
Perceptions of Synthetic

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Purpose

The purpose of this project is to communicate the perceptions, both positive and negative of the trainers, veterinarians and jockeys that have been working day in and day out with the new synthetic surfaces. My goal of the following data collection and analysis is to evoke more investigation into the actual issues, both direct and indirect of this synthetic surface phenomenon.

Introduction

“Thank God for this polytrack” says a local trainer on the way into his barn at the Keenland Racecourse at 4:30am in the pouring rain, “I’ll still be able to breeze my stakes filly on a perfect track.” Later on that day, “God damn this polytrack” says a veteran jockey while in the sweatbox suffering from yet another nosebleed.

The recent craze of synthetic surface installation across the country has happened so quickly that it is hard to keep up with. What began in the 1990’s as Polytrack in various training centers in England has now taken our North American racing industry by storm. In 2001, Lingfield Racetrack in England opened for winter racing with a Polytrack surface. Synthetic surfaces jumped onto the American scene when Keenland Racecourse installed Polytrack on their training track. After a quick trial, racetracks started quickly jumping on board. Now synthetic surfaces are installed at Del Mar, Santa Anita, Hollywood, Arlington, Turfway, Keenland, Woodbine and Presque Isle.

The California Horse Racing Board passed a motion that will force a radical change in racing. The board declared that all major tracks in the state must install a synthetic surface by December 31, 2007 or else they will have their racing licenses revoked. Instead of running on the dirt which Seabiscuit, Affirmed and Spectacular Bid competed, the thoroughbreds will be racing over a surface consisting of polypropylene fibers, rubber and silica sand in a wax coating.

The objective of the switch to synthetic surfaces is very simple, to increase safety of horse and rider. Many jockeys and trainers like the surfaces because they believe it is easier on horses than conventional dirt tracks. The synthetic surfaces are resilient to weather changes, which while using a conventional dirt surface, have caused numerous missed days of training and racing. Because it operates in the winter, Turfway Park has always been plagued by weather related problems. Mr. Elliston of Turfway Park said, “Since we have had Polytrack, we have had three catastrophic breakdowns, in the comparable period last year, we had 16.” This is the mission of synthetic surfaces, to decrease tragedy.

Now that horsemen and management have had some time to get used to these new surfaces, there is a real need for more research to be done on their actual direct and indirect affects on the industry. This study was embarked upon in order to unearth the true feelings, ideas and perceptions of the horsemen that have been working with these new synthetic surfaces day after day. My hope is that the leaders of the racing industry will view this data and realize the need for more research when making decisions regarding existing and future synthetic surface ventures.

Data Gathering Techniques

This senior capstone project began with my idea of gathering true impressions from horsemen regarding the synthetic surfaces that they are currently working with. I knew however, that a lot of professionals would not honestly discuss with me the pros and cons if they were putting themselves or their track at any risk. I assumed that I would have to get in contact with them personally, either by phone or in person to get true, honest answers to my surveys.

I began by contacting Racing Secretaries at the six racetracks that I selected to focus my data collection on. I requested a list of their trainers, jockeys and veterinarians from each track. The Racing Secretaries were very helpful and sent me their information. Each of the six tracks gave jockey agent contact information instead of jockey contact information, which I had expected.

Track F emailed me a trainer list, which I downloaded. It appeared that this was a list of every trainer to have ever run horses at the track, not just the current running trainers. I gave the Racing Secretary another call and he managed to email me the barn list. By comparing the barn list to the long trainer list previously given I was able to determine just exactly which trainers were utilizing Track F's facilities.

All of this contact information that I was collecting was intended to aid in my surveying. I had produced three separate surveys, one for trainers, one for veterinarians and one for jockeys. I revised the surveys numerous times to ensure the form and quality of the questions and would assure dependable responses. I intended to survey five jockeys, five veterinarians and ten trainers from each of the six tracks that I had selected.

When the contact lists were received I had to make the selection process completely random to once again ensure the equality of my study. I numbered each of the contacts on each separate list from each separate track. I then used Microsoft Excel to randomly generate numbers. The distribution, uniform method is characterized by upper and lower bounds. Variables are drawn with equal probability from all values in the given range. I wanted five jockeys and five veterinarians; I asked Excel for ten numbers for each category and then highlight those contacts. When I needed ten trainer contacts, I asked Excel for twenty random numbers. The reason I requested more random contacts

than I actually wanted to survey was because I forecasted difficulty making actual contact with only those selected five or ten people.

My projection became reality. Many hours on the phone leaving messages and arranging times to have phone meetings across different time zones began. I gave all sixty trainer, thirty-five veterinarian and thirty-five jockey surveys myself, over the phone, directly with the professionals.

I explained to them that I was in the University of Arizona Race Track Industry Program and that I was gathering data for my senior capstone project. The key to my lead off with every single individual that I spoke with was that this survey and this entire conversation would be one hundred percent anonymous and confidential. I told the professionals that their contact information was given to me by the Racing Secretary and will be shredded after our conversation.

I assured every volunteer that no names of either the track being discussed or their names will be mentioned anywhere in my project. I told them that the tracks would be labeled A-F, and the veterinarians and jockeys 1-5 and trainers 1-10 for their respective track. I also told them that if they wanted me to quote them in the project to let me know and together we can make sure it is a quote that he or she would be comfortable with.

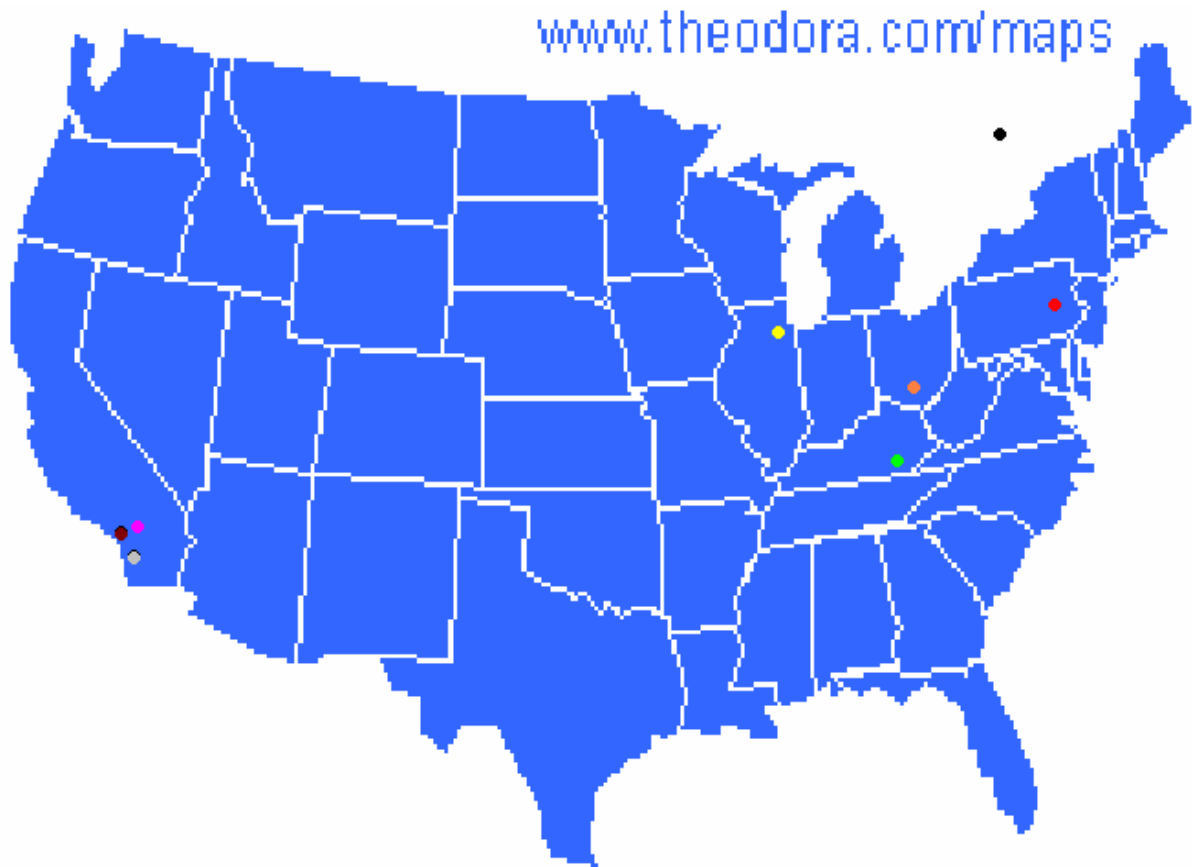
I believe that giving this disclaimer very clearly made this surveying process a valid one. I believe that I received good, honest, impartial information regarding synthetic surfaces. Many of the studies and comments that I have found through my research discussing synthetic surfaces seem to have an ulterior motive. Many individuals and businesses have a lot to lose and a lot to gain in the business of synthetic.

This will not be one of those projects. This project is titled "Perceptions of Synthetic." There are no biased opinions, uneven samples or concealed motives. It is to simply communicate the opinions of horsemen about the past, present and future issues that they distinguish in the racing industry since the advent of synthetic surfaces.

As you read through this project, I will be highlighting many of the interesting topics brought up by the trainers, veterinarians and jockeys regarding synthetic surfaces. The statistical analysis will be sectioned out by track. The actual surveys with the combined results listed are attached at the back of this project in the appendices. To increase clarity of my findings please refer back to the appendices for more detailed data.

Map

This map displays the locations of racetracks across North America that are currently utilizing synthetic surfaces for their race meets.



- Del Mar
- Hollywood Park
- Santa Anita
- Arlington Park
- Turfway Park
- Keenland Racecourse
- Presque Isle Downs
- Woodbine

Track A Trainer Statistical Data Analysis

The overall consensus of the newly installed synthetic surface at Track A was a positive one. Every trainer that I surveyed and spoke to agreed and told me that any change from the previous dirt track was a very good one. Trainer 2 actually said, “That dirt track was absolutely horrible and dangerous, I was afraid to really train on it.” This synthetic surface got great reviews.

One topic discussed with trainers was included in question #14 on the survey; as a trainer how have you been adapting to the change? The answers of course varied but one common theme was that they had to put more conditioning into their horses. The cardiovascular fitness was a lot more important at this race meet compared to previous meets at this track with a dirt surface. Trainer 8 mentioned that it took him more time with his young horses to get in shape because the surface was “dead” and “tiring.”

One issue that trainers at Track A encountered was matching to ability shown by their horses in the morning to the horse’s performance in the afternoon at race time. Many trainers mentioned that their horses seemed to really get over the synthetic well and then in the afternoon they would run terribly. Trainer 8 said, “It was very difficult to know if they really liked it until you would run them over it.”

In fact, many of the young horses at Track A that were not handling the surface well were dropped into lower level races. Trainer 6 told me of a common trend that began. Other trainers that run at dirt tracks were claiming horses bred specifically for dirt speed that weren’t running well at the meet and were dropped into claiming races. “There was a lot of value claiming two year olds off the synthetic and moving them to conventional dirt tracks” said Trainer 6.

The most noticed hind end injuries and problematic areas for the two year olds training over this synthetic surface were clearly muscle strains. Of the ten trainers surveyed, eight noted muscle issues as their main obstacle with their two year olds. This was an overwhelming consistency in opinion from the ten different trainers.

A pleasing collection of data from Track A’s trainers showed that they were seeing less general injuries. Question #11 in the survey asked if they have seen more or less general injuries on Track A’s new synthetic surface. The data shows that six trainers saw fewer injuries and four saw many less injuries. This is a fantastic sign that the switch to synthetic surface at Track A has been well appreciated and necessary.

Track A Veterinarian Statistical Data Analysis

Track A's switch to synthetic was viewed as a positive by all five veterinarians asked in question #14 in the survey. The issues regarding the tracks previous dirt surface was mentioned again with these professionals. Veterinarian 4 said, "they had to do something, that surface was hurting horses."

However, Veterinarian 4 was not all positive about the effects of the new surface. He was the only vet at Track A that answered yes to question #12; has there been any noticeable increase in respiratory problems since the switch to synthetic? He explained that he believes that there were more EIPH (exercise induced pulmonary hemorrhaging) cases recorded and treated within his practice at this meet.

There was no disagreement when the Veterinarians were asked if they had noticed if there had been an increase or decrease in catastrophic injuries since the switch to synthetic surface at Track A. All five veterinarians surveyed agreed that there had been a drastic decline in catastrophic injuries at this race meet using synthetic. Veterinarian 2 actually pointed out that in previous years there would be lines to use the tracks radiograph (x-ray) building. This year, he said there were hardly ever horses even utilizing the radiograph services. That is very positive feed back considering most catastrophic injuries and jockey accidents are due to bone fractures.

Track A Jockey Statistical Data Analysis

Of the five jockeys surveyed at Track A all but one answered that they felt much more safe riding over the tracks new synthetic surface. Jockey 3 explained that the surface slows the horses down. Whereas many people, including handicappers, see this as a negative, he felt the opposite. He explained that when the horses are slowed down there are less fatal injuries because “speed kills.” He also explained how the slower time actually makes the race much safer to ride for him because there is more time to make decisions on placement throughout the race. He said the holes close up a little more slowly and the horses cut in front of other horses more slowly, which allows for a greater reaction time from jockeys. Even though the time changes may seem insignificant, any extra time helps increase safety and makes him feel more confident as a rider.

When asked if Track A played fair to a front running style of horse, all five answered no. When asked if Track A played fair to stalkers and closers, all five answered yes. Jockey 2 said that Track A’s synthetic surface gave an incredible advantage to closers and that front runners had a near impossible chance of winning gate to wire.

In discussion regarding the synthetic surface changing from morning training to afternoon racing, four of the five said that it most definitely does change consistency. Jockey 5 explained that in the morning there is much more moisture in the air and the track was much tighter and faster. By the time the afternoon races began, the moisture had burnt off and it became very hot. The heat made the synthetic surface at Track A become much heavier and laboring for the horses to run over.

When asked if the jockeys had any respiratory or health problems increase since the switch to the synthetic surface there were three jockey’s that had not had any problems and two that had. The two jockeys that had noticed health issues complained of various different problems. Jockey 2 reacted to the new synthetic at Track A with an itchy face and throat after riding. He explained that the heat seems to radiate off of the surface making it very hard to breathe.

When the jockey’s were asked if they were concerned about the possibility of more serious health problems in the future due to riding over the synthetic surface, all but one said that they were very concerned.

Track B Trainer Statistical Data Analysis

The surveys taken of Track B's ten trainers displayed clear approval of the new synthetic surface. Some of the issues mentioned to me mirrored that of Track A. Some of the trainers mentioned that the conventional dirt surface that was being used before was so bad that any change was good. Eight of the trainers reported less general injuries since the switch to synthetic. Another exact parallel between Track A and Track B was that eight of the ten trainers described their main problems with their two year olds over the synthetic to be muscle strains.

Trainer 1 mentioned that he was an advocate for synthetic surfaces. He feels that they will continue to decrease injuries and increase field size. He mentioned that the overall fitness of the horse has become more important and that a well-conditioned horse is usually a more sound horse. Despite having to have his horses more conditioned, this trainer said that it takes him the same amount of time to prepare his two year olds to race over a synthetic surface. He explained by saying that with fewer injuries and no days of training canceled due to weather it makes up for the extra time needed to condition.

Trainers 3,5,6,8 and 9 all pointed out the same change to their training routine since the switch to synthetic. They feel that the gallops of their horses are more important now compared to before on the dirt. A long, brisk gallop is what they said really gets their horses in shape over Track B's surface. They have slowed down their horse's workout times and quickened and lengthened their gallops. Trainer 8 pointed out that a lot of the horses that win on this surface are "plodders" not real speed horses like preferred in the past over the synthetic surfaces.

The development of strong bones was discussed with Trainer 7. He explained that the process of bone development comes from stressing a horse's bone. On conventional dirt tracks a very common injury or problematic area for two year olds is shins. Sore shins happen because they are the last bones to stop growing in a horse. When they are pressured they begin to become painful, but the body reacts to increase calcium to make the damaged area grow back stronger. The concern of this trainer was that if the shins are not being stressed when training on synthetic are they becoming less dense?

Track B Veterinarian Statistical Data Analysis

In this survey of ten veterinarians working at Track B, there were four questions that all the professionals answered the same to, questions #4, #6, #10 and #12. Question #4 asked if there has been a significant increase or decrease of catastrophic injuries since the switch to synthetic. All veterinarians agreed that there were definitely less breakdowns. All five veterinarians agreed that the front end was more of a problematic area for both two year olds and older horses. All five answered that they had seen no increase in respiratory problems since Track A's switch to synthetic surface.

Question #6 garnered some very interesting results. All five veterinarians agreed that the tibia was the most injured area of two year olds in the hind end while training over track B's synthetic. This is very problematic for trainers, horses and vets. Veterinarian 7 explained that a tibia fracture is a very hard injury to diagnose. The placement of the bone will not allow a trainer to feel for heat or swelling like a normal injury would. Horses all handle different levels of pain in different ways, some can show hardly any sign of soreness until the bone completely fractures and then injury becomes very serious.

Veterinarian 3 explained how it has made the prognosis of a vet more difficult. Normally a fracture or any bone ailment can simply be x-rayed. The regular places for these skeletal areas are in the lower limbs of the horse and for \$80 vets can take radiographs of the area to determine the problem. However, with a tibia injury nobody is quit sure if it is in fact a tibia injury until the horse is taken into a clinic for bone scintigraphy or a nuclear scan. These procedures can become very costly, above \$1,000.

Veterinarian 7 told me instances of owners not wanting to spend the money on diagnostic testing for these hind end issues that they have been encountering. He mentioned that just because the horses are not breaking down and being hauled off the track does not mean that horses aren't retaining career ending injuries on the synthetic surface at Track B. He described how many tibia injuries do not become apparent until the horse walks out and cools down from a race or workout.

Track B Jockey Statistical Data Analysis

When the five jockeys from Track B were asked if they felt safer riding over the new synthetic surface, four said that they felt much safer and one said that he feels the same amount of safety is offered. Jockey 2 explained that accidents still do happen. He had been in a horrible spill just weeks prior to the survey. He said that he believes that the surface is safer, but that there will always be accidents.

When questioned about any possible track biases that Track B was showing there were different answers but one common comment. The five jockeys all said that the fairness to front runners, stalkers and closers all depends on what day of the week it is. They all agreed that the weekend surface was more of a speed favoring surface. During the week, closers and stalkers had better chances to win. None of them were quit sure of the exact reason for this change. Jockey 5 thought that it was due to the maintenance crew's practices. The racetracks day off is Monday, and the maintenance crew harrows the surface on these days, making it deeper.

All five jockeys did tell me that Track B was the best synthetic surface that they had ever ridden on. They did mention however, that this track in particular was much more easily manipulated. Whereas other synthetic surfaces remained constant and consistent, this track could be made different by maintenance crew procedures such as harrowing and adding water.

All of the jockeys surveyed from Track B said that they were very concerned about future health issues that may arise from them riding daily on the synthetic surface. However, only one had actually experienced any changes in their physical condition since the switch to synthetic. Jockey 2 mentioned the same issue mentioned from a Track A jockey, that the surface becomes very hot in the afternoon and there is some type of vapor rising up off of the surface that makes it difficult for him to breath during races.

Track C Trainer Statistical Data Analysis

The trainers surveyed at Track C had a variation of answers to the questions. There were no questions that trainers agreed upon. Many of the trainers did mention that this track was one of the more fair synthetic surfaces when considering track biases.

The trainers had some horses that did not like the synthetic surfaces at all. “Some like it and some don’t” said trainer 4. It seems as though the difference is much more obvious, such as a grass horse not liking the dirt. Two trainers saw more general injuries with their horses since Track C’s switch to synthetic. Trainer 3 was very adamant about his concern about the new surface. He described his problems to be “a lot of little things” and issues that were hard to diagnose.

He depicted one instance when a two ear old returned from an easy half- mile work with some filling and heat in a front left suspensory area. He had been training for 25 years and had seen this before. However, when the veterinarian scanned the ligament nothing had stretched or torn to the trainer’s disbelief. The problem area continued to have the symptoms of a torn suspensory ligament for many days. Eventually the problem came down and the filly returned to the track after six days of walking. Trainer 3 explained that the difference between synthetic and dirt is that with dirt you know what to expect, how to diagnose, how to treat and how to adjust your training schedules, whereas with synthetic, trainers are seeing new problems with unknown treatments for them. Trainer 3 said, “there’s nothing like seeing a good old sore shin on a baby, I see soft tissue inflamed and I want to have a heart attack.”

As with many of the other tracks analyzed, Track C’s trainers listed suspensory ligament problems as the most predominant in both their young and older horses’ front ends.

Track C Veterinarian Statistical Data Analysis

While surveying the veterinarians from Track C, once again all five agreed that the number of catastrophic injuries had decreased since the installation of the synthetic surface. Also all five veterinarians agreed that they had seen a significant increase in soft tissue injuries since the switch.

What seemed unique about Track C's survey results was in question #12; has there been any noticeable increase in respiratory problems since the change to synthetic? Three Veterinarians answered no, whereas two answered yes. Veterinarian 2 noticed an increase in lung infections. Lung infections are common with racehorses, but this professional noticed that they were much harder to cure. He believed that some horses might have actually been allergic to some part of the surface because they would just never pull out of their pulmonary infections.

Veterinarian 5 noticed more EIPH also. He mentioned that while scoping a horse after a race he could actually see the fibers and silica sand stuck to the tube while pulling it out. He declared that this might soon become a bigger problem than people had originally thought. Horses and jockeys both inhale surface throughout a race. The difference with the synthetic surfaces is that horses and jockeys bodies can not simply absorb the fibers, rubbers and wax coated sand the same way that they can dirt.

The overall consensus at Track C was that even though catastrophic injuries are down, there is the same amount of injuries, just different types. These vets all mentioned a high amount of body soreness, suspensory ligaments and tendon injuries.

Track C Jockey Statistical Data Analysis

When the five jockeys from Track C were asked if the new synthetic surface ever changes from race to race or from morning training hours to afternoon race time nearly all of them said no. This synthetic surface seemed to be the most uniform in its consistency. At this track, weather plays a big role. Jockey 2 and 4 explained that the only time that the track really changes is when it rains. When it rains the track becomes much tighter and faster.

When discussing possible track biases, all five jockeys seemed to agree that the synthetic surface at Track C was playing incredibly fair to stalking and closing types of horses. Another common comment about the synthetic surfaces was that Track C's jockeys agreed that when it rained the track became speedier, favoring front runners.

Four of the five jockeys felt more safe riding at Track C's synthetic surface compared to its old conventional dirt surface. Two of the five jockeys had experienced respiratory problems since the tracks switch to synthetic. Jockey 2 was very adamant about his issues; he mentioned that the idea of synthetic surfaces not having kick back was only that, an idea. He said that when he is riding, even if the kick back is less than it is with a dirt track, there still is a lot of synthetic flying around and up into his face. He finds it very difficult to remove the synthetic surface from his eyes, face and mouth after each race. He explained that since the surface is coated in a wax substance he can not just simply wash his mouth and eyes out with water after a race. This leads to a continuing itchy, scratchy and irritating feeling for hours after the races finish.

When asked about the possible future health problems that may result from riding over the synthetic surface, all but one of the jockeys said that they were very concerned.

Track D Trainer Statistical Data Analysis

The trainers at Track D surveyed were generally in favor of the newly installed synthetic surface. Nine of the ten trainers surveyed noticed less general injuries since the change to synthetic. The opposing answer to question 11 was that the trainer had noticed no change regarding the frequency of injuries.

A common issue that these professionals have been addressing with both their two year olds and older horses is that of strained and torn suspensory ligaments. All ten trainers mentioned it as a problematic area with their two year olds and six trainers noted this same problem with their older horses. Trainer 3 said that since Track D's change of surface he has been using the service of an ultrasound machine instead of an x-ray machine by about 75% more.

This issue of soft tissue injuries increasing really concerned many of the trainers. Trainer 8 explained that the hind end muscle and front-end soft tissue injuries have dramatically increased in his barn. He noted that this could possibly strongly affect the industry in a negative way. These injuries require more time off than many of the previous skeletal injuries that they were encountering on conventional dirt tracks. This in turn may keep horses "on the shelf" for longer periods of time instead of filling up the races.

The majority of the surveyed trainers discussed the hind end issues. Since the switch to synthetic surfaces the demands of farriers has changed. Trainer 5 explained how the shape of the hind feet and the shoes that are placed on them needs to be altered. The use of toe grabs, which on conventional dirt are very common, are detrimental to horses training on synthetic surfaces. The trainers and farriers need to adapt their shoeing techniques to make a hind foot and shoe more round or "aerodynamic." The synthetic surfaces tend to be less forgiving on horses in the way that the foot hits and sticks. There is no slide or give. Adding toe grabs makes the sticking effect even more dramatic. Trainer 5 believes that is the cause of the increase in hind end injuries like tibias and pelvis's. This trainer has opted to remove hind shoes from the majority of his stable, especially his two year olds that have been suffering from numerous hind end problems.

Track D's trainers made it very clear that there will always be injuries in horse racing, but now the injuries have changed. They realize that they need to adapt to the new threats and learn how to avoid them.

Track D Veterinarian Statistical Data Analysis

A commonality amongst Track D's veterinarians lies in the response to question #4 and question #11. They all agreed that catastrophic injuries have decreased since the installation of synthetic. However, they also all concurred that the amount of soft tissue injuries has increased.

Track D's veterinarians mentioned a problem that they had been treating at this track that had not been brought up by any other veterinarians surveyed at other tracks. The issue of cracked heels and irritated skin and feet. Veterinarian 3 explained that many of the horses are coming back from training and running with a lot of synthetic surface stuck to their feet and upward towards their pasterns. The normal process is for horses to be bathed by their grooms after training. However, due to the makeup of the synthetic surface and the wax coating the material does not wash off easily. Many of the grooms have been scrubbing the cornet bands and pasterns very hard to clean them. This in turn has caused cracked heels and skin irritation. Cracked heels can develop into a serious, nagging problem for a racehorse. Due to the excess amount of moisture from washing the feet and cornet bands become soft and sore. The cornet band and outer layer of foot begin to crack and cause a great deal of pain. The only cure for this problem is time off and to keep the area clean and dry.

An increase of respiratory problems was mentioned by one of the veterinarians surveyed. Veterinarian 1 viewed an increase in EIPH and pulmonary infections. He also had an issue with a piece of rubber from Track D's surface being kicked up into a horse's eye. The rubber fragment got behind the eye and the horse eventually had to have the eye removed. This veterinarian explained that horses running on dirt surfaces almost always return to the barn with dirt in their eyes, mouth and lungs. However the problem that he recognizes is that the materials that make up synthetic surfaces are not natural and cannot be absorbed by the horses' body. In the case of the horse with the eye injury, his body could not simply dissolve and absorb an unnatural foreign object.

Veterinarian 5 had a very positive experience with the new synthetic at Track D. She thinks that the surface installation was a step in the right direction. She noticed an increase in soft tissue injuries, but she pointed out that these injuries are not fatal. She said that many of these horses would return to racing after necessary rehabilitation. The horses that have very serious soft tissue injuries and cannot return to racing do not have to be put to sleep; they can be retrained and put into good responsible homes and jobs in their future.

Track D Jockey Statistical Data Analysis

The jockeys surveyed at Track D communicated that the consistency of the track was great. Being able to train and race through weather conditions on a good track is greatly appreciated by these riders. All five of the jockeys agreed that the track either rarely or never changes from morning training to afternoon racing. All surveyed also agreed that the track rarely or never changes in-between races in the afternoon. This track consistency makes them feel safer. Jockey 1 mentioned that track uniformity is a very important factor in keeping horses sound and keeping the jockeys safe.

There were three jockeys that noted health issues that have arisen since the switch to synthetic. Jockey 3 told me that he is 41 years old and has never had allergies, until now. Since riding over the synthetic surface he has had head congestion, a scratchy throat and irritated eyes. He clearly connects this with the surface change.

This same jockey described another unique health issue that he has been suffering from since the synthetic installation. He told me that he sometimes has a common type of razor burn or some blemishes on his face. Since riding races over the synthetic he has had three separate instances where those blemished would become infected, red and swollen. He had to go to the doctor and be treated for something that commonly would be a pimple but had turned into a cystic lesion. He also directly relates these health issues to the synthetic surface.

Jockey 2 related a similar issue. He told me that he “hates synthetic”, not because of the safety issues but because he believes that he is allergic to it. After every race he rides he begins to itch and his eyes water. He goes into the jocks room and showers between every race. He thinks that the surface has many positives in regards to decreasing risk of catastrophic breakdowns but he is angry that he is being forced to ride on it. He told me that since some of the major tracks that he has been riding at for twenty years are switching to synthetic he has to put himself into uncomfortable positions every day just to work. He said that he can’t just pick and choose where he rides and that he is worried that more tracks on his work list will make the switch to synthetic.

Track E Trainer Statistical Data Analysis

The trainers at Track E all answered question #12 the same. The ten trainers all agreed that they would prefer to start and train their two year olds on Track E's synthetic surface compared to a conventional dirt surface. They mentioned that weather is a major factor at this racetrack. Before the installation of the synthetic surface these trainers had a very difficult time maintaining their horses training schedules. The fact that these professionals can continue to work through rain, snow and ice is a very strong positive for synthetics.

However, many of the trainers discussed concerns with the future maintenance of the racetrack. The first meet was a success at this track, and then the track began to change. The horsemen believe that the track has done a good job in their attempt to maintain the surface but believe that nobody really knows what the track will be like in a couple of years. They feel that there are no directions given with the new surface and maintenance crews are just trying their best when issues like snow cover and freezing arise.

The same generalities were found in the surveying of these trainers at Track E. Eight trainers answered that soft tissue injuries had increased with the new synthetic, and all ten trainers said that there were less general injuries since the switch to synthetic.

Trainer 2 learned a lesson about training on the synthetic the hard way. He transferred his stable, primarily two year olds, from one synthetic surfaced track to Track E. Since both of these tracks are the same type, or brand, he figured that they would be similar surfaces. The horses seemed to travel well over the surface. He breezed them all the first weekend that he was there, keeping their schedule. The horses all got very tired in their works and he had two fillies tie up. He realized that just because two surfaces are the same brand does not mean that they are the same. He now routinely backs a horse up 2-3 weeks in their training when they switch to different synthetics. The young horses especially need to get used to the surface before they are pushed on with their training.

Trainer 6 said that she loves the new synthetic surface. She has had great luck with virtually no injuries at all. She said that it slows them down and makes them work harder. This gets them more fit while reducing injuries in fast works and races. She has changed her style of training some to meet the demands of the new synthetic surface. She has tried to get her horses to relax in their training and not focus on getting bullet speed, which is not holding well over synthetic surfaces.

Trainer 8 gave me a very unique idea regarding the handicapping aspect of synthetic surfaces. He fears that handicappers will get board of watching racing on synthetic surfaces. If these "plodders and grinders" are winning the races and are holding true to form when traveling to other synthetic surfaces where is the challenge? Handicappers enjoy exploiting track biases and weather conditions.

Track E Veterinarian Statistical Data Analysis

The veterinarians surveyed at Track E were not as overall supportive of the synthetic surface compared to other tracks analyzed. Only one of the five veterinarians surveyed said that they had noticed a decrease in injuries since the installation of synthetic. Veterinarian 4 said that he does not see the advantage of an artificial surface. He has seen the same amount of injuries just different types of injuries that are hard to diagnose and have longer lay off periods.

The main injury or problematic area reported by Track E veterinarians was once again, suspensory ligaments. Veterinarian 2 explained that the majority of the injuries he treats occur in the first 4-6 weeks of a horse training on the surface. He said that many of the horses move in from another track that has the same brand of synthetic surface and that the horsemen believe that it will be the same surface, and it is not. He noticed that if a trainer was very careful in that time beginning frame the horses will adapt and then have reduced injuries.

Two veterinarians have seen an increase in respiratory issues with the horses training over Track E. Veterinarian 3 has treated more cases of pharyngitis and lung infections. Many of the horses under his care suffer from extended bouts of mucus, lesions and debris in their pulmonary areas. Veterinarian 4 has also noticed an increase of allergic reactions and respiratory illnesses since the switch to synthetic surfaces at track E.

The veterinarians all agreed that due to the harsh weather conditions at Track E's location, an artificial surface makes sense. However, Veterinarian 5 has not seen the benefit when it comes to injuries. He admitted that he might be an "old timer that resists change" but he believes that horses were made to run on dirt and grass. He doesn't see how changing the laws of nature and moving them to an artificial surface will fix any of the problems that our industry faces.

He laughed when we discussed the installation of synthetic surfaces in places such as Florida and California. The main benefit of synthetic surfaces is the ability of the trainers and jockeys to be able to train through cruel weather conditions and not run in mud and slop. He doesn't understand the need for such a drastic change in surface in a place that is not threatened by harsh weather conditions.

Track E Jockey Statistical Data Analysis

All five jockeys surveyed at Track E felt more safe riding on the tracks artificial surface compared to its previous conventional dirt surface. Also, all five jockeys agreed that the surface plays fair to front-runners, stalkers and closers. This is the only track that was surveyed that all five jockeys agreed on the biases of the race track, or lack there of.

The interesting information gathered from these jockeys surveyed came when discussing their health issues, both positive and negative, which have arisen since the switch to synthetic surface. Jockey 1 told me that the shock absorption is much better on synthetic. On conventional dirt tracks jockeys would suffer from pain in their knees and hips due to the amount of shock that those areas absorbed on a daily basis. With the advent of synthetic surfaces, a lot of that pain has gone away. Jockey 2 said “you can’t hear the horse’s feet rattling across the ground anymore.” That increased shock absorption of the artificial surfaces has seemed to help the jockey’s skeletal ailments as well as the horses.

Whereas some pain has decreased for jockeys, in different situations the pain is dramatically increased. Three different jockeys mentioned that when they do fall off onto the synthetic surface they stick and hit harder instead of sliding like they previously did on dirt tracks. Jockey 3 described various accidents that he has been involved in or witnessed where the jockeys involved nearly all broke bones. He told me that this was strange because accidents of the same nature on dirt surfaces would not result in so much skeletal damage.

A unique comment regarding Track E’s surface regarded racing during the winter. Jockey 4 recalled riding horses when the track was covered in snow and nearly frozen. This was the season that many of the professionals declared the worst season for Track E’s new synthetic. This jockey explained that the horses were actually accumulating the surface material in their hooves throughout the race. These horses would become very uncomfortable and take bad, awkward steps, which led to injuries. This jockey described the horses walking off of the track as if they were “standing on stilts.”

Of the five jockeys surveyed from Track E, three had suffered from respiratory problems. The same symptoms as other track’s riders, coughing, watery eyes and itchy skin. These three jockeys agreed that the first year was the worst for them but maintenance crews have improved the track. There is still kickback just not as much as that first year. Two of the jockeys were concerned about their future health conditions since switching to synthetic surfaces and the other three jockeys were very concerned.

Track F Trainer Statistical Data Analysis

I wish I could say that I saved the track with the best reviews for last, but that is not the case. I was somewhat shocked by the overwhelming negative impressions reported from this tracks synthetic surface. It seems as though all of the patterns that I have been realizing with other tracks stopped when collecting data on Track F.

In this survey of ten trainers there was no mention of suspensory ligaments or tendons. Six of the ten answered that skeletal injuries were more predominant with their two year olds and older horses. Eight of the trainers said that hind end injuries were occurring at a higher frequency.

All ten trainers said that they have noticed more or many more injuries since track F switched to a synthetic surface. All ten trainers would rather train their two year olds on dirt than Track F's synthetic. In fact, many of the trainers that I spoke with have switched to the conventional dirt surfaced training track for their morning training to avoid the danger of the artificially surfaced main track.

The hind end issues that Track F's trainers are dealing with the most are clearly tibias, pelvises and femurs. Six trainers said they had trouble with their two year olds with tibia injuries and five trainers said they have had older horses injure their tibias. Six trainers described the pelvis region as a problematic area with their two year olds and seven trainers said that their older horses had pelvis injuries. These problematic areas were in sharp discrepancy with previous tracks.

Trainer 1 is a long time leading trainer at Track F and has 40 horses in training. He told me that in a normal year (training and running over conventional dirt) he would encounter 1-2 femur stress fractures. This past year (training and running over the synthetic surface) he has had 12-15 femur stress fractures. These are very serious injuries. He described the difficulty of diagnosing these types of hind end issues. "Its hard to see it coming" he said, "you cant feel heat or see swelling in those areas since they are so deep into the body and surrounded by so much muscle."

These dramatic increases in hind end skeletal injuries are attributed to the "hit and stick" comment that has been mentioned at nearly every track that I surveyed. Trainer 7 explained that the lack of kickback is not a necessarily good thing for a surface. When a horse's hoof hits the ground it normally slides forward a little and grabs the surface and throws it out behind them. With synthetic, the hoof hits the ground, sticks, and that is the reason for less kick back. It is also the reason for the increase in more stress fractures behind.

This trainer understood that the public's perception of racing must be controlled and that the reduction of breakdowns is good for business, but not his. "Just because they're not breaking on the track doesn't mean they don't come back to my barn broken."

Track F Veterinarian Statistical Data Analysis

Collecting data from Track F's veterinarians was more of a challenge for me than the other tracks professionals. A group of veterinarians from Track F are currently gathering statistical data for their own research project. When I asked them the same questions as I had asked other veterinarians they were very cautious to tell me exact answers because they had not finished gathering their data.

Of the five veterinarians surveyed, three said that catastrophic injuries have increase since the synthetic surface installation and two said that the frequency has remained the same. Three veterinarians said that skeletal injuries had increased and two said that the types of injuries had remained the same. One positive for Track F is that all five veterinarians said that they had not noticed an increase of respiratory issues with the racehorses since the switch to synthetic surface.

All five veterinarians said that the change to synthetic has been a negative action when discussing Track F. Veterinarian 1 said, "It is a joke!" He said that the synthetic surface was installed in haste and that there was not enough research and data done prior to installation. The surface is supposed to be a consistent surface but it is not. He declared that the maintenance crew does not know how to maintain it and it is making the horses training on it sorer.

The increase in stress fractures in the hind end of both two year olds and older horses was a common topic of conversation with Track F's Veterinarians. They related the difficulty of properly diagnosing these injuries. "If you don't haul them into the clinic for a nuclear scan you can't know for sure what is going on in there" Veterinarian 3 said. He reminded me that fractures in the pelvis, tibia, femur and other hind end skeletal areas can also be fatal, but most of the time these horses can walk back to the barn before professionals realize the intensity of the injury.

All of the veterinarians agreed that the surface was put in either improperly or with many mistakes. Veterinarian 5 said that he believes that the idea of synthetic is a good one, but it is still a work in progress that needs more research and development done in order to increase the success of it.

Track F Jockey Statistical Data Analysis

The jockeys from Track F did not agree on the degree of safety felt over track F's synthetic surface. Two answered that they felt safer; one felt the same amount of safety and two felt much less safe riding over the surface. When asked question #10, if they were concerned about the possibility of future health problems due to riding over the synthetic surface, three answered very concerned and two answered concerned.

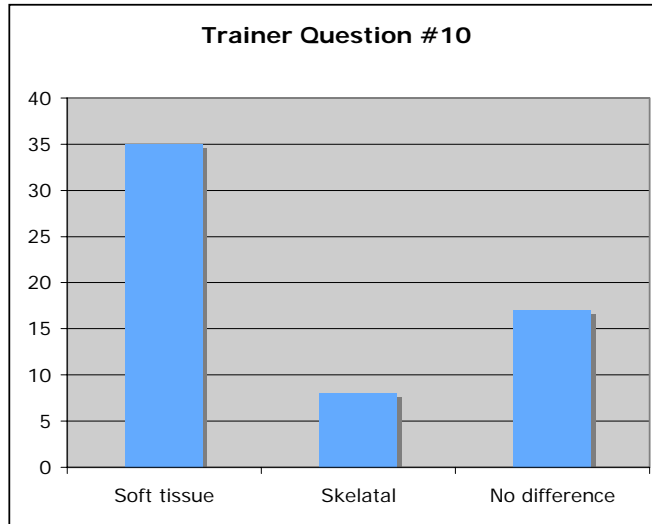
The data was difficult to gather when I asked question number 4-6, if the track was playing fair to front runners, stalkers and closers. The majority of the jockeys said that it depends on the day of the week. Jockey 2 explained that in the beginning of the race week the track is "dead and slow" and favors stalkers and especially closers. With each day in the week the surface changes and becomes firmer. This in turn causes the track to favor more front running speed as the week continues.

Of the five jockeys surveyed three of them had experience respiratory issues since ridding over the synthetic surface at Track F. Jockey 3 described that when she began riding at Track F she had considerable discomfort in her sinuses and throat. She felt as though she always had a cold with an itchy throat and watery eyes. This jockey was the first to take action against the issues she was facing. She cut out and attached panty hose to her helmet. She explained to me that she can still breathe through the mask and that it does not allow for her to actually inhale the fibers and other materials in the synthetic makeup.

A very extreme situation occurred for Jockey 5. He was ridding in a race and ran out of goggles. He rode the last furlong with no eye protection. After the race he attempted to wash his eyes out with water but they did not seem like they were cleaning out. One eye in particular was bothering him. He went home and had a red itchy eye for two days before he went into the hospital. Turns out a small partial of rubber from the surface had become lodged behind his eye and that scar tissue started to grow over it. He was in danger of loosing his eye. He had to have surgery to get the piece of rubber removed. When I asked him if something like this could have happened while ridding on a conventional dirt track he said, "honey I have been riding for 28 years and it's never happen till' now."

Combined Track Data

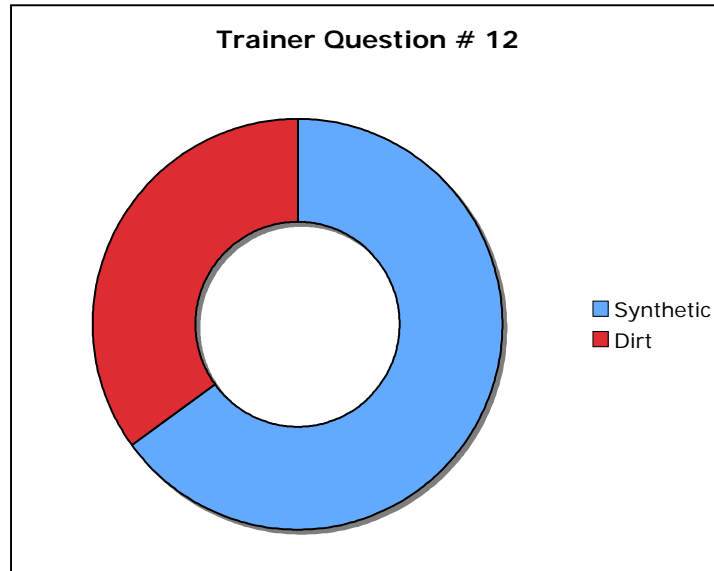
These graphs are an accumulation of data gathered from all 60 trainers, 30 veterinarians and 30 jockeys surveyed from 6 different tracks. These are only a few select survey questions. Please refer to appendices for total data collection.



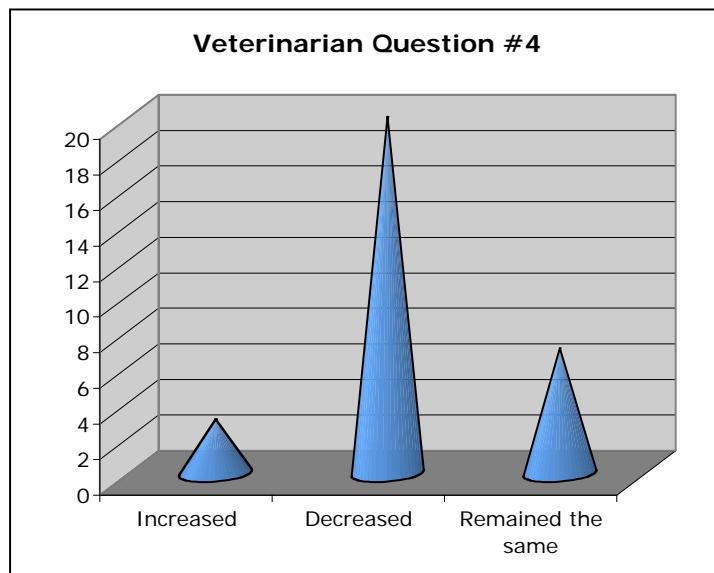
This graph represents Question # 10 on the Trainer Survey. Have you seen more soft tissue injuries or skeletal injuries while training and running over Track ____'s synthetic surface?



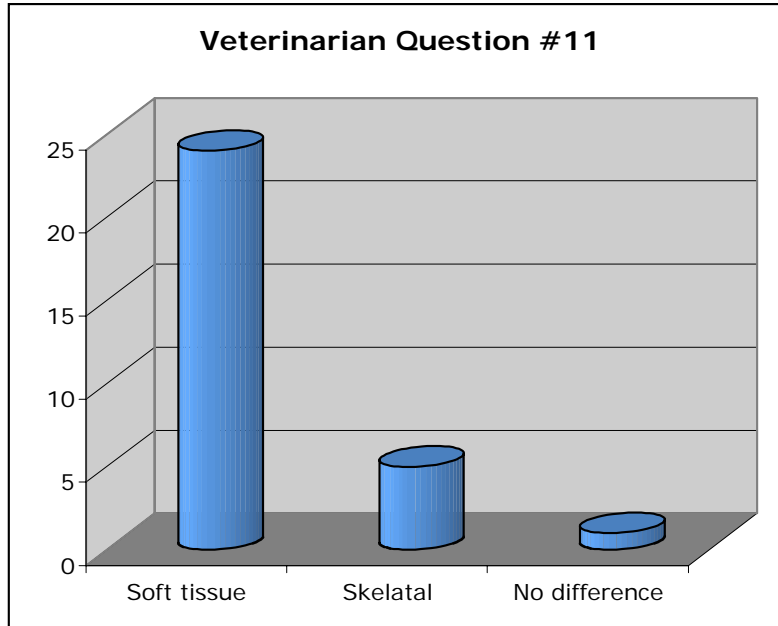
This graph represents Question # 11 on the Trainer survey. In comparison to conventional dirt tracks, have you seen ____ general injuries on Track ____'s synthetic surface?



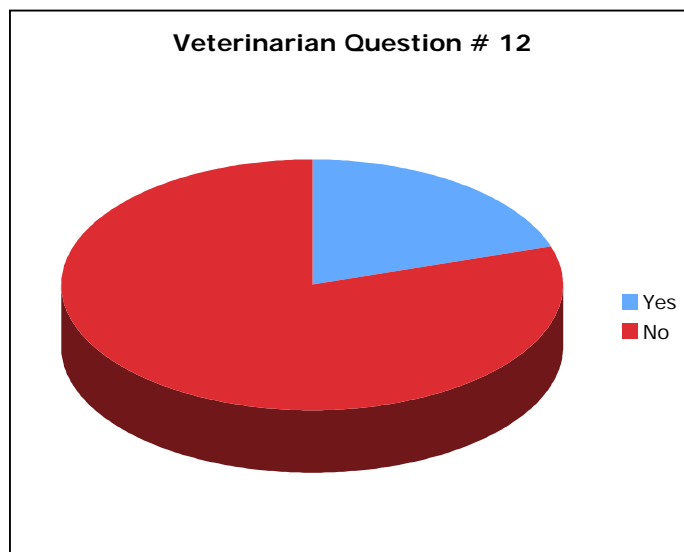
This graph represents question #12 on the Trainer Survey. From your experience would you rather start your two year olds on Track _____'s synthetic or a conventional dirt surface?



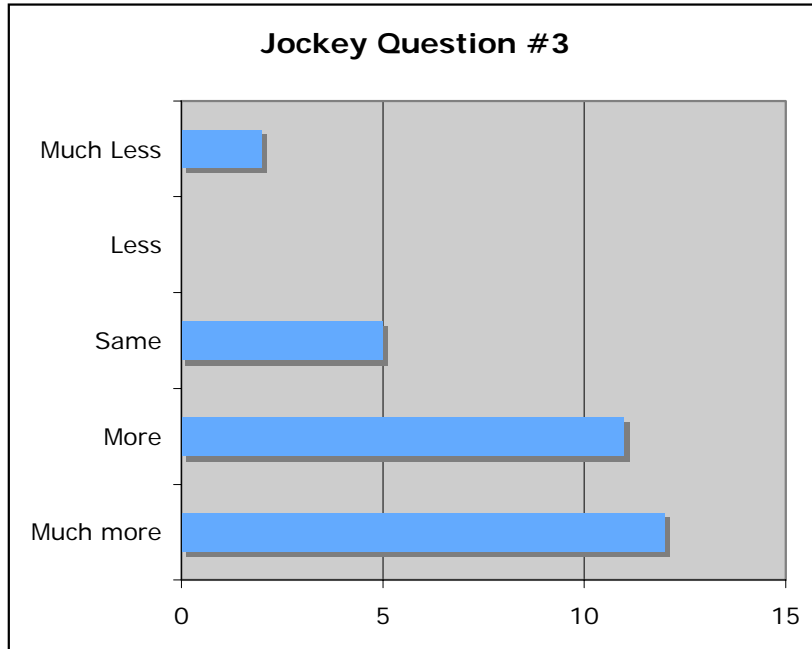
This graph represents question #4 on the Veterinarian Survey. In your practice, have the number of catastrophic injuries increased, decreased or remained the same since the addition of synthetic to Track_____?



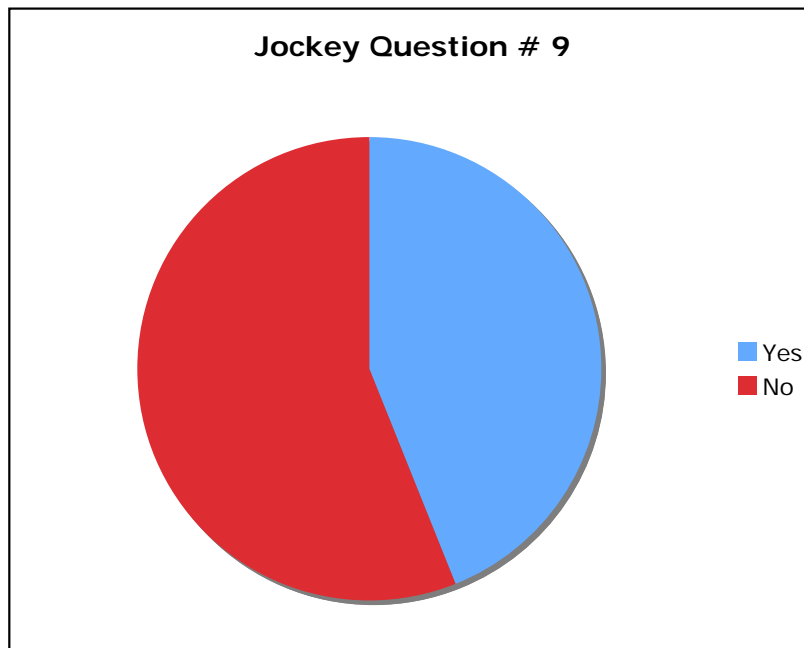
This graph represents question #11 of the Veterinarian Survey. In comparison to the previous conventional dirt surface at Track _____ have you treated more soft tissue injuries or skeletal injuries since the change to the synthetic surface?



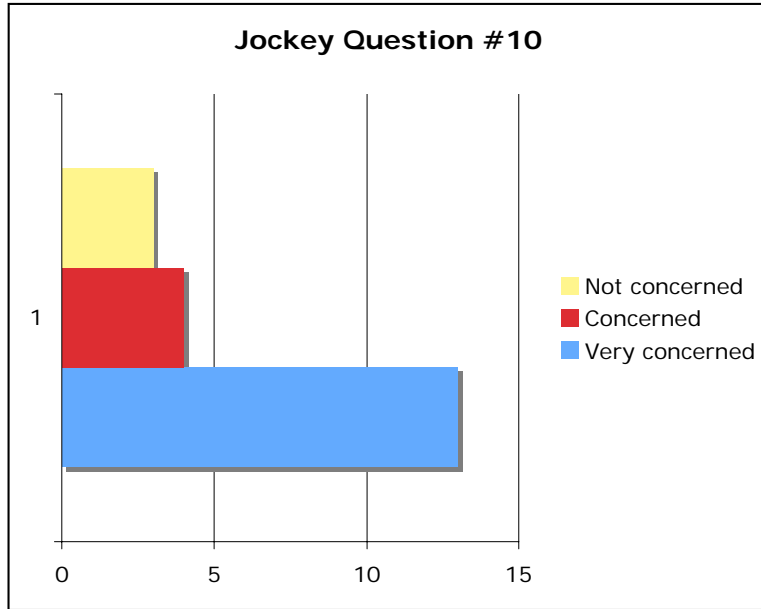
This graph represents question #12 on the Veterinarian Survey. Has there been any noticeable increase in respiratory problems since the change to synthetic surface at track _?



This graph represents question #3 on the Jockey Survey. Do you feel that you are more safe riding on Track ____'s synthetic surface?



This graph represents question #9 of the Jockey Survey. Have you experienced any respiratory problems since Track ____ switched to synthetic surface?



This graph represents question #10 on the Jockey Survey. Are you concerned about your future health condition because of the switch to synthetic surfaces?

Conclusion

To conclude my senior capstone project I would like to point out the variations of results and opinions that were collected throughout my study. The introduction of synthetic surfaces is one that requires research and development in order to become a well understood venture. The majority of professionals believed that synthetic surfaces are a positive for the racing industry in theory. A common worry amongst the professionals was that many racetracks have seemed to jump too soon into an endeavor that is not well studied under the same racing and weather conditions that we have here in the United States.

Many concerns were voiced about the health affects of new synthetic surfaces from the jockeys that are riding over the new surfaces. This is an issue dealing with human lives and requires increased investigation. Many discussions regarding synthetic focus on the financial benefit and horse safety; jockey safety should be a new focus.

While skeletal injuries and catastrophic injuries are obviously down at numerous tracks across the country, the soft tissue injuries have noticeably increased drastically. The indirect affect of this change in types of injuries might have a negative effect on the industry. These injuries require much more time off, away from the racetrack in order to heal in comparison to skeletal injuries. Common problems with two year olds on dirt tracks are shins, a skeletal ailment. This usually requires between five days to three months to heal depending on the severity. The suspensory ligament injury was the problematic area most frequently mentioned by trainers and veterinarians regarding the two year olds training on synthetic. A torn or badly strained suspensory ligament is a required six months to a year lay up. While fewer horses may be breaking down on the track, many more horses will be stuck at the farm healing. Will this increase field size? Will this be beneficial to horse owners? This is another area that requires more investigation.

I am optimistic that this project has expressed the need for more exploration and examination of synthetic surface's direct and indirect affects on the industry. It is my belief that we all have the same goal in mind, to help the sport of horse racing grow and expand in a healthy manner. Let's get the necessary data collection on these new synthetic surfaces in order to help us all achieve that goal.

Thanks

Recently an incidence in my life made me realize so clearly that the most important thing in this world is family and friends. I could have never completed my college career, or anything else without you all. Mom the giver, Dad the rock, Jamie the standard, Grandmother the optimist, Manuel my one true love and ultimate supporter, Catilla my best friend and Byron my friend, mentor and best horsemen I will ever know.

About the Author

Brandi Goode was born into a family of owners, breeders, trainers and jockeys. Her entire childhood and teenage life was dedicated to furthering her show jumping career, which took her around the world and into World Cup level competition. Since her switch to the racing world, Brandi has had the privilege of galloping great horses such as Yankee Gentlemen, Sweet Catomine and After Market. Her focus into bloodstock and equine business has led her to become a Bloodstock Agent and Racing Manager for various different minor clients. Brandi's goal is to work to increase race horse ownership, their return on investments and their enjoyment of the sport.

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Theodora Maps. United States of America. Quick Maps. Friday, August 2007.
<www.theodora.com/maps>

Appendix 1

Track A Trainer Survey

1.) How many years have you been a licensed trainer?

- 0-5 years
- 1 5-10 years
- 2 10-15 years
- 3 15-20 years
- 4 20 + years

2.) How many horses do you currently have (or previously had) training on Track A's synthetic surface under your care?

- 0-5
- 1 5-10
- 6 10-20
- 1 20-30
- 30-40
- 2 40 +

3.) Approximately what percentage of the horses under your care, on Track A's synthetic surface are two year olds?

- 4 0-20%
- 2 20-40%
- 4 40-60%
- 60-80%
- 80-100%

4.) Regarding your two year olds in training over Track A's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- Suspensory ligaments
- Tendons
- Sesamoids
- 2 Feet
- 4 Knees
- 2 Pulled muscles
- 3 None

5.) Regarding your two year olds in training over Track A's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- Stifles
- Hocks
- Pelvis
- Fibula
- 1 Tibia
- Patella
- Pelvis
- Cannon
- Femur
- Feet
- 8 Muscles
- 2 None

6.) Regarding your two year olds training over Track A's synthetic surface, which type of injury is more predominant?

- 6 Front-end
- 2 Hind-end
- 2 No difference

7.) Regarding your older, running horses training over Track ___'s synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- Suspensory ligaments
- 2 Tendons
- Sesamoids
- Feet
- 6 Knees
- 2 Pulled muscles
- 2 None

8.) Regarding your older, running horses training over Track A's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- 2 Stifles
- 4 Hocks
- Pelvis
- Fibula
- Tibia
- Pelvis
- Cannon
- Femur
- Feet
- 4 Muscles
- 2 None

9.) Regarding your older horses in training at Track A's synthetic surface, which type of injury is more predominant?

- 4 Front-end
- 2 Hind-end
- 4 No difference

10.) Have you seen more soft tissue injuries or skeletal injuries while training and running over track A's synthetic surface?

- 6 Soft tissue
- 2 Skeletal
- 2 No difference

11.) In comparison to conventional dirt tracks, have you seen ____ general injuries on Track A's synthetic surface?

- Many more
- More
- Same
- 6 Less
- 4 Many less

12.) From your experience, would you rather start your two year olds on Track A's synthetic or on a conventional dirt surface?

- 6 Synthetic
- 4 Dirt

13.) From your experience, in general, have the two year olds you have conditioned for their first race on Track A's synthetic surface taken ____ time to prepare in comparison to conventional dirt surfaces?

- Much more time
- 6 More time
- Same time
- 4 Less time
- Much less time

14.) This is an opportunity for you to discuss your feelings about the introduction of synthetic surfaces both at this facility and across North America, do you feel it is a positive or negative change to the industry, and as a trainer how have you been adapting to the change?

15.) If you have trained and raced over more than one type of synthetic surface, do you have a preference and do you see any major differences between the different types?

Appendix 2

Track A Veterinarian Survey

1.) How many years have you been a practicing veterinarian?

- 1_ 0-10 years
- 10-15 years
- 3_ 15-20 years
- 20-30 years
- 1_ 30 + years

2.) How many years have you been practicing at Track A's new synthetic surface?

- 5_ 0-1 years
- 1-2 years
- 3-4 years
- 4 + years

3.) Approximately how many horses do you and your practice treat at Track A?

- 0-100
- 100-200
- 2_ 200-300
- 2_ 300- 400
- 1_ 400 +

4.) In your practice, have the numbers of catastrophic injuries increased or decreased with the addition of synthetic to Track A?

- Increased
- 5_ Decreased
- Remained the same

5.) Regarding the two year olds under your care at Track A's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- 2_ Shins
- 4_ Suspensory ligaments
- 3_ Tendons
- Sesamoids
- 1_ Feet
- Knees
- Pulled muscles
- Other

6.) Regarding the two year under your care at Track A's synthetic surface, what has been the most common hind-end injury (s)? (You may answer more than one)

- Stifles
- Hocks
- Pelvis
- Fibula
- 5 Tibia
- Patella
- Pelvis
- Cannon
- Femur
- Feet
- Muscles
- Other

7.) Regarding the two year olds under your care training over Track A's synthetic surface, which type of injury is more predominant?

- 4 Front-end
- Hind-end
- 1 No difference

8.) Regarding the older, running horses under your care training over Track A's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- 3 Suspensory ligaments
- 3 Tendons
- Sesamoids
- 2 Feet
- Knees
- Pulled muscles
- Other

9.) Regarding the older, running horses under your care training over Track A's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- 2 Stifles
- 3 Hocks
- Pelvis
- Fibula
- 4 Tibia
- Pelvis
- Femur
- Feet
- Muscles
- Other

10.) Regarding the older horses under your care in training at Track A's synthetic surface, which type of injury is more predominant?

- 5 Front-end
- Hind-end
- No difference

11.) In comparison to the previous conventional dirt surface at Track A, have you treated more soft tissue injuries or skeletal injuries since the change to the synthetic surface?

- 5 Soft Tissue
- Skeletal
- No difference

12.) Has there been any noticeable increase in respiratory problems since the change to synthetic surface at Track A?

- 1 Yes
- 4 No

13.) This is an opportunity for you to discuss your feelings about the introduction of synthetic surfaces to Track A and across North America; do you believe that this is a positive or a negative change for the industry?

14.) If you have treated horses training and racing at more than one type of synthetic surface do you have a preference and have you noticed any major differences between the two types?

Appendix 3

Track A Jockey Survey

1.) How many years have you been a licensed jockey?

- 2 0-5
- 5-10
- 1 10-15
- 1 15-20
- 20-25
- 1 25 +

2.) On race days at Track A approximately how many races do you ride?

- 0-2
- 2-4
- 3 4-6
- 2 6-8
- 8 +

3.) Do you feel that you are more safe riding on Track A's synthetic surface?

- 4 Much more
- More
- 1 Same
- Less
- Much less

4.) Do you feel that the synthetic surface at Track A's plays fair to front-runners?

- Yes
- 5 No
- Strongly varies on day of week

5.) Do you feel that the synthetic surface at Track A plays fair to stalkers?

- 5 Yes
- No
- Strongly varies on day off week

6.) Do you feel that the synthetic surface at Track A plays friar to closers?

- 5 Yes
- No
- Strongly varies on day of week

7.) Do you feel the surface at Track A change from morning training to afternoon racing?

- 4 Yes
- 1 No

8.) Do you feel the track change from race to race in the afternoons at Track A?

- 2_ Always
- Often
- 3_ Rarely
- Never

9.) Have you experienced any respiratory problems since Track A switched to synthetic surface?

- 2_ Yes
- 3_ No

10.) Are you concerned about your future health condition because of the switch to synthetic surfaces?

- 4_ Very Concerned
- Concerned
- 1_ Not Concerned

Appendix 4

Track B Trainer Survey

1.) How many years have you been a licensed trainer?

- 0-5 years
- 5-10 years
- 10-15 years
- 15-20 years
- 20 + years

2.) How many horses do you currently have (or previously had) training on Track B's synthetic surface under your care?

- 0-5
- 5-10
- 10-20
- 20-30
- 30-40
- 40 +

3.) Approximately what percentage of the horses under your care, on Track B's synthetic surface are two year olds?

- 0-20%
- 20-40%
- 40-60%
- 60-80%
- 80-100%

4.) Regarding your two year olds in training over Track B's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- Suspensory ligaments
- Tendons
- Sesamoids
- Feet
- Knees
- Pulled muscles
- Other

5.) Regarding your two year olds in training over Track B's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- Stifles
- Hocks
- Pelvis
- Fibula
- 2 Tibia
- Patella
- Pelvis
- Cannon
- Femur
- Feet
- 8 Muscles
- Other

6.) Regarding your two year olds training over Track B's synthetic surface, which type of injury is more predominant?

- 4 Front-end
- Hind-end
- 6 No difference

7.) Regarding your older, running horses training over Track B's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- 4 Suspensory ligaments
- 3 Tendons
- 1 Sesamoids
- 4 Feet
- Knees
- Pulled muscles
- Other

8.) Regarding your older, running horses training over Track B's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- 2 Stifles
- Hocks
- Pelvis
- Fibula
- 2 Tibia
- Pelvis
- Cannon
- Femur
- 2 Feet
- Muscles
- 6 Other

9.) Regarding your older horses in training at Track B's synthetic surface, which type of injury is more predominant?

- 4_ Front-end
- 2_ Hind-end
- 4_ No difference

10.) Have you seen more soft tissue injuries or skeletal injuries while training and running over track B's synthetic surface?

- 4_ Soft tissue
- 4_ Skeletal
- 2_ No difference

11.) In comparison to conventional dirt tracks, have you seen ____ general injuries on Track ____'s synthetic surface?

- ____ Many more
- 1_ More
- ____ Same
- 8_ Less
- 1_ Many less

12.) From your experience, would you rather start your two year olds on Track B's synthetic or on a conventional dirt surface?

- 9_ Synthetic
- 1_ Dirt

13.) From your experience, in general, have the two year olds you have conditioned for their first race on Track B's synthetic surface taken ____ time to prepare in comparison to conventional dirt surfaces?

- ____ Much more time
- 3_ More time
- 3_ Same time
- 4_ Less time
- ____ Much less time

14.) This is an opportunity for you to discuss your feelings about the introduction of synthetic surfaces both at this facility and across North America, do you feel it is a positive or negative change to the industry, and as a trainer how have you been adapting to the change?

15.) If you have trained and raced over more than one type of synthetic surface, do you have a preference and do you see any major differences between the different types?

Appendix 5

Track B Veterinarian Survey

1.) How many years have you been a practicing veterinarian?

- 1_ 0-10 years
- 10-15 years
- 2_ 15-20 years
- 1_ 20-30 years
- 1_ 30 + years

2.) How many years have you been practicing at Track B's new synthetic surface?

- 5_ 0-1 years
- 1-2 years
- 3-4 years
- 4 + years

3.) Approximately how many horses do you and your practice treat at Track B

- 1_ 0-100
- 100-200
- 2_ 200-300
- 1_ 300- 400
- 1_ 400 +

4.) In your practice, have the numbers of catastrophic injuries increased or decreased with the addition of synthetic to Track B?

- Increased
- 5_ Decreased
- Remained the same

5.) Regarding the two year olds under your care at Track B's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- 3_ Suspensory ligaments
- 3_ Tendons
- Sesamoids
- 2_ Feet
- Knees
- Pulled muscles
- 1_ Other

6.) Regarding the two year under your care at Track B's synthetic surface, what has been the most common hind-end injury (s)? (You may answer more than one)

- Stifles
- Hocks
- Pelvis
- Fibula
- 5_ Tibia
- Patella
- Pelvis
- Cannon
- Femur
- Feet
- Muscles
- Other

7.) Regarding the two year olds under your care training over Track B's synthetic surface, which type of injury is more predominant?

- 5_ Front-end
- Hind-end
- No difference

8.) Regarding the older, running horses under your care training over Track B's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- 4_ Suspensory ligaments
- 4_ Tendons
- Sesamoids
- 1_ Feet
- 1_ Knees
- 2_ Pulled muscles
- Other

9.) Regarding the older, running horses under your care training over Track B's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- Stifles
- 2_ Hocks
- Pelvis
- Fibula
- 4_ Tibia
- Pelvis
- Femur
- Feet
- Muscles
- Other

10.) Regarding the older horses under your care in training at Track B's synthetic surface, which type of injury is more predominant?

- 5_ Front-end
- Hind-end
- No difference

11.) In comparison to the previous conventional dirt surface at Track B, have you treated more soft tissue injuries or skeletal injuries since the change to the synthetic surface?

- 3_ Soft Tissue
- 2_ Skeletal
- No difference

12.) Has there been any noticeable increase in respiratory problems since the change to synthetic surface at Track B?

- Yes
- 5_ No

13.) This is an opportunity for you to discuss your feelings about the introduction of synthetic surfaces to Track B and across North America; do you believe that this is a positive or a negative change for the industry?

14.) If you have treated horses training and racing at more than one type of synthetic surface do you have a preference and have you noticed any major differences between the two types?

Appendix 6

Track B Jockey Survey

1.) How many years have you been a licensed jockey?

- 2_ 0-5
- 5-10
- 2_ 10-15
- 15-20
- 20-25
- 1_ 25 +

2.) On race days at Track B, approximately how many races do you ride?

- 0-2
- 1_ 2-4
- 2_ 4-6
- 2_ 6-8
- 8 +

3.) Do you feel that you are more safe riding on Track B's synthetic surface?

- 4_ Much more
- More
- 1_ Same
- Less
- Much less

4.) Do you feel that the synthetic surface at Track B plays fair to front-runners?

- 4_ Yes
- 1_ No
- Strongly varies on day of week

5.) Do you feel that the synthetic surface at Track B plays fair to stalkers?

- 4_ Yes
- 1_ No
- Strongly varies on day off week

6.) Do you feel that the synthetic surface at Track B plays friar to closers?

- 4_ Yes
- 1_ No
- Strongly varies on day of week

7.) Do you feel the surface at Track B change from morning training to afternoon racing?

- 3_ Yes
- 2_ No

8.) Do you feel the track change from race to race in the afternoons at Track B?

 Always

 2 Often

 Rarely

 3 Never

9.) Have you experienced any respiratory problems since Track B switched to synthetic surface?

 1 Yes

 4 No

10.) Are you concerned about your future health condition because of the switch to synthetic surfaces?

 2 Very Concerned

 2 Concerned

 1 Not Concerned

Appendix 7

Track C Trainer Survey

1.) How many years have you been a licensed trainer?

- 0-5 years
- 5-10 years
- 10-15 years
- 15-20 years
- 20+ years

2.) How many horses do you currently have (or previously had) training on Track C's synthetic surface under your care?

- 0-5
- 5-10
- 10-20
- 20-30
- 30-40
- 40+

3.) Approximately what percentage of the horses under your care, on Track C's synthetic surface are two year olds?

- 0-20%
- 20-40%
- 40-60%
- 60-80%
- 80-100%

4.) Regarding your two year olds in training over Track C's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- Suspensory ligaments
- Tendons
- Sesamoids
- Feet
- Knees
- Pulled muscles
- Other

5.) Regarding your two year olds in training over Track C's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- 4 Stifles
- 4 Hocks
- Pelvis
- Fibula
- Tibia
- Patella
- Pelvis
- Cannon
- Femur
- Feet
- 6 Muscles
- Other

6.) Regarding your two year olds training over Track C's synthetic surface, which type of injury is more predominant?

- 6 Front-end
- Hind-end
- 4 No difference

7.) Regarding your older, running horses training over Track C's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- 8 Suspensory ligaments
- 4 Tendons
- Sesamoids
- Feet
- Knees
- 4 Pulled muscles
- Other

8.) Regarding your older, running horses training over Track C's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- 4 Stifles
- 6 Hocks
- Pelvis
- Fibula
- Tibia
- Pelvis
- Cannon
- Femur
- Feet
- 4 Muscles
- Other

9.) Regarding your older horses in training at Track C's synthetic surface, which type of injury is more predominant?

- 4 Front-end
- 2 Hind-end
- 4 No difference

10.) Have you seen more soft tissue injuries or skeletal injuries while training and running over track C's synthetic surface?

- 6 Soft tissue
- Skeletal
- 4 No difference

11.) In comparison to conventional dirt tracks, have you seen ____ general injuries on Track C's synthetic surface?

- Many more
- 2 More
- 6 Same
- 2 Less
- Many less

12.) From your experience, would you rather start your two year olds on Track C's synthetic or on a conventional dirt surface?

- 6 Synthetic
- 4 Dirt

13.) From your experience, in general, have the two year olds you have conditioned for their first race on Track C's synthetic surface taken ____ time to prepare in comparison to conventional dirt surfaces?

- Much more time
- 5 More time
- 5 Same time
- Less time
- Much less time

14.) This is an opportunity for you to discuss your feelings about the introduction of synthetic surfaces both at this facility and across North America, do you feel it is a positive or negative change to the industry, and as a trainer how have you been adapting to the change?

15.) If you have trained and raced over more than one type of synthetic surface, do you have a preference and do you see any major differences between the different types?

Appendix 8

Track C Veterinarian Survey

1.) How many years have you been a practicing veterinarian?

- 0-10 years
- 1_ 10-15 years
- 1_ 15-20 years
- 3_ 20-30 years
- 30 + years

2.) How many years have you been practicing at Track C's new synthetic surface?

- 5_ 0-1 years
- 1-2 years
- 3-4 years
- 4 + years

3.) Approximately how many horses do you and your practice treat at Track C ?

- 0-100
- 2_ 100-200
- 1_ 200-300
- 2_ 300- 400
- 400 +

4.) In your practice, have the numbers of catastrophic injuries increased or decreased with the addition of synthetic to Track C?

- Increased
- 5_ Decreased
- Remained the same

5.) Regarding the two year olds under your care at Track C's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- 1_ Shins
- 5_ Suspensory ligaments
- 5_ Tendons
- Sesamoids
- Feet
- Knees
- 1_ Pulled muscles
- Other

6.) Regarding the two year under your care at Track C's synthetic surface, what has been the most common hind-end injury (s)? (You may answer more than one)

- 4 Stifles
- Hocks
- Pelvis
- Fibula
- Tibia
- Patella
- Pelvis
- Cannon
- Femur
- Feet
- 3 Muscles
- Other

7.) Regarding the two year olds under your care training over Track C's synthetic surface, which type of injury is more predominant?

- 3 Front-end
- Hind-end
- 2 No difference

8.) Regarding the older, running horses under your care training over Track C's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- 5 Suspensory ligaments
- 5 Tendons
- Sesamoids
- Feet
- Knees
- Pulled muscles
- Other

9.) Regarding the older, running horses under your care training over Track C's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- 5 Stifles
- 5 Hocks
- Pelvis
- Fibula
- Tibia
- Pelvis
- Femur
- Feet
- 4 Muscles
- Other

10.) Regarding the older horses under your care in training at Track C's synthetic surface, which type of injury is more predominant?

- 3_ Front-end
- Hind-end
- 2_ No difference

11.) In comparison to the previous conventional dirt surface at Track C, have you treated more soft tissue injuries or skeletal injuries since the change to the synthetic surface?

- 5_ Soft Tissue
- Skeletal
- No difference

12.) Has there been any noticeable increase in respiratory problems since the change to synthetic surface at Track C?

- 2_ Yes
- 3_ No

13.) This is an opportunity for you to discuss your feelings about the introduction of synthetic surfaces to Track C and across North America; do you believe that this is a positive or a negative change for the industry?

14.) If you have treated horses training and racing at more than one type of synthetic surface do you have a preference and have you noticed any major differences between the two types?

Appendix 9

Track C Jockey Survey

1.) How many years have you been a licensed jockey?

- 1_ 0-5
- 5-10
- 2_ 10-15
- 15-20
- 1_ 20-25
- 1_ 25 +

2.) On race days at Track C, approximately how many races do you ride?

- 0-2
- 2-4
- 3_ 4-6
- 1_ 6-8
- 1_ 8 +

3.) Do you feel that you are more safe riding on Track C's synthetic surface?

- Much more
- 4_ More
- 1_ Same
- Less
- Much less

4.) Do you feel that the synthetic surface at Track C plays fair to front-runners?

- 3_ Yes
- 2_ No
- Strongly varies on day of week

5.) Do you feel that the synthetic surface at Track C plays fair to stalkers?

- 5_ Yes
- No
- Strongly varies on day off week

6.) Do you feel that the synthetic surface at Track C plays friar to closers?

- 4_ Yes
- 1_ No
- Strongly varies on day of week

7.) Do you feel the surface at Track C change from morning training to afternoon racing?

- 2_ Yes
- 3_ No

8.) Do you feel the track change from race to race in the afternoons at Track C?

_____ Always

_____ Often

__1_ Rarely

__4_ Never

9.) Have you experienced any respiratory problems since Track C switched to synthetic surface?

__2_ Yes

__3_ No

10.) Are you concerned about your future health condition because of the switch to synthetic surfaces?

__4_ Very Concerned

__1_ Concerned

_____ Not Concerned

Appendix 10

Track D Trainer Survey

1.) How many years have you been a licensed trainer?

- 2_ 0-5 years
- 5-10 years
- 2_ 10-15 years
- 3_ 15-20 years
- 3_ 20 + years

2.) How many horses do you currently have (or previously had) training on Track D's synthetic surface under your care?

- 0-5
- 2_ 5-10
- 2_ 10-20
- 4_ 20-30
- 2_ 30-40
- 40 +

3.) Approximately what percentage of the horses under your care, on Track D's synthetic surface are two year olds?

- 2_ 0-20%
- 4_ 20-40%
- 2_ 40-60%
- 60-80%
- 2_ 80-100%

4.) Regarding your two year olds in training over Track D's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- 6_ Suspensory ligaments
- 3_ Tendons
- 1_ Sesamoids
- Feet
- Knees
- 6_ Pulled muscles
- Other

5.) Regarding your two year olds in training over Track D's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- 6 Stifles
- 4 Hocks
- Pelvis
- Fibula
- 2 Tibia
- Patella
- Pelvis
- Cannon
- Femur
- Feet
- 7 Muscles
- Other

6.) Regarding your two year olds training over Track D's synthetic surface, which type of injury is more predominant?

- 6 Front-end
- 2 Hind-end
- 2 No difference

7.) Regarding your older, running horses training over Track D's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- 10 Suspensory ligaments
- 2 Tendons
- Sesamoids
- 2 Feet
- 2 Knees
- 2 Pulled muscles
- Other

8.) Regarding your older, running horses training over Track D's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- 6 Stifles
- Hocks
- 2 Pelvis
- Fibula
- 4 Tibia
- Pelvis
- Cannon
- Femur
- Feet
- 6 Muscles
- Other

9.) Regarding your older horses in training at Track D's synthetic surface, which type of injury is more predominant?

- 2_ Front-end
- 6_ Hind-end
- 2_ No difference

10.) Have you seen more soft tissue injuries or skeletal injuries while training and running over track D's synthetic surface?

- 9_ Soft tissue
- Skeletal
- 1_ No difference

11.) In comparison to conventional dirt tracks, have you seen ____ general injuries on Track D's synthetic surface?

- Many more
- More
- 1_ Same
- 9_ Less
- Many less

12.) From your experience, would you rather start your two year olds on Track D's synthetic or on a conventional dirt surface?

- 8_ Synthetic
- 2_ Dirt

13.) From your experience, in general, have the two year olds you have conditioned for their first race on Track D's synthetic surface taken ____ time to prepare in comparison to conventional dirt surfaces?

- Much more time
- 4_ More time
- 4_ Same time
- 2_ Less time
- Much less time

14.) This is an opportunity for you to discuss your feelings about the introduction of synthetic surfaces both at this facility and across North America, do you feel it is a positive or negative change to the industry, and as a trainer how have you been adapting to the change?

15.) If you have trained and raced over more than one type of synthetic surface, do you have a preference and do you see any major differences between the different types?

Appendix 11

Track D Veterinarian Survey

1.) How many years have you been a practicing veterinarian?

- 1_ 0-10 years
- 10-15 years
- 15-20 years
- 3_ 20-30 years
- 1_ 30 + years

2.) How many years have you been practicing at Track D new synthetic surface?

- 2_ 0-1 years
- 3_ 1-2 years
- 3-4 years
- 4 + years

3.) Approximately how many horses do you and your practice treat at Track D?

- 0-100
- 100-200
- 3_ 200-300
- 1_ 300- 400
- 1_ 400 +

4.) In your practice, have the numbers of catastrophic injuries increased or decreased with the addition of synthetic to Track D?

- Increased
- 4_ Decreased
- 1_ Remained the same

5.) Regarding the two year olds under your care at Track D's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- 3_ Shins
- 3_ Suspensory ligaments
- 4_ Tendons
- Sesamoids
- Feet
- Knees
- Pulled muscles
- Other

6.) Regarding the two year under your care at Track D's synthetic surface, what has been the most common hind-end injury (s)? (You may answer more than one)

- Stifles
- 2 Hocks
- Pelvis
- Fibula
- 1 Tibia
- Patella
- Pelvis
- Cannon
- Femur
- 1 Feet
- 4 Muscles
- Other

7.) Regarding the two year olds under your care training over Track D's synthetic surface, which type of injury is more predominant?

- 1 Front-end
- 2 Hind-end
- 2 No difference

8.) Regarding the older, running horses under your care training over Track D's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- 3 Shins
- 4 Suspensory ligaments
- Tendons
- Sesamoids
- 2 Feet
- Knees
- 1 Pulled muscles
- Other

9.) Regarding the older, running horses under your care training over Track D's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- 3 Stifles
- 4 Hocks
- Pelvis
- Fibula
- Tibia
- Pelvis
- Femur
- Feet
- 2 Muscles
- Other

10.) Regarding the older horses under your care in training at Track D's synthetic surface, which type of injury is more predominant?

- 3_ Front-end
- Hind-end
- 2_ No difference

11.) In comparison to the previous conventional dirt surface at Track D, have you treated more soft tissue injuries or skeletal injuries since the change to the synthetic surface?

- 5_ Soft Tissue
- Skeletal
- No difference

12.) Has there been any noticeable increase in respiratory problems since the change to synthetic surface at Track D?

- 1_ Yes
- 4_ No

13.) This is an opportunity for you to discuss your feelings about the introduction of synthetic surfaces to Track D and across North America; do you believe that this is a positive or a negative change for the industry?

14.) If you have treated horses training and racing at more than one type of synthetic surface do you have a preference and have you noticed any major differences between the two types?

Appendix 12

Track D Jockey Survey

1.) How many years have you been a licensed jockey?

- 1_ 0-5
- 1_ 5-10
- 1_ 10-15
- 15-20
- 1_ 20-25
- 1_ 25 +

2.) On race days at Track D approximately how many races do you ride?

- 0-2
- 1_ 2-4
- 2_ 4-6
- 2_ 6-8
- 1_ 8 +

3.) Do you feel that you are more safe riding on Track D's synthetic surface?

- 2_ Much more
- 2_ More
- 1_ Same
- Less
- Much less

4.) Do you feel that the synthetic surface at Track D plays fair to front-runners?

- 2_ Yes
- 3_ No
- Strongly varies on day of week

5.) Do you feel that the synthetic surface at Track D plays fair to stalkers?

- 5_ Yes
- No
- Strongly varies on day off week

6.) Do you feel that the synthetic surface at Track D plays friar to closers?

- 4_ Yes
- 1_ No
- Strongly varies on day of week

7.) Do you feel the surface at Track D change from morning training to afternoon racing?

- Yes
- 5_ No

8.) Do you feel the track change from race to race in the afternoons at Track D?

Always

Often

1_ Rarely

4_ Never

9.) Have you experienced any respiratory problems since Track D switched to synthetic surface?

3_ Yes

2_ No

10.) Are you concerned about your future health condition because of the switch to synthetic surfaces?

4_ Very Concerned

1_ Concerned

Not Concerned

Appendix 13

Track E Trainer Survey

1.) How many years have you been a licensed trainer?

- 1_ 0-5 years
- 1_ 5-10 years
- 2_ 10-15 years
- 4_ 15-20 years
- 2_ 20 + years

2.) How many horses do you currently have (or previously had) training on Track E's synthetic surface under your care?

- 0-5
- 2_ 5-10
- 4_ 10-20
- 4_ 20-30
- 30-40
- 40 +

3.) Approximately what percentage of the horses under your care, on Track E's synthetic surface are two year olds?

- 0-20%
- 4_ 20-40%
- 2_ 40-60%
- 60-80%
- 4_ 80-100%

4.) Regarding your two year olds in training over Track E's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- 8_ Suspensory ligaments
- 4_ Tendons
- Sesamoids
- Feet
- Knees
- 2_ Pulled muscles
- Other

5.) Regarding your two year olds in training over Track E's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- 2 Stifles
- 4 Hocks
- Pelvis
- Fibula
- 4 Tibia
- Patella
- Pelvis
- Cannon
- Femur
- Feet
- 2 Muscles
- Other

6.) Regarding your two year olds training over Track E's synthetic surface, which type of injury is more predominant?

- 6 Front-end
- Hind-end
- 2 No difference

7.) Regarding your older, running horses training over Track E's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- 6 Suspensory ligaments
- 4 Tendons
- Sesamoids
- Feet
- Knees
- 4 Pulled muscles
- Other

8.) Regarding your older, running horses training over Track E's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- Stifles
- 2 Hocks
- Pelvis
- Fibula
- 2 Tibia
- Pelvis
- Cannon
- Femur
- Feet
- 2 Muscles
- 4 Other

9.) Regarding your older horses in training at Track E's synthetic surface, which type of injury is more predominant?

- 6 Front-end
- 2 Hind-end
- 2 No difference

10.) Have you seen more soft tissue injuries or skeletal injuries while training and running over track E's synthetic surface?

- 8 Soft tissue
- 2 Skeletal
- No difference

11.) In comparison to conventional dirt tracks, have you seen _____ general injuries on Track E's synthetic surface?

- Many more
- More
- Same
- 4 Less
- 6 Many less

12.) From your experience, would you rather start your two year olds on Track E's synthetic or on a conventional dirt surface?

- 10 Synthetic
- Dirt

13.) From your experience, in general, have the two year olds you have conditioned for their first race on Track E's synthetic surface taken _____ time to prepare in comparison to conventional dirt surfaces?

- Much more time
- 2 More time
- 8 Same time
- Less time
- Much less time

14.) This is an opportunity for you to discuss your feelings about the introduction of synthetic surfaces both at this facility and across North America, do you feel it is a positive or negative change to the industry, and as a trainer how have you been adapting to the change?

15.) If you have trained and raced over more than one type of synthetic surface, do you have a preference and do you see any major differences between the different types?

Appendix 14

Track E Veterinarian Survey

1.) How many years have you been a practicing veterinarian?

- 0-10 years
- 10-15 years
- 15-20 years
- 20-30 years
- 30 + years

2.) How many years have you been practicing at Track E's new synthetic surface?

- 0-1 years
- 1-2 years
- 2-3 years
- 3-4 years
- 4 + years

3.) Approximately how many horses do you and your practice treat at Track E?

- 0-100
- 100-200
- 200-300
- 300- 400
- 400 +

4.) In your practice, have the numbers of catastrophic injuries increased or decreased with the addition of synthetic to Track E?

- Increased
- Decreased
- Remained the same

5.) Regarding the two year olds under your care at Track E's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- Suspensory ligaments
- Tendons
- Sesamoids
- Feet
- Knees
- Pulled muscles
- Other

6.) Regarding the two year under your care at Track E's synthetic surface, what has been the most common hind-end injury (s)? (You may answer more than one)

- 3 Stifles
- 3 Hocks
- Pelvis
- Fibula
- Tibia
- Patella
- Pelvis
- Cannon
- Femur
- Feet
- 2 Muscles
- Other

7.) Regarding the two year olds under your care training over Track E's synthetic surface, which type of injury is more predominant?

- Front-end
- 2 Hind-end
- 3 No difference

8.) Regarding the older, running horses under your care training over Track E's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- 5 Suspensory ligaments
- 4 Tendons
- Sesamoids
- Feet
- Knees
- 2 Pulled muscles
- Other

9.) Regarding the older, running horses under your care training over Track E's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- 4 Stifles
- 3 Hocks
- Pelvis
- Fibula
- Tibia
- Pelvis
- Femur
- Feet
- 1 Muscles
- Other

10.) Regarding the older horses under your care in training at Track E's synthetic surface, which type of injury is more predominant?

- Front-end
- Hind-end
- No difference

11.) In comparison to the previous conventional dirt surface at Track E, have you treated more soft tissue injuries or skeletal injuries since the change to the synthetic surface?

- Soft Tissue
- Skeletal
- No difference

12.) Has there been any noticeable increase in respiratory problems since the change to synthetic surface at Track E?

- Yes
- No

13.) This is an opportunity for you to discuss your feelings about the introduction of synthetic surfaces to Track E and across North America; do you believe that this is a positive or a negative change for the industry?

14.) If you have treated horses training and racing at more than one type of synthetic surface do you have a preference and have you noticed any major differences between the two types?

Appendix 15

Track E Jockey Survey

1.) How many years have you been a licensed jockey?

- 1_ 0-5
- 2_ 5-10
- 10-15
- 1_ 15-20
- 20-25
- 1_ 25 +

2.) On race days at Track E, approximately how many races do you ride?

- 0-2
- 2-4
- 3_ 4-6
- 1_ 6-8
- 1_ 8 +

3.) Do you feel that you are more safe riding on Track E's synthetic surface?

- Much more
- 5_ More
- Same
- Less
- Much less

4.) Do you feel that the synthetic surface at Track E plays fair to front-runners?

- 5_ Yes
- No
- Strongly varies on day of week

5.) Do you feel that the synthetic surface at Track E plays fair to stalkers?

- 5_ Yes
- No
- Strongly varies on day off week

6.) Do you feel that the synthetic surface at Track E plays friar to closers?

- 5_ Yes
- No
- Strongly varies on day of week

7.) Do you feel the surface at Track E change from morning training to afternoon racing?

- 3_ Yes
- 2_ No

8.) Do you feel the track change from race to race in the afternoons at Track E?

 1 Always

 3 Often

 1 Rarely

 Never

9.) Have you experienced any respiratory problems since Track E switched to synthetic surface?

 3 Yes

 2 No

10.) Are you concerned about your future health condition because of the switch to synthetic surfaces?

 3 Very Concerned

 2 Concerned

 Not Concerned

Appendix 16

Track F Trainer Survey

1.) How many years have you been a licensed trainer?

- 1_ 0-5 years
- 2_ 5-10 years
- 2_ 10-15 years
- 3_ 15-20 years
- 2_ 20 + years

2.) How many horses do you currently have (or previously had) training on Track F's synthetic surface under your care?

- 0-5
- 2_ 5-10
- 2_ 10-20
- 1_ 20-30
- 4_ 30-40
- 1_ 40 +

3.) Approximately what percentage of the horses under your care, on Track F's synthetic surface are two year olds?

- 2_ 0-20%
- 6_ 20-40%
- 2_ 40-60%
- 60-80%
- 80-100%

4.) Regarding your two year olds in training over Track F's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- 6_ Shins
- Suspensory ligaments
- Tendons
- 1_ Sesamoids
- Feet
- 2_ Knees
- Pulled muscles
- 3_ Other

5.) Regarding your two year olds in training over Track F's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- Stifles
- Hocks
- Pelvis
- Fibula
- 6 Tibia
- Patella
- 6 Pelvis
- 2 Cannon
- Femur
- 2 Feet
- Muscles
- Other

6.) Regarding your two year olds training over Track F's synthetic surface, which type of injury is more predominant?

- 2 Front-end
- 8 Hind-end
- No difference

7.) Regarding your older, running horses training over Track F's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- Suspensory ligaments
- Tendons
- Sesamoids
- 4 Feet
- 6 Knees
- Pulled muscles
- 3 Other

8.) Regarding your older, running horses training over Track F's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- Stifles
- Hocks
- 7 Pelvis
- 2 Fibula
- 5 Tibia
- 4 Pelvis
- Cannon
- 3 Femur
- Feet
- 3 Muscles
- Other

9.) Regarding your older horses in training at Track F's synthetic surface, which type of injury is more predominant?

- 2_ Front-end
- 8_ Hind-end
- ___ No difference

10.) Have you seen more soft tissue injuries or skeletal injuries while training and running over Track F's synthetic surface?

- 4_ Soft tissue
- 6_ Skeletal
- ___ No difference

11.) In comparison to conventional dirt tracks, have you seen ___ general injuries on Track F's synthetic surface?

- 4_ Many more
- 6_ More
- ___ Same
- ___ Less
- ___ Many less

12.) From your experience, would you rather start your two year olds on Track F's synthetic or on a conventional dirt surface?

- ___ Synthetic
- 10_ Dirt

13.) From your experience, in general, have the two year olds you have conditioned for their first race on Track F's synthetic surface taken ___ time to prepare in comparison to conventional dirt surfaces?

- ___ Much more time
- 2_ More time
- 6_ Same time
- 2_ Less time
- ___ Much less time

14.) This is an opportunity for you to discuss your feelings about the introduction of synthetic surfaces both at this facility and across North America, do you feel it is a positive or negative change to the industry, and as a trainer how have you been adapting to the change?

15.) If you have trained and raced over more than one type of synthetic surface, do you have a preference and do you see any major differences between the different types?

Appendix 17

Track F Veterinarian Survey

1.) How many years have you been a practicing veterinarian?

- 0-10 years
- 10-15 years
- 15-20 years
- 20-30 years
- 30 + years

2.) How many years have you been practicing at Track F's new synthetic surface?

- 0-1 years
- 1-2 years
- 3-4 years
- 4 + years

3.) Approximately how many horses do you and your practice treat at Track F?

- 0-100
- 100-200
- 200-300
- 300- 400
- 400 +

4.) In your practice, have the numbers of catastrophic injuries increased or decreased with the addition of synthetic to Track F?

- Increased
- Decreased
- Remained the same

5.) Regarding the two year olds under your care at Track F's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- Suspensory ligaments
- Tendons
- Sesamoids
- Feet
- 2_ Knees
- Pulled muscles
- Other

6.) Regarding the two year under your care at Track F's synthetic surface, what has been the most common hind-end injury (s)? (You may answer more than one)

- Stifles
- Hocks
- 2_ Pelvis
- 1_ Fibula
- 4_ Tibia
- Patella
- 1_ Pelvis
- Cannon
- Femur
- Feet
- 2_ Muscles
- Other

7.) Regarding the two year olds under your care training over Track F's synthetic surface, which type of injury is more predominant?

- 2_ Front-end
- 3_ Hind-end
- No difference

8.) Regarding the older, running horses under your care training over Track F's synthetic surface, what has been the most common front-end injury (s)? (You may answer more than one)

- Shins
- 2_ Suspensory ligaments
- 2_ Tendons
- Sesamoids
- Feet
- 3_ Knees
- Pulled muscles
- Other

9.) Regarding the older, running horses under your care training over Track F's synthetic surface what has been the most common hind-end injury (s)? (You may answer more than one)

- 2_ Stifles
- 2_ Hocks
- 2_ Pelvis
- 1_ Fibula
- 4_ Tibia
- 1_ Pelvis
- 3_ Femur
- Feet
- 2_ Muscles
- Other

10.) Regarding the older horses under your care in training at Track F's synthetic surface, which type of injury is more predominant?

- 2 Front-end
- 2 Hind-end
- 1 No difference

11.) In comparison to the previous conventional dirt surface at Track F have you treated more soft tissue injuries or skeletal injuries since the change to the synthetic surface?

- 2 Soft Tissue
- 3 Skeletal
- No difference

12.) Has there been any noticeable increase in respiratory problems since the change to synthetic surface at Track F?

- Yes
- 5 No

13.) This is an opportunity for you to discuss your feelings about the introduction of synthetic surfaces to Track F and across North America; do you believe that this is a positive or a negative change for the industry?

14.) If you have treated horses training and racing at more than one type of synthetic surface do you have a preference and have you noticed any major differences between the two types?

Appendix 18

Track F Jockey Survey

1.) How many years have you been a licensed jockey?

- 1_ 0-5
- 2_ 5-10
- 10-15
- 1_ 15-20
- 20-25
- 1_ 25 +

2.) On race days at Track F, approximately how many races do you ride?

- 0-2
- 2_ 2-4
- 2_ 4-6
- 1_ 6-8
- 8 +

3.) Do you feel that you are more safe riding on Track F's synthetic surface?

- Much more
- 2_ More
- 1_ Same
- Less
- 2_ Much less

4.) Do you feel that the synthetic surface at Track F plays fair to front-runners?

- 2_ Yes
- No
- 3_ Strongly varies on day of week

5.) Do you feel that the synthetic surface at Track F plays fair to stalkers?

- 2_ Yes
- No
- 3_ Strongly varies on day off week

6.) Do you feel that the synthetic surface at Track F plays fair to closers?

- 1_ Yes
- 3_ No
- 1_ Strongly varies on day of week

7.) Do you feel the surface at Track F change from morning training to afternoon racing?

- 1_ Yes
- 4_ No

8.) Do you feel the track change from race to race in the afternoons at Track F?

Always

Often

1 Rarely

3 Never

9.) Have you experienced any respiratory problems since Track F switched to synthetic surface?

3 Yes

2 No

10.) Are you concerned about your future health condition because of the switch to synthetic surfaces?

3 Very Concerned

2 Concerned

Not Concerned

