

IS THIS THE DEATH OF SYNTHETIC RACING?

And if so, why?

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AND IF SO, WHY?

by Lucas Marquardt

TWO STEPS BACK?

On Memorial Day in 2011, Thoroughbred owner Bill Casner sat in his box at Lone Star Park, enjoying a typically sunny Dallas day and awaiting the track's signature events, the Lone Star Derby and Lone Star Handicap. The Derby was just a race away when, in a minor stakes on the main track, a filly named Icelain Diva broke down at the eighth pole. The tiring 3-year-old had set the pace and was battling to hold on for show when her left foreleg gave out. Icelain Diva didn't fall, but jockey Lindsey Wade, who at first tried to stay aboard, was forced to jump off and roll under the rail to avoid the horses behind him. Wade walked away with minor injuries. Icelain Diva, who continued lurching toward the wire, wasn't as lucky. "She came in on three legs, and the

whole grandstand just went quiet," said Casner. "It was a horrific injury."

A screen was erected, and Icelain Diva was euthanized.

The crowd, said Casner, began to thin immediately. "I went downstairs to one of the exits, and despite the fact the two biggest races were coming up, people were just pouring out in droves," he said. "People were silent, a few people were crying. They were just leaving in disgust."

Three years on, and Casner thinks about that day often. He thought about it in February, when he learned that Del Mar was tearing out its synthetic Polytrack and, after six years, returning to conventional dirt. He thought about it when he heard in early April that Keeneland was replacing its Polytrack, too, in

place since the fall of 2006. And he thought about it when Meydan, built with a Tapeta surface, announced in May that it was going to dirt.

"As an industry, we're in desperate times right now," he said. "We're trying to survive, and public opinion can change very quickly. We saw it a little with the PETA videos, and it hasn't really gone mainstream. When it does, it will be an ugly aftermath."

Casner belongs to a group that has two important questions regarding the synthetic revolution, which swept North American racing in the mid-2000s and which, at its high point, saw nine tracks competing on all-weather surfaces. Why is it viewed as a failure? And will the decision to move away from synthetics come back to haunt racing?



p: Horsephotos

Bad Press & the Welfare of the Horse...

The video Bill Casner referenced, an undercover production released by the animal-rights group People for the Ethical Treatment of Animals, was the latest black eye for racing. PETA claimed it showed trainer Steve Asmussen and his employees, namely assistant Scott Blasi, engaging in conduct that was detrimental to horses in Asmussen's care. The video drew national attention. The *New York Times*, a day after its release, did a feature, and NBC and HBO both interviewed Asmussen, who pointed out the video showed no actual rule violations and that it was edited in such a way as to paint as dark a picture as possible of a stable that, he said, stresses equine care first.

Regardless, it was another negative story about racing, which in the past decade has battled a steady stream of them. There were the prominent breakdowns of Eight Belles in the Kentucky Derby and Barbaro in the Preakness Stakes. In the last 10 editions of the Breeders' Cup, there have been at least five fatal breakdowns: Funfair (GB), Pine Island, George Washington (Ire), Rough Sailing, and Secret Compass, while several others, including Centralintelligence, Fleet Indian and A. U. Miner, suffered fractures in Breeders' Cup races (the latter two career-ending) and were vanned off.

A spike of on-track deaths at Aqueduct led New York Governor Andrew Cuomo to personally order an investigation of track practices in 2012, the same year a *Times* series by Joe Drape and Walt Bogdanich entitled



Bill Casner

p: Horsephotos

“The American public is going to hold us accountable on every aspect of our business. Certainly the welfare and safety of our horses is going to be the number-one thing.”

--Bill Casner

“Death and Disarray at America's Racetracks” took aim at what they viewed as racing's dangerously lax oversight of medication use.

During this time, the industry became increasingly aware of its image problem, and the effect it had on attracting new fans. In 2011, The Jockey Club asked McKinsey & Company to analyze racing's economics for the next 10 years and to “recommend initiatives that could improve the outlook of the sport.” At that summer's Round

Table Conference, representatives of the company reported that, from the previous decade, handle was down 37% and attendance down 30%. They projected racing would lose fans at a rate of 4% per year, meaning there would be a third fewer fans in 2020 than in 2010.

One of the major causes of the decline, according to McKinsey, was brand perception. “Only 22% of the general public has a positive impression of Thoroughbred racing,” said McKinsey's Dan Singer. “What was even more stark and surprising was only 46% of racing fans would recommend the sport to others.”

Casner, like many others, believes racing's image problem boils down to one central issue--horse welfare--and that if the problem isn't adequately addressed, racing will only continue to decline in popularity.

“The American public is going to hold us accountable on every aspect of our business,” he said. “Certainly the welfare and safety of our horses is going to be the number-one thing.”

One Step Forward...

There has been some progress in horse welfare in recent years. At least 13 states have committed to the National Uniform Medication Program, and some jurisdictions have shown an increased willingness to take on habitual offenders. New York, for instance, handed trainer Richard Dutrow, Jr. a 10-year suspension for a series of medication violations.

Last fall, federal investigators based in Pennsylvania arrested three trainers--including David Wells, the conditioner of the record-breaking Rapid Redux--for attempting to fix horse races by administering illegal raceday medications. Hoping to make it harder for potential rule breakers, Frank Stronach's The Stronach Group announced a plan in mid-April to institute an in-house pharmacy to dispense medication at Stronach-owned tracks.

Another component of horse welfare--Thoroughbred aftercare--has also gained steam in recent years. Retirement organizations like the Thoroughbred Aftercare Alliance, for instance, help fund other organizations that retrain ex-racehorses for second careers or provide them with permanent retirement.

But some argue that the industry has lost focus of a third major

plank of horse welfare: on-track catastrophic fatalities, and in particular, their relation to track surfaces. The Jockey Club's annual Round Table Conference, for instance, included segments on track safety and equine fatalities in 2006, 2007, 2008 and 2009, but received virtually no mention in four of the last five years. Medication regulation has instead received the lion's share of attention.

By contrast, breakdown rates dominated the conversation in national racing circles in the mid-2000s. Before switching to Polytrack, Del Mar's breakdown rate had become such a concern that a local paper began running a tally of the horses that were euthanized there--8 on the main track, 7 on the turf in 2006. In Chicago the same year, Arlington Park saw 22 horses put down from catastrophic injuries, including 11 in one particularly deadly three-week stretch. At Turfway, according

to Bill Finley's book "Handicapping Synthetic Surfaces," 24 horses died in a six-month stretch from November, 2004 through the spring meet of 2005.

In addition to the loss of equine life, the economic consequences for owners and trainers, and the considerable health risks for jockeys, these breakdowns were a public relations nightmare for racing. How could the sport project itself as family friendly, or as hip and trendy, against such a backdrop? The deaths of Barbaro and Eight Belles, in particular, ensured the national media would judge racing's response.

In swept synthetic tracks. Beginning with Turfway Park in 2005, nine tracks in North America converted to synthetic surfaces, including four in California--Del Mar, Hollywood, Santa Anita and Golden Gate--that were mandated by the California Horse Racing Board.



Turfway Park

p: Horsephotos



p: UC Davis School of Veterinary Medicine

**“I’m not sure
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--Dr. Sue Stover

So what happened? Did the tracks fail to reduce catastrophic breakdowns? No. By that measure, even many detractors of synthetic tracks agree the surfaces were a success. The numbers are hard to argue. In March of 2014, The Jockey Club released the five-year statistics from its Equine Injury Database, which was launched in 2008 to collect data and help address the problem of breakdowns.

Covering the years 2009-13, the results show that synthetics were not only consistently safer than dirt, but also safer than turf, with a fatality rate of 1.22 per 1,000 starts (289 deaths from 236,167 starts). On turf, the rate was 1.63 (411 deaths from 251,665 starts), while on dirt, it was 2.08 (2,882 from 1,383,690 starts).

One of the other takeaways from the five-year study was that while the numbers generally trended downward for both synthetics (1.49, 1.21, 1.09, 1.03, 1.22) and turf (1.94, 1.60, 1.54, 1.74, 1.38), the dirt figures remain nearly unchanged from year to year (2.10, 2.04, 2.07, 2.10, 2.11). This would appear to put a dent in the argument that an increased focus on safety in North America has made all tracks safer, not just synthetics.

Despite the reduction in catastrophic breakdowns on synthetic tracks, not everybody was convinced by the new surfaces. Many trainers said they saw a rise in non-fatal, soft-tissue injuries, particularly in the hind end. Other were vexed by the changes in the tracks from training hours to post time. At Del Mar, cool seaside mornings kept the track tighter and faster, but in the afternoons, the hot California sun left the track sticky, which yielded slower times. Several prominent handicappers denounced the surfaces, saying they were harder to handicap and played to horses with grass pedigrees. Others said the tracks robbed the American Thoroughbred of its most prized asset: speed.

These days, many are happy to bid adieu to Keeneland’s and Del Mar’s surfaces, just as they were happy to say goodbye to Santa Anita’s synthetic track back in 2010, when it converted from its Pro-Ride surface back to conventional dirt. In a *Daily Racing Form* opinion piece this spring, Andrew Beyer called the move to install synthetics, “ill-considered, hasty, and a bit arrogant. A small number of the sport’s leaders were saying, in essence, ‘We are going to change the fundamental nature of horse racing in America, and we want everyone to fall in line with us.’ Upon seeing what the future would look like, too many people--the sport’s customers, especially--wanted no part of it.”

Some of the arguments against synthetics are valid. Others aren’t substantiated by the facts. Regardless, synthetic supporters seem to have lost the battle, at least in North America. But the questions remain: is the American Thoroughbred better, or worse off, for it? And what will be the long-run effect on racing if the current trend continues and synthetic tracks continue to revert to dirt?

“Are we making decisions based on scientific evidence, or things we don’t know much about?” Dr. Sue Stover, one of the country’s leading specialists on equine anatomy and biomechanics, asked. “I’m not sure the change back from synthetics to dirt is based less on sound information and more on opinion. And I’m not sure it’s right or wrong—but there’s a lot at stake. Not only horses lives, but a lot of economic investment.”

SYNTHETICS & CATASTROPHIC BREAKDOWNS

Mark Twain said, “There are three kinds of lies: lies, damned lies and statistics.” That is, if you have a point to argue, you can probably bend one stat or another to serve your purpose. There are plenty of statistics about synthetic tracks, enough to fuel both sides of the debate, but nearly everyone involved also agrees that hard facts about all-weather tracks are hard to ascertain.

If we’re strictly talking catastrophic breakdowns, however, it is difficult to argue that synthetic tracks don’t reduce--sometimes drastically--the rates of those breakdowns.

Much of the information we have is from The Jockey Club’s Equine Injury Database (EID), launched in 2008, which calculates racing fatality rates (measured in fatalities per 1000 starts) of participating tracks.

The EID has its limitations, since it covers only those deaths that happen during racing and not training, which historically can account for 40% of a track’s catastrophic breakdowns. Further, the figures include all fatalities that occur from the time the gates open in a given race until 72 hours after (if a horse is injured in the race).

So horses that have heart attacks or suffer fatal injuries after clipping heels--causes that have no bearing on track surface--are included. Still, the EID has been an invaluable tool in judging the safety of a track, and those tracks that participate should be applauded for doing so.

“I’ve always said that the racing jurisdictions that don’t even collect the numbers are negligent,” said Dr. Tim Parkin, a veterinarian and epidemiologist from the University of Glasgow, who serves as a consultant on the EID and breaks down the numbers for The Jockey Club. “Anyone who puts racing on should know the risk for the horses that come and take part.” *(The database can be viewed [here](#). Note that all listed tracks provide information to the EID. Those tracks that are hyperlinked have chosen to make their information public.)*

Recently, The Jockey Club released a five-year study of catastrophic breakdown rates from Jan. 1, 2009 through Jan. 31, 2013. Stats showed that 3,582 horses died while racing in North America during that stretch at participating tracks. In the same timeframe, horses made 1,871,522 starts, equating to a breakdown rate of 1.91 per 1000 starts.



Dr. Tim Parkin *p: Horsephotos*

Cumulative breakdown rates by surface varied greatly. On synthetic tracks, the rate was 1.22/1000. On turf, it was 1.63/1000. On dirt, the rate was 2.08/1000.

“Overall, synthetic racing surfaces continued to be associated with significantly fewer fatal injuries than dirt and turf,” Parkin said in an official release.

To some, the difference between 1.00/1000 and 2.00/1000 may not sound like a big deal. But if you consider a track that sends out 11,000-plus starters each year, such as Woodbine, 10 fatalities vs. 20 per 10,000 starts takes on a different perspective.

Supplemental Tables of Equine Injury Database Statistics for Thoroughbreds (January 1 through December 31 for each year listed)

Surface	2009			2010			2011			2012			2013			2009-2013		
	fatalities	starts	per 1000 starts	fatalities	starts	per 1000 starts	fatalities	starts	per 1000 starts	fatalities	starts	per 1000 starts	fatalities	starts	per 1000 starts	fatalities	starts	per 1000 starts
ALL	790	395897	2.00	727	387671	1.88	713	379285	1.88	709	369565	1.92	643	339104	1.90	3582	1871522	1.91
TURF	88	45456	1.94	81	50701	1.60	77	50054	1.54	94	53991	1.74	71	51463	1.38	411	251665	1.63
DIRT	617	293306	2.10	585	286584	2.04	586	283531	2.07	570	271851	2.10	524	248418	2.11	2882	1383690	2.08
SYNTHETIC	85	57135	1.49	61	50386	1.21	50	45700	1.09	45	43723	1.03	48	39223	1.22	289	236167	1.22

“I’m disappointed the synthetic tracks are starting to be ripped up again. I think there’s clear evidence in what we’ve done that they truly are safer.”

-- Dr. Tim Parkin

It’s no surprise, then, that as the industry turns away from synthetic tracks, some are left scratching their heads as to why advances made during the synthetic era are being ignored.

“I’m disappointed the synthetic tracks are starting to be ripped up again,” Parkin said in an interview with the *TDN*. “I think there’s clear evidence in what we’ve done that they truly are safer. I understand the other pressures out there--policy isn’t driven only by science--but in terms of equine welfare, it’s a disappointing move given the strength of the evidence.”

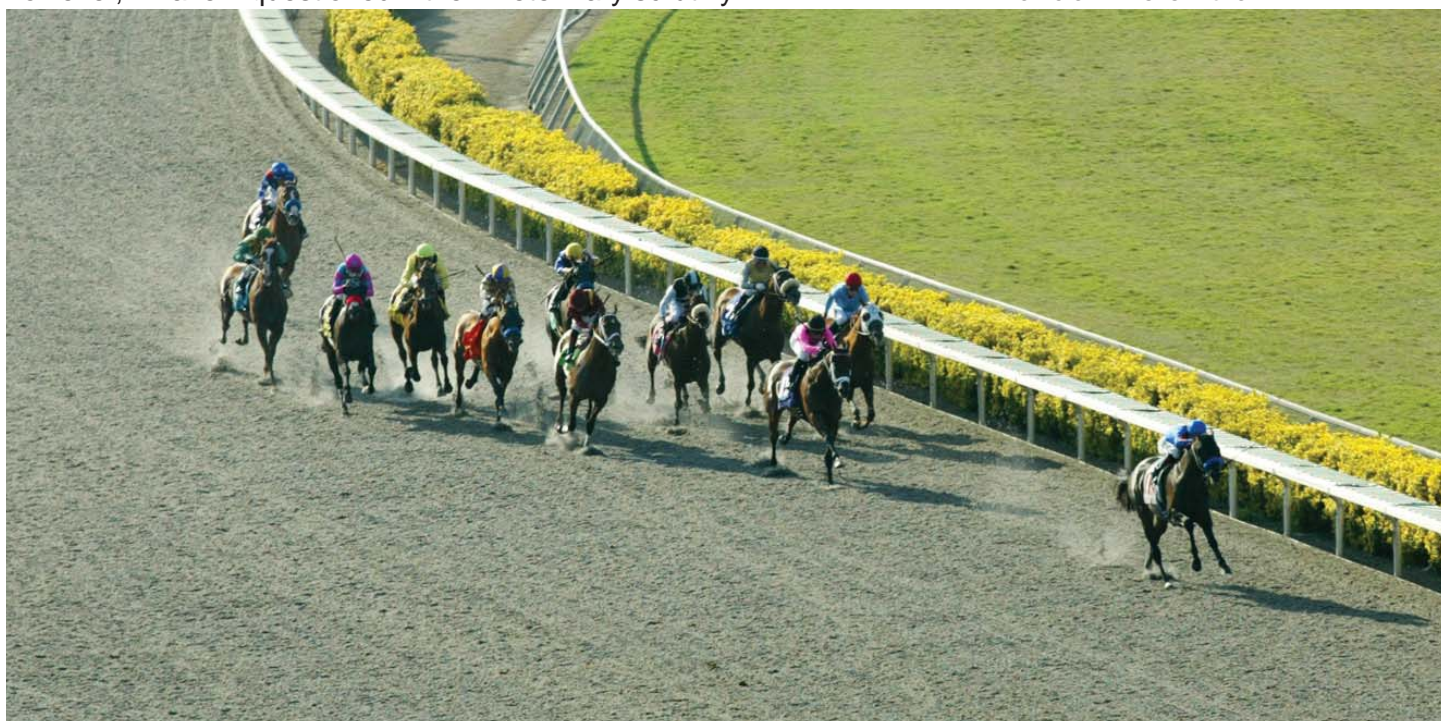
Opponents of synthetic tracks, however, have questioned the

validity of the statistics, and wonder aloud if the reduction of fatalities isn’t attributable to other factors.

One widely held belief was voiced by trainer and attorney Darrell Vienna in an opinion piece titled “Artificial Promises,” published in the Jan. 26, 2010 issue of *The Blood-Horse*. At that point, California racing had battled maintenance issues at both Del Mar and Santa Anita, but had also witnessed a significant drop in racing fatalities. Vienna likened “[p]urveyors of synthetic racing surfaces” to “snake oil salesmen,” and said that the reduced rate of catastrophic breakdowns could be tied to another enhanced safety factor in California racing: “pre-race veterinary scrutiny.”

Wrote Vienna, “Catastrophic breakdowns are caused by a number of factors. Any conclusion that fails to consider all variables is fatally flawed. In California, shortly after the introduction of the synthetic surfaces, pre-race veterinary scrutiny of all starters was enhanced. Any potential starter with even the hint of a pre-existing condition was not allowed to compete. Could it be that this heightened pre-race inspection has contributed to the purported reduction of injuries attributed to synthetic surfaces?”

Other detractors of synthetics said the drop in breakdowns could be tied to the fact that the synthetic tracks were recently installed, and by racing jurisdictions with financial wherewithal.



Game On Dude with field winning the G1 Pacific Classic on Del Mar Polytrack

p: Horsephotos

In January of 2013, the *Daily Racing Form's* Steve Crist wrote that wholesale comparisons between all American dirt tracks and synthetic tracks "...are specious because every synthetic installation is a new and expensive, one while many of the nation's older dirt tracks are at poorly maintained minor venues, and that investing in improvements to dirt tracks would yield the same statistical gains. Truer comparisons, such as between top-flight tracks offering simultaneous meetings on the different surfaces, suggest that dirt racing can be just as safe or safer."

Controlled experiments are impossible in real-world racing, where there are dozens of variables relating to horse welfare, but the closest North America got is when Santa Anita reverted from Pro-Ride to dirt in late 2010.

Four years earlier, the California Horse Racing Board had mandated that all the major tracks in the state install a synthetic surface or risk losing dates, and in 2007, Santa Anita put in a wax-based Cushion Track--the same type of track used by Hollywood Park. Problems soon arose at Santa Anita. Heavy rains in early 2008 revealed drainage issues, reportedly caused by an improper type of sand used during installation (a different, less silt-like type was used successfully at Hollywood). Santa Anita was forced to cancel 11 days of racing, and the Australian-based Pro-Ride was brought in to work out a solution. The stop-gap measure worked. Santa Anita held two successful Breeders' Cup events over the Pro-Ride and enjoyed a spectacular safety record. In 2009, the Pro-Ride

saw four fatalities from 4,440 starts, a rate of 0.90/1000. A year later, just two racing fatalities occurred from 3,395 starts, or 0.59/1000. But drainage problems continued, and Santa Anita announced it was going back to dirt.

Officials said they remained committed to safety, and that a state-of-the-art dirt track would be installed that would ensure the safety of horses and riders and provide a level playing field for all competitors. It would also, incidentally, provide a means of testing Vienna's and Crist's assertions. Same horsemen, same horses, same protocols, just a different (and brand new) surface.

Santa Anita's new dirt track was blistering fast when it opened on Dec. 26, 2010. On the fourth race of the card, The Factor broke his maiden in a six-furlong maiden special in a track-record 1:06 4/5.

Later in the day, Twirling Candy took the GI Malibu S. in 1:19 3/5, which lowered Spectacular Bid's 20-year-old track record by .30.

Hard, fast tracks are notoriously tough on horses, though, and before the week was out, two horses were vanned off the main track and a third broke down in the stretch and was euthanized.

That inauspicious 3.45/1000 catastrophic breakdown rate for the first week of the meet came from an insufficient sample size of 290 starts. But fatality rates remained high through the next year. Thirteen horses died while racing at Santa Anita in 2011, a rate of 2.94/1000. In comparison, across town on Hollywood's Cushion Track, there were 7 racing deaths from 3,812 starts (1.84/1000) on the year, a near 60% difference. In 2012, Santa Anita had a fatality rate of 2.89.



Twirling Candy (far left) winning the GI Malibu S. at Santa Anita on Dec. 26, 2010, the first day that Santa Anita returned to racing on a dirt track. p: Benoit

Looked at in a slightly different way, Santa Anita sent off 7,825 synthetic starters in 2009-10, and six horses died while racing. The following two years, 8,928 dirt starters left the gate, and 26 horses died.

In May, Santa Anita, whose 2013 breakdown rate on dirt was 2.11, announced that it was replacing its surface once again, this time with 20,000-plus yards of El Segundo sand excavated from Los Angeles International Airport.

The Santa Anita experiment suggests Vienna's belief that dropping fatality rates were due to increased pre-race safety protocols, rather than the track surface, was either incorrect, or that protocol standards were relaxed significantly since their implementation.

As for Crist's assertion that synthetic tracks are safer because they are new and expensive, evidence suggests the vintage of a track doesn't play a major factor in its safety record. Laurel Park, for instance, replaced its existing dirt track in 2005, raising it and widening

it from 75 to 95 feet. It opened to rave reviews from horsemen and jockeys, but the track has a spotty safety record since. According to the EID, since 2009, its has recorded a rate under 1.90 deaths per 1000 starts just once, and suffered its worst year in 2013, when 23 horses died while racing (3.54/1000).

Gulfstream Park, which also installed a new dirt track in the mid-2000s, has fared better. After a sky-high rate of 3.02/1000 in 2009, it has achieved rates of 0.47 ('10), 1.85 ('11), 1.77 ('12) and 1.65 ('13) the last four years.

Some older dirt tracks, by way of comparison, have performed just as good or better. Saratoga Race Course, a New York Racing Association track, hasn't had an official renovation in decades, and has a very solid safety record. In 2009, the boutique summer meet--which is subject to big swings in fatality rates due to its relatively small number of starters--didn't have a racing fatality on dirt. In the years since, rates have checked in at 1.92, 0.57, 1.23 and 1.29.

These numbers tout Gulfstream and Saratoga as some of the safer dirt tracks around. But, on a year-in, year-out basis, they still struggled to match the rates of North America's safest synthetic tracks. In the last five years, Woodbine has achieved rates of 1.03, 0.93, 0.97, 0.64, and 1.19. At Presque Isle Downs, in the same stretch, it's 1.30, 0.79, 0.45, 0.78 and 0.82. At Keeneland: 0.85, 0.93, 1.27, 1.39, 0.43.

Presque Isle's 0.45 rate in 2011, when the track had three fatalities from 6,609 starters, is a high mark for a non-boutique meet that hasn't been surpassed on the EID. Coming close was the 0.58 rate that Turfway achieved in 2012. Like Presque Isle, Turfway cards are made up mostly of inexpensive claiming races, and for Parkin, the results at places like Presque Isle and Turfway are consistent with studies he and his colleagues have done around the world that show that, regardless of racing class, synthetics have better safety records.

BEST DIRT VS. BEST SYNTHETIC

Below are some of the tracks considered by many to be the safest in the nation. Rates are catastrophic breakdowns per 1000 starts.

DIRT TRACKS						
	2009	2010	2011	2012	2013	5YR-CUM
Belmont	2.21	1.80	2.29	1.86	0.88	1.82
Gulfstream	3.02	0.47	1.85	1.77	1.65	1.73
Saratoga	0.00	1.92	0.57	1.23	1.29	0.99

5yr Cumulative Breakdown Rate for BEL, GP & SAR = 1.64

SYNTHETIC TRACKS						
	2009	2010	2011	2012	2013	5YR-CUM
Keeneland	0.85	0.93	1.27	1.39	0.43	0.98
Presque Isle	1.30	0.79	0.45	0.78	0.82	0.82
Woodbine	1.03	0.93	0.97	0.64	1.19	0.95

5yr Cumulative Breakdown Rate for KEE, PID & WO = 0.91

After changing to synthetics, the rate of main-track deaths dropped to 1.95/1000 (at DMR) or 109 fatalities from 56,031 starts. That figure of 1.95 may still seem high, but the roughly 72 horse lives saved represented a huge improvement in safety standards.

“People make the argument that you have different populations of horses racing on these surfaces, which we totally accept and understand,” he said. “Which is why we don’t rely just on these statistics when we do these studies. We’ve got people look at prediction models, and the models account for all the variables--quality of horse, class of race, race distance, etc. And synthetic tracks come out significantly ahead. When you account for all those variables and their effect on the likelihood of a fatality, surfaces certainly play an important roll.”

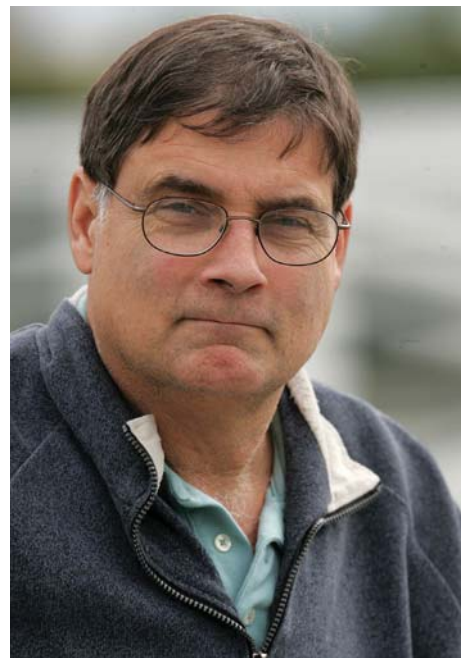
That ties in to another point in Crist’s article, which implies that the breakdown rates at “poorly maintained minor venues” pushes up the national average. For those tracks that have made their information public via the EID, at least, the numbers don’t look all that different from smaller tracks to the major players. At Suffolk Downs, the 5-year rates, from 2009-13, were: 2.66, 2.69, 2.33, 1.49, 1.31. At Portland Meadows: 3.77, 2.09, 0.98, 2.20, 1.60. At Remington: 2.49, 1.49, 1.97, 2.14, 1.64.

At Belmont Park, meanwhile, the 5-year rates are: 2.21, 1.80, 2.29, 1.86, 0.88. Aqueduct’s main track: 0.87, 1.60, 3.19, 2.34, 0.81. Aqueduct’s inner: 2.45, 2.40, 2.33, 4.02, 2.47.

A Closer Look at California...

Not all dirt tracks are the same, not all synthetic tracks are the same, and it’s important to note that not all synthetic tracks have stellar safety records. The now-defunct Hollywood Park (Betfair Hollywood Park in its last two years of existence) was never able to achieve the results that some of the East Coast-based synthetics did, for instance. In 2009, according to the Equine Injury Database, Hollywood had nine fatalities from 4,195 starts, or a rate of 2.15/1000. Over the next four years, its rates were: 2.26, 1.84, 2.02, and 2.54. The last figure, from 2013, represented the first time that Santa Anita’s dirt track surpassed the Cushion Track in safety. Del Mar, which like Saratoga has limited starters and can see vastly differing rates because of it, has had its ups and downs. In 2009, 2010 and 2012, it had fatality rates of 1.78, 2.06 and 2.39. In 2011 and 2013, Del Mar could boast of rates of 0.51 and 0.48, respectively, with one afternoon fatality each of those years.

If some of those rates seem excessively high, it is important to keep in mind that California, for reasons no one seems able to put a finger on, has historically had higher-than-average breakdown rates compared to the rest of the country. It’s then useful to compare California’s breakdown rates on synthetics not with other tracks (dirt or synthetic) around the country, but with the pre-synthetic rate of catastrophic injuries in California.



Rick Arthur

p: Horsephotos

Dr. Rick Arthur, the California Horse Racing Board’s equine medical director, did just that in 2010. At that year’s 56th annual convention of the American Association of Equine Practitioners, Arthur released the results of a retrospective study he had undertaken. Arthur compared catastrophic musculoskeletal injury rates on turf, dirt and synthetic surfaces at California’s four major tracks: Hollywood, Del Mar, Santa Anita and Golden Gate), from Jan. 1, 2004 through Dec. 31, 2009. In one of the most thorough studies of its kind, Arthur looked at state-mandated necropsy reports of horses that died on track, and omitted the ones those horses that died from something not related to track surface, such as heart or respiratory conditions and accidents. From the remaining figures, Arthur determined that, pre-synthetic, California had a rate of 3.09/1000 on its dirt tracks from 2004-07. That’s 181 fatalities from 58,659 starts.

After changing to synthetics, the rate of main-track deaths dropped to 1.95/1000, said Arthur, or 109 fatalities from 56,031 starts. That figure of 1.95 may still seem high, but the roughly 72 horse lives saved represented a huge improvement in safety standards.

SOFT-TISSUE INJURES, SLIDE & SYNTHETICS



p: Horsephotos

“Yes, but...”

Sooner or later, the conversation about the safety of synthetics comes to this intersection. *Yes, catastrophic rates are generally lower on synthetics, one side concedes, but there’s a dramatic rise in soft-tissue injuries that offsets gains made elsewhere.*

Critics of synthetic tracks point this alleged increase in soft-tissue injures, as well as other types of injuries less common on dirt, as the negative corollary to a reduction in catastrophic breakdowns. Fatalities go down, soft-tissue and hind-end injuries go up.

Some safety advocates say that even if this were true, it’s something of a false choice. Horses that can’t race because of a soft-tissue injury are far from the ideal outcome. But if it’s an equal trade-off between a soft-tissue injury and a horse that breaks down and needs to be euthanized in front of a crowd, it’s an acceptable one, they argue.

Some trainers said we were simply trading one set of injuries for another.

But is there actually an increase in soft-tissue injuries in the first place? Are there more tendon and ligament injuries, more muscle tears and strains? If there are, what’s causing them, and can they be addressed? Or have they already been addressed?

Questions over the types and severity of injuries trainers were seeing on synthetics came early in the synthetic era. Some trainers said we were simply trading one set of injuries for another.

“It’s a different deal all together,” trainer Mark Frostad told Bill Finley in his excellent *Ground Control* series for the *TDN*. “The injuries are back-end related. There’s no slide to the synthetics, so you end up getting a lot of jarring. I wouldn’t say my horses are healthier now. With the old injuries, I was getting fractures and chips, and now I’m getting stress fractures and torque injuries.”

Trainer Mike Mitchell agreed. “I’m getting a lot of hind-end injuries that I never had before,” he said. “I’ve had more injuries on these tracks than I had on dirt.”

Others had the exact opposite opinion. “Training on it day in and day out, my horses are definitely healthier,” said trainer Graham Motion. “I’m much more comfortable training on it.”

Who’s to be believed? There’s still plenty of debate, but plenty of progress has also been made in the past decade. Much of that progress, however, has been overlooked lost sight of as the synthetic era fades.

Hoof Slide, Toe Grabs & Synthetics...

The primary driver of injuries in racehorses is the interaction between the hoof and the racetrack, and that biomechanic interaction became a focal point in the synthetic/dirt debate. In 2011, a group including Dr. Wayne McIlwraith, one of the world’s leading equine orthopedic specialists, and Dr. Mick Peterson, executive director of the Racing Surfaces Testing Laboratory, published a “white paper” on racing surfaces that, among other things, outlined the hoof-track interaction.

As horses race each other at upwards of 40 miles per hour, their hooves hit the track approximately 150 times a minute. Because of the speed, our eyes miss the components of a horse's stride, but the white paper described the four-step process. First is impact, which introduces concussive forces to the hoof and leg. Next comes the braking portion of the stride, as the horse's hoof slides to a stop. For a split second, the horse's leg is completely upright, its pastern almost parallel to the ground as it supports its own weight--step 3--followed by the rollover phase, during which the horse pushes off propels itself forward. Over and over again, this happens hundreds of times during a race.

Naturally, there are changes to this process on different surfaces.

"For instance, the toe, on a synthetic track, doesn't penetrate the surface to the degree it does on a dirt track," said Peterson. "By contrast, it penetrates more into a synthetic track than into a turf track. So in this regard, synthetic tracks are indeed something of a halfway point between turf and dirt."

There are other (if related) differences between the surfaces, including one of the most critical components of the hoof/track interaction, and the one that has garnered the most attention: hoof slide. Put simply, slide is how much forward movement there is once a horse puts its foot down.

Experts say it is desirable to have some slide, as this helps decelerate the hoof and lessens impact forces that are transferred up the leg. But too much slide can be a serious problem, as it can lead to the hyperextension of the ankle (fetlock) and knee joints.

Prominent owner/breeder Bill Casner is among those who have studied the issue.

"When a horse puts his foot down, you have two basic forces of physics--load and torque," Casner said. "On dirt, you have a longer slide, and a longer slide equals more torque, especially on a horse that has a conformational fault, which a vast majority do. You also have more drop in the pastern and fetlock joint."

This drop causes hyperextension, which can be a recipe for disaster.

"Fetlock injuries account for roughly 50% of fatal injuries in horses," said Sue Stover, who heads up the J.D. Wheat Veterinary Orthopedic Research Laboratory at UC Davis. "The more hyperextension the fetlock undergoes, the higher the stresses that are put on the structures that are failing. If we can show that certain surfaces minimize hyperextension, they should minimize catastrophic injuries."

How does slide differ on different surfaces? On a sandy dirt track, there may be several inches of slide as the hoof penetrates into the surface and displaces material. On a firm turf course, where the grass has a healthy root system,



*M. Dickinson on Tapeta surface at Al Quoz in Dubai
p: Horsephotos*

slide is minimal. It's in this area that synthetic tracks are more like turf tracks, as Peterson notes, and perhaps is one of the main reasons that turf horses are able to handle the switch to synthetics better than the switch to dirt.

Michael Dickinson, trainer of horses like Da Hoss and Tapit and the inventor and founder of Tapeta Footings, talked about those similarities.

"Tapeta participated in a study conducted by an Olympic scientist using high-speed film to capture the mechanics of 15 Thoroughbreds breezing two furlongs on both turf and Tapeta," Dickinson said. "It was done on the same day with the same riders, whereby allowing examination of the differences in how the horses traveled over both. The horses had a slightly longer stride on Tapeta, but there was very little difference in the slide pattern."

Experts point to this commonality as a factor in the improved safety rates of synthetics and turf surfaces when compared to dirt tracks, but note that problems can arise if a track offers too little slide--an oft-heard complaint about synthetics.

Steve Norman is an internationally respected farrier whose famous equine clients include two-time Horse of the Year Wise Dan and champion Blame, as well as three Kentucky Derby winners: Alysheba, Go For Gin and War Emblem.

Based in Kentucky, Norman has shod thousands of horses who have competed on turf, dirt and synthetic, and has studied the biomechanics of hoof/track interaction as a member of The Welfare and Safety of the Racehorse Summit's Shoeing and Hoof Care Committee.

Early in the synthetic era, Norman, along with Casner and Kentucky Horseshoeing School's Mitch Taylor, rented a high-speed camera to study what happens to the hoof and leg as it interacts with the track.

"It was a really eye-opening experience," said Norman, who made stops at Keeneland, Turfway and Churchill Downs with the camera. "We found that synthetics tend to stop the natural slide of a horse, and all horses need to slide forward in their momentum strides, and synthetics stop that because it sticks."

Later research showed that slide on each track was different, and was dependent on track condition.

"We had always used toe grabs on the dirt, for instance, and when people used them on synthetics, they found out very quickly that that was a mistake."

--Trainer Eoin Harty



Peterson, at the 2014 Welfare and Safety of the Racehorse Summit, said that some dirt tracks allowed for even less slide than synthetics. But in general, synthetics meant less slide, and initially at least, meant a different type of injury.

"There were definitely injuries there that you didn't see on dirt," Norman said. "They weren't major injuries, but they were there."

Norman and his compatriots soon targeted a culprit they felt badly exacerbated the problem: toe grabs.

For decades, trainers have used toe grabs--a cleat on the front of a horseshoe--to give a horse better traction. Other traction devices, such as caulks, similarly aim to arrest slide and provide more grip during propulsion. Studies linking toe grab--and toe-grab length--to an increased rate of injury date back at least two decades. One study by Sue Stover showed a horse wearing front toe grabs was up to 16 times more likely to suffer a catastrophic injury while racing than a horse not wearing toe grabs. But even as trainers began to shy away from using overly long grabs on a horse's front feet, they still used them behind. That, according to Norman, was a big mistake on synthetics.

"Toe grabs are absolutely detrimental to a horse on synthetic racetracks," he said. "If synthetics don't give you a lot of slide, toe grabs make it so much worse, since there's a snow-plow effect as the foot moves forward."

This snow-plow effect builds pressure on the hoof and changes the angle at which it drives forward, creating undue stress on the coffin bone, fetlock, and suspensory apparatus, said Norman.

"I think initially there was a learning curve, and one of the big things was that really had to adapt your shoeing to the track," said California-based trainer Eoin Harty. "We had always used toe grabs on the dirt, for instance, and when people used them on synthetics, they found out very quickly that that was a mistake."

Casner, who employs Harty as a trainer, has long advocated for the restriction of toe grabs. Casner led a special committee formed at the 2006 Welfare and Safety of the Racehorse Summit that recommended all front toe grabs be banned, and said that early observations led him to believe that synthetics and toe grabs, front or rear, were a particularly bad combination.

“One of the first things we learned is that toe-grabs are a no-no on [synthetics],” he said. “You want about 3, 4 inches of slide, and you don’t want them to stop abruptly. And at the beginning, horsemen were running their horses in rear toe-grabs, and that’s why they were getting the jam-ups in the rear end.”

Tapeta’s Michael Dickinson said his weariness of toe grabs came early. “We’ve always recommended that toe grabs not be used on horses training and running on Tapeta tracks,” he said.

Many tracks took this advice to heart. In 2008, Keeneland and Turfway together announced that all grabs would be banned, front and rear. The same year, Woodbine sent a memo to horsemen announcing that it, too, was banning toe grabs on all feet.

Others, like Presque Isle, recommended that only flat Queen’s Plate shoes be worn, but didn’t mandate it. Dickinson said he believed most trainers there followed Tapeta’s suggestions. “The horsemen embraced the surface from the beginning and went in with an open mind wanting it to work,” he said. “They adapted their training methods to get the best out



Trainer Eoin Harty with Colonel John

p: Horsephotos

of the surface, and for them safety has always been paramount.”

That, said Dickinson, helped them avoid soft-tissue injuries. “Jon Moss, Assistant Executive Director of the Pennsylvania HPBA, conducted a survey of the 20 largest trainers at Presque Isle for two years, and the evidence was overwhelming that all injuries, including soft-tissue and hind-end injuries, were greatly reduced,” said Dickinson. “Some trainers are obsessed with toe grabs because they believe that they provide a slight edge, even though there is overwhelming evidence that they increase the risk of tendons, suspensories and soft-tissue injuries. Toe grabs, stickers and caulks are prohibited in most countries because of the danger to

the horse, and also the danger to a fallen jockey being stepped on.”

Not all tracks or horsemen were in favor of toe-grab restrictions, however. The California Horse Racing Board passed a rule in February of 2006 prohibiting front toe grabs with a height greater than four millimeters. But, in a tight vote, the CHRB opted a year later to not enforce the rule after hearing testimony from trainer John Shirreffs, arguably one of the most respected trainers in the country and a vocal critic of synthetic tracks. Shirreffs said he believed the decision to equip a horse with grabs should be left with the person with the most intimate knowledge of that horse: his trainer.

Interestingly, the issue of grabs eventually went a step further, and had some wondering if shoes--not just those with grabs, but any kind of horseshoe--were needed at all on synthetics.

Shirreffs wasn't alone in his opposition. A month after that vote, the CHRБ reversed course and voted in favor of enforcing the ban on front toe grabs, despite the objections of Charles Dougherty, Jr., a representative of the California Thoroughbred Trainers who stated his organization's opposition to enforcement of the rule. Today, rear grabs are allowed at California tracks, so long as they don't extend more than a quarter of an inch.

Interestingly, the issue of grabs eventually went a step further, and had some wondering if shoes--not just those with grabs, but any kind of horseshoe--were needed at all on synthetics.

"When we looked at our videos, they showed that you could possibly get more slide barefoot versus any kind of shoe," said farrier Steve Norman. "It was just a matter of someone being game enough to run them barefoot. I do all the shoeing at WinStar Farm, and they have a Poly training track. All the babies that are there are still barefoot. We kept them barefoot as long as we can, until they're basically leaving to join another trainer. I'd love to see more guys do it, but I don't think there's enough self-confidence among trainers to [run them barefoot]."



p: Horsephotos

Harty admits to being in that camp. "The most important thing I felt I did was to either take all four shoes off them, or certainly the hind shoes, and that really made a huge difference," he said of his early adaptations to synthetics. "A lot of times with 2-year-olds, I'd only put shoes on them the day of the race, and the only reason I didn't leave them off entirely is because I didn't have the [guts] to do it."

If most agree there was a learning curve as trainers became accustomed to synthetics, there remains a sharp divide on the current depth of the problem of soft-tissue injuries on synthetics.

Some trainers say they still suffer a disproportionately high level of non-fatal injuries. Others, like Wesley Ward, maintain injuries of all types have gone down. When it was announced this year that Keeneland was reverting back to a dirt surface, Ward opined, "I've probably had 5,000 workouts with all of my horses [over the Keeneland Polytrack], and I haven't hurt one handful of the horses in all those works. I can't say that about any other track that I've ever trained at. My horses have [shipped] from Keeneland and won all over the world--it kept them going and it kept them very, very sound."

Experts & Anecdotes...

The value of anecdotal evidence can be debated. What happens in one trainer's barn might not be representative of the horse population as a whole. In philosophy, it's called the fallacy of composition: the erroneous belief that what is true of a part is true of the whole.

Unfortunately, those looking to get the complete picture on non-fatal injuries and surfaces are often reliant on anecdotal evidence since hard data on non-fatal injuries is, well, hard to come by. For obvious reasons, catastrophic injuries are easier to account for than a horse that is sidelined with a ligament tear.

In California, every on-track fatality must undergo a necropsy. On the other hand, trainers and vets aren't under any obligation to report a soft-tissue injury, and at this point, who would they report them to?

"Tracking soft-tissue injuries is much trickier," acknowledged Dr. Tim Parkin, a veterinarian and epidemiologist from the University of Glasgow who serves as the primary consultant for The Jockey Club's Equine Injury Database. "Accurate and reliable reporting from veterinarians is a challenge. Following up on reported injuries is an even greater challenge. From a quality-insurance standpoint, it is very hard."

But that doesn't mean experts haven't formed opinions from data-based observations, nor does it mean there haven't been any studies on the issue.

In 2010, the Thoroughbred Owners and Breeders Association released a [study](#) that indicated horses were half as likely to suffer career-ending injuries--regardless of type--on synthetics versus dirt. The study looked at horses that did not finish a race (DNF) in 2009 and who, as of June 1, 2010, hadn't registered a recorded work. From 444,848 starts, 1,558 horses didn't finish. The percentage of CEDNF (career-ending did not finish) was 0.39% on dirt. On turf, it was 0.26%. On synthetics, it was 0.19%. There didn't seem to be an equal trade-off of career-ending injuries, but the study was admittedly limited in time and scope.



Dr. Wayne McIlwraith p: College of Veterinary Medicine & Biomedical Sciences CSU

“There was a significant lowering of bone injuries and joint injuries, but the absolute number [of soft-tissue injuries] was no higher”

--Dr. Wayne McIlwraith

Dr. Wayne McIlwraith and Dr. Jeff Blea, a respected California-based veterinarian and president of the American Association of Equine Practitioners (AAEP), have tried to address the soft-tissue dilemma more precisely. What they've found may help answer the questions out there. In an as-yet unpublished study, the men examined injury data from Southern California.

"What we found was there was a significant lowering of bone injuries and joint injuries, but the absolute number [of soft-tissue injuries] was no higher," said McIlwraith, who travels to California every one weekend to perform surgeries for clients including Bob Baffert and John Sadler. "But because bone injuries were lowered, soft-tissue injuries became more prominent in some people's eyes."

In essence, their research suggests the issue of soft-tissue injures--at least taking the issue writ large--can be muddled by perspective. Consider it this way: if there are six injuries in a barn, and two are soft-tissue injuries and the rest injuries to bone, then soft-tissue injuries account for 33% of the injuries (2 of 6). If you cut the bone injuries by half and soft-tissue injuries remain the same, then soft-tissue injuries account for 50% of injuries (2 of 4), without having increased in frequency. Though to some, it may feel that way.

"I've talked to a lot of vets about this, too, and I don't think we've seen more tendon or suspensory injuries," added McIlwraith.

This falls in line with what some veterinarians at other tracks are seeing. Greg Taylor, Woodbine's official veterinarian, said, "Our fractures our down from when we

were on dirt. Soft tissue injuries? I wouldn't say they were up--they're probably about the same. I do hear that horses are more muscle sore after racing on Poly, and that there are more hind-end injuries--pelvises and tibias. But honestly, there are so few, than I'm not sure of the significance of them. I know that some trainers don't like it because they don't feel their horses run well on it. But even when we had the dirt track, someone always complained about something. It's just the nature of the beast. It's either too hard, too soft, too wet or too dry."

Sue Stover is another who isn't convinced there's been an actual spike in soft-tissue injuries.

"In our experience in California, we've had a reduction in fatalities with the installation of synthetic tracks versus dirt tracks," she said. "And while I recognize there are horse trainers who think there are

more non-fatal injuries, I'm not sure that's been substantiated yet."

Stover went on to add, "From my perspective, synthetic tracks are still safer. If we modify a surface, it affects every horse that's training or racing, and we have the opportunity to make a difference--a big difference--to those horses."

For his part, Casner believes there probably was an increase of hind-end and soft-tissue injuries shortly after synthetics were put in. But as those injuries abated as trainers adapted--most notably by not running horses in grabs, front or back--the reputation remained. "The soft-tissue injuries that people continually bring up are something that's been addressed," he said. "You had it in the early days, but they're greatly exaggerated now by the opponents of synthetic surfaces."

SYNTHETICS: THE GRASS MYTH...

Safety issues have clearly dominated the synthetic debate, but they haven't been the only factors weighed. From the outset of the synthetic era, breeders and stallion owners who poured millions into the sport wondered how the new surfaces would affect their investments. Would the new tracks favor certain pedigrees? Would some pedigrees be rendered obsolete? Bettors, the lifeblood of racing, had similar questions.

The answer came early. Many, however, didn't receive it.

From the outset, a broad swath of the industry believed horses with dirt form and dirt pedigrees were at a disadvantage. The *Washington Post's* Andrew Beyer, after nine days of racing at Keeneland's first Polytrack meet in the Fall of 2006, declared, "Polytrack has turned the sport upside down. It was nearly impossible to predict which dirt runners would do well on Polytrack and which would not. But one trend was recognizable: Turf runners often liked the synthetic surface."

Whether the notion came from the popular media, from personal experience, or because synthetics were developed overseas, where turf racing is prevalent, the notion came early. And it never really left.

It Ain't What People Know...

The 19th century humorist Josh Billings once said, "The trouble ain't what people know. It's what they know that ain't so." That's proven the case in racing, where evidence shows that synthetic tracks do not, nor have they ever, favored horses with turf pedigrees.

[Click here](#) to read the complete story on "The Grass Myth"

MAINTENANCE, MOISTURE & COST

Some time ago, Mick Peterson, widely regarded as the premier racing surface specialist in North America, visited Hollywood Park with a colleague. They were there doing research, trying to establish a baseline of what a good track should look and feel like by talking to jockeys and trainers. They walked around the backstretch and asked a simple question. "What's your favorite dirt track?" Without exception, Peterson and his colleague were told of a dirt track that didn't exist anymore.

"It was always some amazing track that had been closed for 20 years," Peterson laughed.

The anecdote fits in well with a quote from Hall of Fame trainer Richard Mandella, who recently quipped about the debate over track surfaces, "I haven't found a racetrack yet that heals horses, and as long as we're running races with 10 horses and only one winner, there are going to be a lot of unhappy people."

The men essentially were saying the same thing: the perfect racetrack, one that pleases everyone, is as elusive and improbable as a pegasus. But nearly everyone's perfect track shares one trait: it is safe for horses.

So why are some tracks safer than others? Peterson, the executive director of the Racing Surfaces Testing Laboratory in Maine, believes the answer is consistency.

"My hypothesis is that most horses can adapt between tracks, especially when they're given time, but what they can't do is adjust between strides 37 and 38,"

he said. Those drastic, mid-race changes lead to improper loading, Peterson said, which can contribute to catastrophic breakdowns. "And that's the strength of synthetic surfaces," said Peterson. "They're much easier to maintain and keep consistent."

Proper Maintenance...

But wait. Haven't synthetic tracks proven harder to maintain, harder to keep consistent, than dirt tracks? For sure, synthetic tracks gave track superintendents plenty of headaches in the early days. That went against one of their main selling points: that they'd be easier to take care of.

But great strides have been made, argue proponents. "Over the last six or seven years, maintenance has advanced exponentially," said prominent owner Bill Casner. "It is a different type of surface to maintain, and it took a little time."

The process started as different regions learned the vagaries of synthetics as it related to that particular region. Out in California, it was found that simply watering the tracks would keep down surface temperatures, which could account for a staggering 60% speed variance without even taking class into consideration.

"Dennis Moore [then the track superintendent at Hollywood] said early on, 'Look, these things are from England. We're in Southern California. I'm going to water it,'" said Mick Peterson. "Common sense sometimes isn't that common."



Mick Peterson p: Horsephotos

Similar fixes were implemented elsewhere. At Woodbine and Turfway, for instance, it was found that a wax with a higher percentage of oil helped offset the negative effects of sub-freezing temperatures.

Headaches aside, synthetic tracks continued to post strong safety records through these ups and downs. "Everyone talks about the fact that synthetics are more difficult to maintain, but it doesn't appear that the inability to maintain these surfaces has had a particular impact on the risk of fatality," said Dr. Tim Parkin, an epidemiologist from the University of Glasgow who works with The Jockey Club's Equine Injury Database.

Why was this the case? Consistency, says Peterson. And consistency, he says, comes down to water.



“Water is a damned hard thing to control.”

--Mick Peterson

Water on Tracks...

For a guy with a Ph.D. in Theoretical and Applied Mechanics, Mick Peterson does a good job of breaking things down for the laymen. “The key to synthetic tracks is temperature,” he said. “The key to dirt tracks is water.”

That synthetic tracks were hydrophobic--unaffected by water--was always considered one of their biggest attributes. Always labeled ‘fast,’ the tracks could take an enormous amount of rain. The water simply drained vertically through track’s wax- or polymer-coated surface. In addition to the track never coming up sloppy, there was the added benefit of not needing a cross slope to the track in the straightaway, a feature of dirt tracks that allows for run-off toward the inside rail.

But the value of this aspect of synthetics maybe wasn’t fully appreciated before Peterson came along with his Orono Biomechanical

Surface Tester, a mechanical device that simulates a hoof hitting a track. Peterson discovered that, no matter where on a synthetic track he took readings from, they were roughly the same. On dirt, however, there was much greater variance. This was due almost entirely to moisture content. Too much was bad. Too *little* was bad. For track supers, Peterson found, it’s a tightrope.

“Water is a damned hard thing to control,” he said.

Think about a dirt track after a hard rain. The crown of the track and the rail tend to dry out at different rates. Sloped straightaways and banked turns leads to material migration.

“The horse is then going from a harder surface to a softer surface, or from a softer to a harder, and this isn’t what you want,” Peterson said. “You want it to be consistent, so the horse can focus on putting one foot in front of another and not adapting their gait to the surface.”

Even on a cloudless day, Peterson discovered, simply *watering* a dirt track can lead to biases.

“If you think about a water truck, there’s a row of nozzles, and they all spray the same amount of water,” explained Peterson. “As you go around the turn, the nozzles on the inside are going less distance [than those on the outside]. So you get consistent moisture on the straight, but once you get on the turn, it’s wetter on the inside than the outside. That’s an instant track bias.”

Moisture control is the primary reason that, on a day-to-day basis, synthetic tracks are generally easier than dirt tracks to care for. “They’re hard to screw up,” said Peterson. “You can over-water a synthetic track and it doesn’t do anything. If you over-water a dirt track, you have to cancel racing. With synthetics, even if you don’t have a great crew, you get the biggest issue off the table, and you get good outcomes.”

New York, and a Well-Maintained Dirt Track...

A well-maintained dirt track has become something of a mantra in the anti-synthetic crowd, a phrase oft-repeated in opinion pieces and blogs. "A well-maintained dirt track can be as safe, or safer, than a synthetic track," read one recent comment following an industry article.

While the long-term viability of this statement remains in question, it is right that certain dirt tracks have recently achieved excellent results with a strict adherence to maintenance air protocols.

In New York, Mick Peterson has worked with NYRA's Vice President of Facilities and Racing Surfaces Glen Kozak. The result has been catastrophic rates like the 0.57 that Saratoga registered in 2011, and Belmont's 2013 rate of 0.88. Maintaining these rates on a year-to-year basis has been a challenge—Belmont's rates in 2011 and 2012 were 2.29 and 1.86, respectively—but show that, when everything goes right, dirt tracks indeed can indeed vie with synthetics in terms of safety.

The challenge is ensuring everything goes right. "It's going to be a lot of work, especially if you have a crew that's become complacent," said Peterson. "It's easier to take care of a synthetic track, and it's really difficult to do a good job on a dirt track. You look at what New York's doing now maintenance-wise, and it's unbelievable. They're getting good outcomes, but they do a lot of work."

Indeed, New York's well-maintained dirt tracks are the result of a sometimes herculean effort by Kozak and his crew, which oversees four main-track racing surfaces at Aqueduct, Belmont and Saratoga, as well as seven turf courses and several training tracks.

"It could take anywhere from 10 to 20 hours of work [per day] on whichever track is racing," said Kozak. "It all depends on the snow storms in the winter, and the wind, rain and heat in the summer."

Bad winter weather can mean up to five tractors harrowing for 16 hours straight to keep the track in shape for training the next morning, said Kozak.

"Unfortunately, that wasn't a rare occurrence this past winter, with the temperatures we had," said

Kozak. "We used a lot of diesel fuel and a lot of man hours on the John Deeres. But that depends on the year, of course. A few years ago, we didn't even have to remove any snow from the tracks. Mother nature dictates everything."

NYRA, which has always done a good job of maintaining paper records, now keeps an electronic record of all its maintenance information: watering schedule, harrow depths, what type of equipment is used, what direction it goes in, moisture samples pre- and post-racing, and varied meteorological information.

"It gives you a benchmark to go back and look and see what worked in a given situation, and what needs improving," said Kozak. "It's been very helpful."

It's also been effective. According to the EID, a total of 26 horses died while racing in New York in 2011. Last year, that number was down to 17, a 34.6% decline.

The NYRA example, however, illustrates the not-insignificant costs of a "well-maintained dirt track" on a day-to-day basis, and shows how much dirt-track conditions are, and will always be, in the hands of the weather gods.



Three tractors smooth out the dirt track at Belmont Park

p: 123rf.com



Reade Baker

p: Horsephotos

“I think some of the loudest complainers haven’t been able to adapt their handicapping talents to Poly. Some people can, some people can’t, and the ones who can’t want you to take the track out.”

--Reade Baker

Economic Considerations...

There are a number of other major economic considerations between dirt and synthetic tracks often overlooked. These revolve around the two most important groups in racing: handicappers and owners.

Handicappers, whose betting dollars drive the industry, are by nature an opinionated group, and many have been very vocal in their dislike of synthetic tracks. Trainer Bob Hess summed it up when he told *The Paulick Report* in 2010, “My horses are happy on [all-weather tracks], and they’re lasting a lot longer. My clients are getting more bang for their buck. But without gamblers, we are nothing. The reality is the gamblers hate this shit.”

The problem is, by the only two reliable metrics to gauge bettor satisfaction--handle and attendance--it was never clear that gamblers, en masse, did hate synthetics. Keeneland and Del Mar registered new records in both categories in the synthetic era, despite 2008’s Great Recession affecting business everywhere. Del Mar’s top four days by attendance have come in the last five years, while the top seven days in Keeneland’s history by attendance came during the synthetic era. In 2013, Keeneland established an all-sources handle record of \$161 million.

At the end of the 2012 season, *The Blood-Horse* reported about Woodbine, “It is the fourth consecutive year of handle increases on the Thoroughbred season. Wagering increased 7.5% in 2011 over 2010, and improved 8.9% in 2010 over 2009. It also increased 7% in 2009 over 2008. All-sources wagering on Woodbine’s Thoroughbred racing is up more than 34% since 2008, a time period when many tracks saw wagering declines.”

This could be looked at two ways. Either those who disliked synthetics

were reluctantly still betting them. Or they weren’t, and the absence of their betting dollars was being made up by increased handle from existing bettors. An explanation is field size. Big fields mean better prices on individual horses, and a reason to spread deeper in exotic wagers. The Handicappers Association of North America cited Keeneland’s field size--9.61 horses per race--as a primary reason for naming Keeneland its top-rated track in 2013...the sixth year in a row it earned that distinction (all in the synthetic era). Field size at Woodbine the last two seasons, meanwhile, averaged an impressive 8.7 horses per race.

Increased handle from existing handicappers is a hugely important factor in today’s racing landscape, and it equates to more money in the kitty without having to rely on the elusive new customer.

Meanwhile, winning favorites are coming in at roughly the same clip at synthetic and dirt tracks, indicating that the majority of handicappers have adjusted. In 2013, the rates on prominent dirt tracks were: Churchill (35%), Santa Anita (34%), Saratoga (33%). On prominent synthetics, they were: Del Mar (31%), Keeneland (33%), Woodbine (34%).

“I think some of the loudest complainers haven’t been able to adapt their handicapping talents to Poly,” said trainer Reade Baker. “Some people can, some people can’t, and the ones who can’t want you to take the track out. Some people are obviously successful at it; we have the same percentage of favorites winning races. But those guys who have the pen...”

Owners & Attrition...

Maybe the big untold story of 2014 is the number of sophomore stars that have been, either permanently or temporarily, sidelined by injury. Beginning with last year's 2-year-old standouts, the list includes the one-two in the GI Breeders' Cup Juvenile S., **New Year's Day** and **Havana**, Grade I winners **Strong Mandate** and **Constitution**, graded winners **Cairo Prince**, **Honor Code**, **Corfu** and the late **Intense Holiday**, as well as Triple Crown hopefuls like **Top Billing**.

Of the 23 horses that were offered in the first Kentucky Derby future pool last November, just one, **Ride On Curlin**, started in the Derby.

The economic impact of these defections to owners is unknown. But lost earning potential and, just as importantly, a reduction in breeding value, likely runs into the millions. Moreover, handle for major races is subject to decline as the pool of big-name horses--the ones that put fans in the seats--shrinks with each defection.

All this speaks to one of racing's most pressing issues: the high attrition rate of racehorses today. Few would argue that racing has a problem keeping its stars healthy. Do synthetics help or hurt the cause?

Owner Bill Casner believes the answer is clear: dirt tracks are harder on young horses, he says. "Look at the attrition rate down at Palm Meadows this year," Casner said. "Cairo Prince. Constitution. Honor Code. We were down at Palm Meadows two years ago, and we did nothing but tear horses up. It was tough. We wintered in Hot Springs last year, and the same thing: it was tough on horses. Chips, bruised condyles, strained suspensories, foot bruising. It just beat our horses up."

This view isn't shared by everyone in the industry, and no one suggests that all-weather tracks are a panacea for injuries. But when a quarter, a third, or even a half of a given crop's elite horses are being sidelined by injury before they even make the Derby, it's time to give consideration to the economic ramifications, and what role track surface plays into it.

Synthetics in New York?

Are synthetic tracks dead? In North America, at least, it doesn't look promising. By 2015, the number of synthetic tracks will number five--Golden Gate, Presque Isle, Arlington Park, Turfway and Woodbine--down from nine at the peak of the synthetic era. "We have no plans at this time [to change], but no racetrack wants to be an island," said Woodbine's Stephen Koch. "The good news is that we run a long racemeet with high purses, so there are reasons for our horse population to remain at Woodbine."

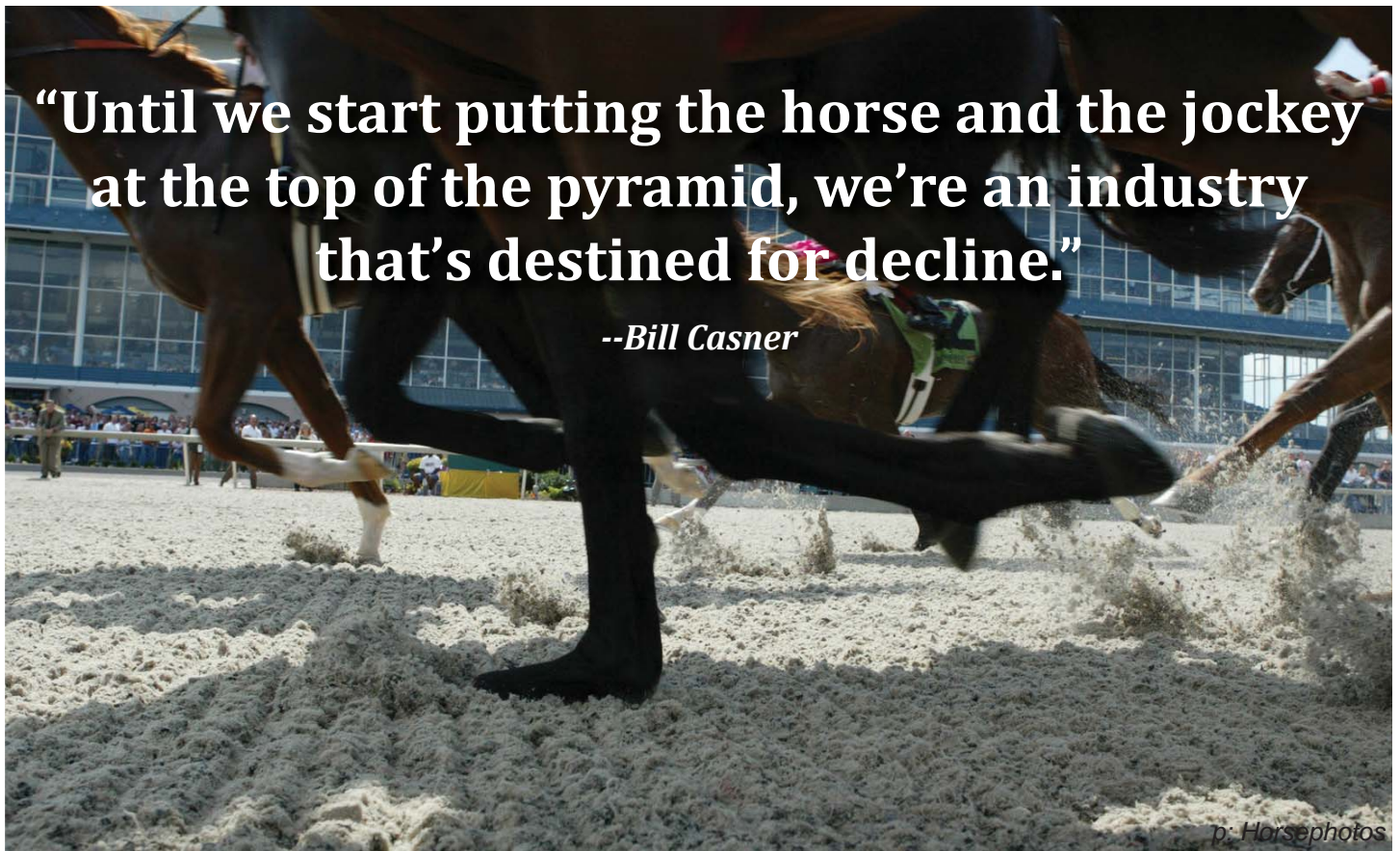
While those five tracks could remain synthetic for some time to come, it's hard to imagine any dirt track to convert to a synthetic one in the coming years. An asterisk to that, however, might come in an unlikely place: New York. NYRA track superintendent Glen Kozak said there has been some discussion to install a synthetic track to the inside of Belmont's two turf courses.

"We've done some research and been to some of the racetracks and training tracks with synthetics, and I think, no matter what's going on in other jurisdictions, it still can be very useful in the right application," said Kozak. "You could still get a mile synthetic track inside the two turf courses, and now you have everything. It would not only offer the trainers an additional surface to train on, especially during inclement weather to keep them on schedule, but more so off the turf, so we're not damaging the turf during off conditions. I think that could be incredibly valuable. In April, when we come off the turf, you can see what it does to field size up here."



140th Kentucky Derby at Churchill Downs May 3, 2014

p: Horsephotos



“Until we start putting the horse and the jockey at the top of the pyramid, we’re an industry that’s destined for decline.”

--Bill Casner

p: Horsephotos

1,192 Reasons...

One thousand, one hundred and ninety two. If dirt tracks had the same catastrophic breakdown rate as synthetic tracks from 2009 through 2013 (2.08 vs. 1.22), that’s roughly the number of horses whose lives would have been saved during that stretch. That means there would have been 1,192 fewer chances of a jockey being thrown to the track, and 1,192 fewer chances of a family visiting the track for the first time and seeing a horse put down. As it was, 2,882 Thoroughbreds died from injuries sustained while racing in that span.

These are the numbers that go through Bill Casner’s mind when he hears people argue about synthetic racetracks.

“Synthetic surfaces have arguably saved the lives of hundreds and hundreds of horses,” said Casner. “Not to mention the jockeys that have been kept out of harm’s way.”

It’s been eight years since Barbaro broke down in the Preakness, seven since George Washington (Ire) broke down in the Breeders’ Cup Classic, and six since Eight Belles broke down in the Derby. In the aftermath of each, racing could point to progress that was being made in safety at synthetic tracks across the country. Now, as those tracks dwindle in number, some wonder if racing has put other priorities in front of the safety of its participants, and how that will play into the long-term viability of the sport.

“Heaven forbid it happens, but if a horse breaks down at the eighth pole at one of these tracks that are going back to dirt, you’ll have a large number of people walk out of that track and vow never to come back,” said Casner. “And they’ll tell their friends the same thing. Listen, I’ve been in the game since I was 16 and have an abiding love for it. But I’ve had horses break down, and I tell you, it made me question whether

I wanted to even be involved. As a fan, it’s just as devastating.”

According to the McKinsey & Company report commissioned by The Jockey Club in 2011, only 35% of trackgoers consider themselves “proud to be a fan” of the sport. In 2003, Americans bet \$15.1 billion. By 2013, the number was down nearly a third, to \$10.8 billion. Amid national criticism over the way we treat our horses, can racing hope to regain lost market share if the public thinks we’re not making every effort to keep our athletes--equine and human--safe from harm?

“We’ve been blind and arrogant,” Casner warned. “We’ve been an industry that’s never recognized the changing landscape of sports entertainment. Until we start putting the horse and the jockey at the top of the pyramid, we’re an industry that’s destined for decline.”