



# **EVALUATION OF SYNTHETIC RACETRACKS**

## **RELATING TO**

### **FALLS AND INJURIES TO JOCKEYS**

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**Endorsed by: The Australian Racing Board**



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## **EXECUTIVE SUMMARY**

### **Introduction**

Jockeys, both in Australia and overseas, have expressed concerns that, when a fall occurred on the synthetic track surfaces, the outcome for the rider was likely to be worse than when falling on a traditional turf surface.

The objective of this report is to consider the incidence of falls and resulting injuries (especially serious injuries) occurring at synthetic track race meetings in Australia. The concern regarding the potential health risks from carcinogenic and toxic materials that may be contained in some tracks was also investigated.

### **Background**

Synthetic tracks are relatively new to Australian racing; the oldest surface is the Canberra Acton Track (12 years old), followed by Sunshine Coast Cushion (5 years old), Toowoomba Cushion (4 years old, about to close), Geelong Pro-Ride (3 years old) and Devonport Tapeta (2 years old).

### **Methodology**

The study into the concerns of jockeys falling on synthetic tracks was conducted over a six (6) month period from 21<sup>st</sup> November, 2012 to 21<sup>st</sup> May, 2013. It considered synthetic track race meetings from 2006 to 2012 inclusive. There were a number of unforeseen difficulties in undertaking this study. Most Principal Racing Authorities [PRA] did not have the entire information that was required; the exceptions were the Canberra Racing Club and Tasracing, both of which had all the required information documented.

### **Recommendations**

1. The Australian Racing Industry should continue to gather data for further analysis and review relating to the incidence of falls and injuries on the synthetic surfaces.
2. The Australian Racing Industry should acquire information on the falls and injuries rates from International jurisdictions for a comparison with Australian rates.
3. The Australian Racing Industry should improve recording and reporting of race day and track work injuries in the ARID and RVL's "SHE" system's databases.
4. The Australian Racing Industry should ensure, as an absolute priority, that all track managers and their staff are fully trained in the maintenance and preparation of synthetic surfaces.

### **Conclusion**

Although data relating to this issue is limited in its quantity, it can be concluded that there is insufficient evidence to support that a rider falling on a synthetic surface (that has been maintained and prepared in accordance with the manufactures guidelines) will result in a worse outcome than a similar incident that occurs on a turf surface. This report should contribute in alleviating riders' concerns; however the outcome of future incidents should continue to be closely monitored.

## **INTRODUCTION**

Jockeys, both in Australia and overseas, have expressed concerns that, when a fall occurred on the synthetic track surfaces, the outcome for the rider was likely to be worse than when falling on a traditional turf surface. Riders expressed a view that when falling and landing on these synthetic surfaces, the feeling was that they forcefully impacted the surface, creating the sensation of hitting solid ground thereby not sliding as they would have done on grass surfaces.

As a result of falls and the types of injuries being sustained, the jockeys felt that there was a trend emerging that, when a rider falls on these surfaces, there is an increased risk of sustaining more serious multiple injuries to the extent of some of these being potentially career ending.

There was also a concern, primarily expressed by overseas riders competing on Polytrack synthetic surfaces, regarding increased health risks due to the carcinogenic and toxic nature of some of these surfaces.

The objective of this report is to consider the incidence of falls and resulting injuries (especially serious injuries) occurring at synthetic track race meetings in Australia. The concern regarding the potential health risks from carcinogenic and toxic materials that may be contained in some tracks was also investigated.

## **BACKGROUND**

Synthetic tracks are relatively new to Australian racing; the oldest surface is the Canberra Acton Track (12 years old), followed by Sunshine Coast Cushion (5 years old), Toowoomba Cushion (4 years old, about to close), Geelong Pro-Ride (3 years old) and Devonport Tapeta (2 years old).

The details of these tracks are as follows:

- Canberra Acton Track, ACT was the site of the first Australian race meeting held on a synthetic track racing surface on 12th May, 2006. The Acton surface consists of a mix of elastic synthetic fibre, sand and petroleum wax.
- Geelong Synthetic, Vic, originally named Thorough Track and managed by Racing Victoria Ltd [RVL], commenced racing on 7<sup>th</sup> July, 2007, closed for renovations on 7<sup>th</sup> October 2008. Pro-ride Racing Australia conducted renovations and now maintains the surface, which re-opened and commenced racing as Geelong Synthetic on 29<sup>th</sup> June, 2010. The surface is a mix of sand, nylon fibres, spandex fibres and Polymeric binder (oily emulsion).
- Sunshine Coast Cushion Track, Qld, commenced racing 6<sup>th</sup> April, 2008. The surface is a mix of sand, synthetic fibre, elastic fibre and granulated rubber coated with wax.
- Toowoomba Cushion Track, Qld, commenced racing 11<sup>th</sup> July, 2009. The surface is a similar mix to the Sunshine Coast track.
- Devonport Tapeta Synthetic, Tas, commenced racing 4<sup>th</sup> September, 2011. The surface is a mix of sand, fibre, rubber and wax.

## **METHODOLOGY**

### **General**

The study into the concerns of jockeys falling on synthetic tracks was conducted over a six (6) month period from 21<sup>st</sup> November, 2012 to 21<sup>st</sup> May, 2013. It considered synthetic track race meetings from 2006 to 2012 inclusive. There were a number of unforeseen difficulties in undertaking this study. Most Principal Racing Authorities [PRA] did not have the entire information that was required; the exceptions were the Canberra Racing Club and Tasracing, both of which had all the required information documented.

The Australian Racing Industry Database [ARID], which was established for the entire racing industry in 2004, in order to capture all incidents and report on adverse trends so that risk factors could be identified and mitigated. Unfortunately, it is not being utilised fully by all the PRAs, with one using a different system. This makes it very difficult to access the required data regarding the incidence and factors relating to the falls and injuries on synthetic surfaces. This is an extremely unsatisfactory situation.

### **Data**

Incident data on falls of licensed jockeys riding at synthetic track race meetings was collated from the Canberra Racing Club on their Acton Track. The data was exact and completely extensive, as was Tasracing's data.

Other data was limited, viz

- Racing Queensland provided limited information and the Toowoomba Turf Club provided no data on the Toowoomba Cushion Track (except for 2009 and 2010 maintenance records);
- Racing Queensland and the Sunshine Coast Turf Club provided no data;
- Racing Victoria Limited provided data from July 2010 to September 2011 with no data for year 2007 to 2008 or from 2011 to year ending 2012.
- Menzies Research Institute [MRI] - Peta Hitchens forwarded data on synthetic tracks from their extensive research into jockey falls in the period 2006 to 2009 [the overlapping period of synthetic tracks and the MRI database].
- Other information was accessed by searching manually through race results and steward's reports from the Racing Information Services Australia Site [RISA] and the Racenet.com.au website.

### **Interpretation**

An injury was considered to have occurred if the jockey was declared unfit to ride, was transported to hospital after a fall, or was required to have time off work.

Information on injuries was sourced through Gow-Gates Brokers Injury Claim history from 2009 to 2012 [corresponding period when Personal Accident Insurance was in place]. Other information was sourced from AJA data on falls and also by contacting the particular jockey, who had been involved in such falls. Interviewing these riders, who had fallen on these surfaces and reviewing videos of falls on these surfaces in comparison to turf tracks, provided further insight into the falls.

Also, relating to toxic and carcinogenic risks to riders on the synthetic tracks, Material Safety Data Sheets (MSDS), the internationally recognised information, were sourced for review.

## FINDINGS

1. There have been some major and career ending injuries to jockeys who have fallen on these surfaces, which have also been highlighted in other studies. Jockeys carry a substantial amount of risk of injury and even death on all racing surfaces when performing the most dangerous land based profession in the world. (International studies state that the most dangerous occupation is North Sea Fishing; being a jockey is the second most dangerous - Medical Journal of Australia; "The incidence of Race Day Falls in Australia 2002-2006, MRI). There have also been a number of serious and career ending injuries to jockeys on the synthetic surfaces during track work (predominantly Cushion Surfaces at Toowoomba and Sunshine Coast). These riders have reported similar feedback to those racing on these surfaces.
2. Race replays of various falls by jockeys on synthetic surfaces have been reviewed and consultations made with a number of the jockeys who have fallen on them. It appears from the race replays and consultations that jockeys land with a forceful heavy impact and do NOT slide on these synthetic surfaces, unlike on grass surfaces.
3. It has been determined that synthetic surfaces need more care in their preparation both for track work and race day. These surfaces become too firm with no "give" in them, if not prepared precisely to the designers' or manufacturers' specifications. Incidents that have occurred, either during track work or race day, on various synthetic tracks support this assertion.
4. The recent report by Racing Victoria's Equine Welfare & Veterinary Department into the Geelong Pro-Ride racetrack gives some confidence to the riders. The study states:
  - a. Since the change to the Pro-Ride racing surface during 2009-10 racing season, the risk of fatality (equine) at Geelong Synthetic has decreased by 57% and is comparable to turf tracks.
  - b. The study also found there was no evidence to support anecdotal reports of high injury rates (equine), especially to soft tissue structure, when racing at Geelong Synthetic.
5. The data collated from the five (5) synthetic tracks that hold race meetings in Australia showed that the percentage of falls and injuries per 100 rides was lower than overall data involving the incidence of falls per 100 rides on all tracks in Australia.
6. There were forty-five (45) jockey falls from 38,849 rides. Falls occurred at a rate of 0.12% per 100 rides. Injuries occurred at a rate of 0.04% per 100 rides. Career ending injuries occurred at a rate of 0.01% per 100 rides. Injury incidence per fall (time off work) occurred at a rate of 28.89%.
7. The data on synthetic tracks has been collated for this study. The TABLE I shows the fall and injury rate is higher on the combined tracks (turf/dirt/synthetic) than exclusively on synthetic tracks.

**TABLE 1****Breakdown of fall and injury numbers and incidence rates by synthetic racetracks in Australia**

Item	Canberra	Geelong	Sunshine Coast	Toowoomba	Devonport	TOTAL
Falls	1	11	17	14	2	45
Injuries	1	3	3	7	1	15
Time off work	1	3	3	5	1	13
Serious injury more than 3 months	0	2	2	2	0	6
Career ending injury	0	2	0	2	0	4
Rides	4,679	11,069	8,251	12,640	2,210	38,849
Falls per 100 race rides	0.02	0.1	0.2	0.11	0.90	0.12
Injuries per 100 race rides	0.02	0.03	0.04	0.06	0.05	0.04
Injuries incidence per fall (time off work)	100	27.27	17.64	35.71	50	28.89
Career ending injury per 100 rides	0	0.02	0	0.02	0	0.01

Data: 1st January 2006 to 31st December 2012

NB Statistical Analysis - The incidence percentage of falls was defined as:

Incidence = (number of falls during period/number of rides during period) x 100

8. The Menzies Research Institute report shows that falls per 100 rides on combined surfaces is 0.42% compared with on synthetic tracks at 0.12%; similarly injuries per 100 rides is 0.11% (Vic. 0.10%; NSW 0.34%) compared to synthetic tracks at 0.04%.
9. Material Data Safety Sheets obtained covering Pro-Ride Footing, Binder Emulsion Products, wax products, petroleum products, and sand containing quartz, fibres and mineral organic impurities shows that no toxic or carcinogenic substances are contained that could be a risk to rider's health.
10. In recent years, there have been studies by the Menzies Research Institute (Nationally) and by Dr Caroline Foote (Vest Study, Victoria on race falls and NSW on track work and race falls and injuries) on fall and injury rate. A comparison with these other studies has shown a strong correlation:
  - Menzies Research Institute Study, 2002-2006:- Falls per race rides 100 rides = 0.42%; Injuries per 100 rides = 0.11%; Injury Incidence per fall (time off work) = 27.00%

- Dr Caroline Foote, Vest Study, Vic. 2000/01 – 2010/11:- Injuries per race 100 rides = 0.10%; NSW 2000/01 – 2010 as per race rides:- Injury per 100 rides = 0.34% (3 x higher than previous NSW published injury rates)
- Synthetic track study, 2006 – 2012: Falls per 100 rides = 0.12%; Injuries per race rides 100 rides = 0.04%; Injury incidence per fall (time off work) = 28.89%

## **RECOMMENDATIONS**

The following recommendations are made:

1. The Australian Racing Industry should continue to gather data for further analysis and review relating to the incidence of falls and injuries on the synthetic surfaces.
2. The Australian Racing Industry should acquire information on the falls and injuries rates from International jurisdictions for a comparison with Australian rates.
3. The Australian Racing Industry should improve recording and reporting of race day and track work injuries in the ARID and RVL's "SHE" system's databases.
4. The Australian Racing Industry should ensure, as an absolute priority, that all track managers and their staff are fully trained in the maintenance and preparation of synthetic surfaces.

## **CONCLUSIONS**

Synthetic track accident/incident data does not demonstrate that falls are more severe than on turf tracks. However, data is limited and this should continue to be monitored in order to provide an outcome with greater confidence.

The synthetic tracks used in Australia do not contain carcinogenic materials; further, if they are properly maintained, there should be no adverse allergic reactions suffered by jockeys who fall on them or exposed to the materials.

The key to synthetic track surfaces being safe for racing are preparation and maintenance. Whilst this is also the case with other surfaces ie turf, dirt, unlike these surfaces, synthetic tracks must be prepared exactly as per specifications; otherwise, there is the high probability of serious injuries to riders, when falling on these surfaces.

This report's findings should give riders more confidence that, when riding on these synthetic track surfaces, there is not a higher risk of sustaining an injury.

## REFERENCES

- i. Canberra Racing Club – Peter Stubbs, CEO; Gary Buchanan, OH&S Officer; Geoff Bloom, CRC Committee Member
- ii. Racing Queensland – Warren Williams, General Manager of Operations
- iii. Racing Victoria Limited – Carlie Burge, Return to Work Coordinator; Joanna O’Reilly, Risk Coordinator
- iv. Tasracing – Rick Dorling, OH&S Officer; David Manshanden, Racing Manager
- v. RISA – Steward’s reports and results
- vi. RACENET – Race-day results
- vii. Menzies Research Institute Research - Peta Hitchens, Researcher.