately assess the condition of the horse and his response to high--speed exercise.
- viii. Pre--race exam findings record a change in the horse's clinical presentation for the race in which he was injured. While this finding alone would not necessarily warrant a scratch, it would justify additional pre--race scrutiny.
- ix. He appeared to travel poorly from the start of the race and sustained his injury after running less than  $\frac{1}{4}$  mile.
- x. No blood or urine samples were collected from this horse.
- xi. The absence of a complete necropsy precludes an understanding of Skorton's musculoskeletal health.

Conclusion: A review of the race video indicated that Skorton broke well from the gate, but appeared unsound early in the race, well before he was under racing pressure or urging. He trained on medication in the month prior to injury. This practice may have reduced the ability of the trainer to accurately assess the condition of his horse or the horse's response to high--speed exercise. The Task Force believes, from the information available and its review of the race replay that the horse's soundness was suspect because he appeared unsound early in the race and before he was placed under stress. Skorton should not have participated in the race.

### **Unruly Storm 2/17/12 5th Race**

- i. This mare<sup>9</sup> was an anomaly. She experienced a racing accident, not a musculoskeletal failure.
- ii. She sustained a laceration to her left front leg that subsequently became infected. She was euthanized at a referral hospital as a result of this infection.
- iii. This horse's injury was sustained in her 31st career start and in her first race since being claimed by the current trainer. She was claimed three times during her racing career.
- iv. This horse made 17 starts in the preceding 12 months, none of which were within 30 days of the race in which she was injured.
- v. The intervals between her last five races were 11, 13, 11, and 32 days respectively.

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<sup>4</sup> A mare is a female horse five years of age or older.

- vi. The purse value was three times her claiming price (purse to claim price ratio of 3.0).
- vii. The following risk factors were present:
  - 1) Racing at a distance  $\leq$  seven furlongs
  - 2) Racing for a claiming price  $\leq$  \$25, 000
  - 3) Older horse ( $\geq$  three yrs)
- viii. Physical exam findings were within a range consistent with racing soundness. There was no substantive change in her clinical presentation from previous starts.
- ix. No blood or urine samples were collected from this horse.
- x. The absence of a complete necropsy precludes an understanding of Unruly Storm's musculoskeletal health.

Conclusion: Unruly Storm experienced a racing accident and not a musculoskeletal failure. Based on the information available, the Task Force does not believe that there was an opportunity to prevent this injury.

### **Coronado Heights 2/25/12 10th Race**

- i. This gelding sustained a fatal injury in his 3rd career start.
- ii. He made two starts in the preceding 12 months, one of which was made within 30 days of the race in which he was injured.
- iii. The intervals between his three lifetime races were 21 and 23 days respectively.
- iv. He was never claimed and raced for the same trainer throughout his brief racing career.
- v. He made his first start in January of his four---year---old year.
- vi. There were substantial gaps in his published preparatory works in the fall of 2011.
- vii. The trainer reported that the pre---race medication program for this horse was standard practice for all of the horses in his stable.
- viii. The purse value was 3.3 times his claiming price (purse to claim price ratio of 3.3).
- ix. The following risk factors were present:
  - 1) No starts in preceding 15---30 days
  - 2) First start in the previous nine months
  - 3) Racing at a distance  $\leq$  seven furlongs
  - 4) Racing for a claiming price  $\leq$  \$25,000
  - 5) First start made at three years of age or older
  - 6) Older horse ( $\geq$  three years)
- x. His stifles received an IA injection of hyaluronic acid and Depo---Medrol®, five days before the race.
- xi. This treatment was not reported to the Stewards as required by NYSRWB Rule 4043.2(i).

- xii. This horse was routinely treated pre-race with two NSAIDs, as well as Legend® and Adequan®<sup>10</sup>. These latter two therapeutic medications are commonly used to protect the joints of horses. The concurrent administration of NSAIDs is controversial because of potentially harmful side effects.
- xiii. Pre-race examination findings indicated a subtle gait abnormality noted consistently over time.
- xiv. He sustained his injury early in the race, after running approximately one furlong.
- xv. No blood or urine samples were collected from this horse.
- xvi. The absence of a complete necropsy precludes an understanding of Coronado Heights' musculoskeletal health.

Conclusion: The trainer reported that there were a number of minor problems that kept this horse from racing until his 4-year-old year. However, because he sustained his injury early in the race, the Task Force believes this horse's musculoskeletal system was suspect prior to the race. The aggressive pre-race medication protocol in the days leading up to his final race may have masked clinical signs of lameness and confounded the pre-race examination. Based upon the information provided, The Task Force believes this medication practice may have represented a missed opportunity to prevent this injury.

### **Tiz a Lil Meatball 2/26/12 3rd Race**

- i. This gelding sustained a fatal injury in his 8th career start.
- ii. He made seven starts in his racing career, but none within 30 days of the race in which he was injured.
- iii. He was claimed twice in his racing career, once at 30 days prior to the race in which he was injured.
- iv. He sustained his fatal injury in his first start after being claimed. It is unlikely that the trainer was aware of any medical treatments that may have occurred prior to his claiming the horse. This may have compromised the trainer's ability to make informed decisions with regard to medication administrations.
- v. His stifles and hocks were treated with IA corticosteroid injections after the claim.
- vi. This treatment was not reported to the Stewards as required by NYSRWB Rule 4043.2 (i)
- vii. The intervals between his last five races were 27, 27, 28, and 30 days respectively.
- viii. The purse value was 1.9 times his claiming price (purse-to-claim ratio of 1.9).
- ix. The following risk factors were present:

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<sup>10</sup>Legend® is a form of hyaluronic acid, a normal constituent of joint fluid. Adequan® is a form of glycosaminoglycan, a normal constituent of articular cartilage. Both of these medications promote joint health and were administered in accordance with NYSRWB Rule 4038.5, which prohibits administration of these medications within 48 hours of racing.

- 1) Numerous starts in the one---six month interval prior to the race
- 2) No starts in the last 15---30 days
- 3) First start in the preceding nine months
- 4) Racing at a distance of  $\leq$  seven furlongs
- 5) Racing for a claiming price  $\leq$  \$25,000
- 6) Presence of a suspensory ligament abnormality
- 7) Older horse ( $\geq$  three yrs)
  - x. Physical exam findings, including a gait abnormality, were consistent over time.
  - xi. Blood was collected and analyzed. No urine sample was collected. There were no reported overages of therapeutic medications and no prohibited substances detected, based upon the limited screening the testing laboratory was able to perform on the blood sample.
  - xii. The absence of a complete necropsy precludes an understanding of Tiz a Lil Meatball's musculoskeletal health.

Conclusion: Even in the presence of multiple risk factors, the pre---race examination was unremarkable and a reasonable determination of racing soundness was made. Tiz a Lil Meatball was claimed one month prior to his last race. The claiming trainer had no knowledge of the horse's medical treatment history, if any, prior to the claim. Based on the information available, the Task Force is not able to speculate on the cause of Tiz a Lil Meatball's injury nor is it clear that there was an opportunity to prevent this fatality.

### **Bernie's Love 3/2/12 2nd Race**

- i. This colt sustained a fatal injury in his 4th career start.
- ii. He made three starts in the preceding 12 months, one of which occurred within 30 days of the race in which he was injured.
- iii. He made his first start in December of his three---year---old year.
- iv. He made all of his starts in maiden special weight races, and never started for a claiming price.
- v. The purse for the race was 43% higher than that for the corresponding race in the 2010---2011 meet.
- vi. The intervals between his races were 22, 29 and 27 days respectively.
- vii. The following risk factors were present:
  - 1) No starts in the previous 15---30 days
  - 2) First start in the preceding nine months
  - 3) Racing at a distance  $\leq$  seven furlongs
  - 4) Racing for a claiming price  $\leq$  \$25,000
  - 5) Intact male horse
  - 6) First start made at three years of age or older
  - 7) Older horse ( $\geq$  three yrs)

- viii. Pre-race exam findings record a minor change in the horse's clinical presentation for the race in which he was injured. While this finding alone would not necessarily warrant a scratch, it would justify additional pre-race scrutiny.
- ix. No blood or urine samples were collected from this horse.
- x. The absence of a complete necropsy precludes an understanding of Bernie's Love's musculoskeletal health.

Conclusion: The Task Force does not have enough information to speculate on the cause of Bernie's Love's fatal injury, nor could it conclude that an opportunity may have been missed to prevent this injury. Although there was a minor change in this horse's condition noted during the pre race examination, the Task Force does not have enough information to comment on its significance or potential relevance to the injury. It is not clear from the information available that there was an opportunity to prevent this injury,

### **Wes Vegas 3/3/12 2nd Race**

- i. This gelding sustained an injury in his 1st career start.
- ii. Treatment records indicate he received NSAIDs prior to and after high-speed exercise. This practice may have reduced the trainer's ability to accurately assess this horse's condition and response to high-speed exercise.
- iii. The purse value was 2.6 times his claiming price (purse-to-claim ratio of 2.6).
- iv. The following risk factors were present:
  - 1) First start in the preceding nine months
  - 2) No starts in the previous 15 to 30 days
  - 3) Racing at a distance  $\leq$  seven furlongs
  - 4) Racing for a claiming price  $\leq$  \$25,000
  - 5) First start made at three years of age or older
  - 6) Older horse ( $\geq$  three yrs)
- v. While physical exam findings were within the range consistent with racing soundness, one would anticipate a first-time starter to have 'cleaner' legs than described in this record.
- vi. Blood was collected and analyzed. No urine sample was collected. There were no reported overages of therapeutic medications and no prohibited substances were detected, based upon the limited screening the testing laboratory was able to perform on the blood sample.
- vii. The absence of a complete necropsy precludes an understanding of Wes Vegas' musculoskeletal health.

Conclusion: A review of the race video indicated that the jockey was riding confidently and Wes Vegas appeared to be travelling normally until the moment he sustained his injury. This horse was treated with NSAIDs both before and after breezing. This medication protocol caused the Task Force to question the horse's soundness leading up to the race. Further, this aggressive medication protocol in

the month prior to injury may have reduced the ability of the trainer to accurately assess the condition of this horse. Based upon the information provided, The Task Force believes this medication practice may have represented a missed opportunity to prevent this injury.

### **Almighty Silver 3/4/12 3rd Race**

- i. This gelding sustained a fatal injury in his 44th career start.
- ii. He made 12 starts in the preceding 12 months, but did not start within 30 days of the race in which he was injured.
- iii. He was claimed five times during his racing career. He was claimed three times in the three months leading up to his final race.
- iv. The intervals between his last five races were 13, 35, 8, and 45 days respectively.  
The trainer reported the horse was in poor condition when claimed and it took seven weeks to return him to good health.
- v. The purse value was 5.3 times his claiming price (purse---to---claim ratio of 5.3).
- vi. Four IA injections were performed five days prior to the race. This treatment was not reported to the Stewards as required by NYSRWB Rule 4043.2 (i).
- vii. The following risk factors were present:
  - 1) Numerous starts in the one & six month interval
  - 2) No starts in the previous 15---30 days
  - 3) Racing for a claiming price  $\leq$  \$25,000
  - 4) Older horse ( $\geq$  three yrs)
- viii. Pre---race physical exam findings were within a range consistent with racing soundness. There was no substantive change in the horse's clinical presentation from previous starts.
- ix. Blood was collected and analyzed. No urine sample was collected. There were no reported overages of therapeutic medications and no prohibited substances were detected, based upon the limited screening the testing laboratory was able to perform on the blood sample.
- x. The absence of a complete necropsy precludes an understanding of Almighty Silver's musculoskeletal health.

Conclusion: Almighty Silver was claimed three times in the three months leading up to his final race. The lack of transfer of medical history became increasingly problematic with each claim. While in some cases the Task Force noted that the augmented purse might have incentivized poor decisions, in this case the availability of augmented purses may have created a situation in which the trainer could afford to invest seven weeks of care and training in a lower level claiming horse before running him back. The use of NSAID's in training may have confounded an accurate assessment of his soundness. Based upon the information provided, it is the opinion of the Task Force that the physical condition of Almighty Silver, requiring therapeutic intervention five days prior to racing, raises the question whether this horse should have raced. It is likely that an opportunity may have been missed to prevent this injury. Specifically, the

interval from treatment to race was insufficient to assess the horse's response to treatment. Also, this treatment may have confounded the pre--race examination.

### **Big Polka Dot 3/2/12 3rd Race**

- i. This gelding sustained a fatal injury in his 23rd career start.
- ii. He made 13 starts in the preceding 12 months, one of which was in the 30 days prior to the race in which he was injured.
- iii. He was claimed three times during his racing career, but not within six months of his last race.
- iv. The intervals between his last five races were 22, 63, 7, and 30 days respectively.
- v. The purse value was 5.3 times his claiming price (purse--to--claim ratio of 5.3).
- vi. The following risk factors were present:
  - 1) Numerous starts in the 1--6 month interval prior to the race
  - 2) Racing for a claiming price  $\leq$  \$25,000
  - 3) Older horse ( $\geq$  three yrs)
- vii. He received two DepoMedrol® (methylprednisolone acetate) IA injections in the 30 days prior to the race in which he was injured. These treatments were not reported to the Stewards as required by NYSRWB Rule 4043.2(i). Additionally, he received orally administered corticosteroids for four days preceding the race.
- viii. Physical exam findings were within a range consistent with racing soundness. There was no substantive change in his clinical presentation from previous starts. However, the administration of corticosteroids may have compromised the NYRA veterinarian's ability to accurately assess his soundness.
- ix. No blood or urine samples were collected from this horse.
- x. The absence of a complete necropsy precludes an understanding of Big Polka Dot's musculoskeletal health.

Conclusion: The Task Force questions the musculoskeletal soundness of Big Polka Dot prior to entry in his last race. The repeated administrations of long--acting corticosteroids likely confounded the pre--race examination. The protocol of multiple intra--articular injections in a brief time frame is understood to be a technique used to keep an unsound horse functional rather than a judicious therapeutic administration to facilitate recovery from injury. Based upon the information provided, The Task Force believes that this medication protocol represented an opportunity that was missed to prevent this injury.

### **Hubbard 3/8/12 8th Race**

- i. This gelding sustained a fatal injury in his 41st career start.
- ii. He made 10 starts in the preceding 12 months; one start occurred within 30 days of the race in which he was injured.
- iii. At the instruction of the owner, he received no pre--race medication.



- iv. The trainer reported that this horse had a ‘funny way of going’, but gave no indication the horse had undergone a soundness evaluation by a veterinarian.
- v. He was not claimed during his racing career.
- vi. The intervals between his last five races were 14, 11, 26, and 19 days respectively.
- vii. The purse value was 2.3 times his claiming price (purse---to---claim ratio of 2.3).
- viii. The following risk factors were present:
  - 1) Numerous starts in the 1---6 month interval prior to the race
  - 2) No starts in the preceding 15---30 days
  - 3) Racing for a claiming price  $\leq$  \$25,000
  - 4) Older horse ( $\geq$  three yrs.)
- ix. Pre---race exam findings recorded a minor change in his clinical presentation for the race in which he was injured. While this finding alone would not necessarily warrant a scratch, it would justify additional scrutiny.
- x. No blood or urine samples were collected from this horse.
- xi. The absence of a complete necropsy precludes an understanding of Hubbard’s musculoskeletal health.

Conclusion: While Hubbard was participating in claiming races, it did not appear to the Task Force that there was any desire on the part of the horse’s connections for this horse to be claimed. With the limited information available, including a lack of a complete necropsy, the Task Force has no opinion as to the cause of Hubbard’s injury nor could the Task Force conclude that an opportunity may have been missed to prevent this injury.

### **Hillsboro Bay 3/14/12 9th Race**

- i. This filly sustained a fatal injury in her 9th career start.
- ii. She made seven starts in the preceding 12 months, but did not start within 30 days of the race in which she was injured.
- iii. She was claimed twice in her racing career, once in the six months leading up to her final race.
- iv. The intervals between her last five races were 17, 23, 30, and 42 days respectively.
- v. The purse value was 2.2 times her claiming price (purse---to---claim ratio of 2.2).
- vi. The following risk factors were present:
  - 1) Numerous starts in the 1---6 month interval prior to the race
  - 2) Racing at a distance  $\leq$  seven furlongs
  - 3) Racing for a claiming price  $\leq$  \$25,000
  - 4) Older horse ( $\geq$  three yrs)
- vii. The medications Banamine® (flunixin) and compounded naquasone (trichlormethiazide and dexamethasone) were dispensed to the trainer two weeks prior to the last race. Medical records did not provide justification or identify the condition requiring such treatment.

- viii. Physical exam findings were within a range consistent with racing soundness. No substantive change in this filly's clinical presentation from previous starts was noted.
- ix. Blood was collected and analyzed. No urine sample was collected. There were no reported overages of therapeutic medications and no prohibited substances were detected, based upon the limited screening the testing laboratory was able to perform on the blood sample.
- x. The absence of a complete necropsy precludes an understanding of Hillsboro Bay's musculoskeletal health.

*Conclusion:* Based on the information available, the Task Force has no opinion as to the cause of Hillsboro's Bay's injury, nor could the Task Force conclude that there was a missed opportunity to prevent this injury.

### **Deferred Risk 3/17/12 7th Race**

- i. This filly sustained a fatal injury in her 1st career start.
- ii. The purse value was 1.4 times her claiming price (purse---to---claim ratio of 1.4).
- iii. The following risk factors were present:
  - 1) No starts in the preceding 15---30 days
  - 2) First start in nine months
  - 3) Racing at a distance  $\leq$  seven furlongs
  - 4) Racing for a claiming price  $\leq$  \$25,000
  - 5) Older horse ( $\geq$  three yrs.)
- iv. Pre---race physical exam findings were within a range consistent with racing soundness.
- v. The jockey felt that this filly was unsound during the warm---up.
- vi. No blood and urine samples were collected from this filly.
- vii. The absence of a complete necropsy precludes an understanding of this Deferred Risk's musculoskeletal health.

*Conclusion:* Despite the fact that the jockey indicated Deferred Risk was unsound during warm---up, he did not approach a racing official to initiate a scratch for fear of economic reprisal (manifested as lost riding opportunities from trainers). Nonetheless, the jockey rode her competitively during the race. The Task Force is troubled that a jockey persevered on a horse he believed to be unsound, risking himself and others on the racetrack. Based upon the information provided, the Task Force believes that an opportunity to prevent this injury may have been missed.

### **Smartie Bobbi 3/18/12 7th Race**

- i. This filly was fatally injured in her 19th career start.

- ii. She raced 10 times in the past 12 months, one of which was within 30 days of her final race.
- iii. She was claimed twice during her racing career, but not in the six months leading up to her final race.
- iv. The intervals between her last five races were 16, 168, 14, and 21 days respectively.
- v. The purse value was 3.6 times her claiming price (purse---to---claim price ratio of 3.6).
- vi. The following risk factors were present:
  - 1) Racing at a distance  $\leq$  seven furlongs
  - 2) Racing in claiming races  $\leq$ \$25,000
  - 3) Older horse ( $\geq$  three yrs)
- vii. Pre---race exam findings record a change in this filly's clinical presentation for the race in which she was injured. While this finding alone would not necessarily warrant a scratch, it would justify additional scrutiny.
- viii. Blood was collected and analyzed. No urine sample was collected. There were no reported overages of therapeutic medications and no prohibited substances were detected, based upon the limited screening the testing laboratory was able to perform on the blood sample.
- ix. The absence of a complete necropsy precludes an understanding of Smartie Bobbi's musculoskeletal health.

Conclusion: With the limited information available, including the lack of a complete necropsy, the Task Force has no opinion as to the cause of Smartie Bobbi's injury. However, the change in clinical presentation noted during the pre-race examination is suggestive of a pre-existing condition