



Analysis of Greyhound Racing Injuries

1 April 2019 – 30 June 2019

Foreword

Each quarter the Commission publishes a report providing data in relation to injuries that have been sustained by greyhounds while racing in NSW. The publication of such data has occurred in NSW since 2016 and is designed to provide transparent, accurate and timely reporting of racing related injuries.

This report contains both quarterly analysis and trend line analysis of racing injury related information and provides an important evidence base to assess current and future strategies to minimise the incidence and severity of greyhound racing related injuries.

This quarter's report, the fourth in the series produced by the NSW Greyhound Welfare & Integrity Commission since its operational commencement on 1 July 2018, has undergone some minor enhancements to its structure, including the insertion of key points for the reporting period and further information about the reporting methodology used for this report.

Key Points

During the quarter, the Commission supervised 236 greyhound race meetings consisting of 2881 races and 20,147 greyhound starts. A total of 3615 individual greyhounds started in races over this period, with an average of 5.6 starts per greyhound.

The Commission's On Track Veterinarians (OTVs) conducted 1299 post-race examinations of greyhounds from which 662 greyhounds (comprising 51% of the total number of examinations) were found to have injuries, the majority of which were minor to medium. No injury was detected in the remaining 637 greyhounds (comprising 49% of the total number of examinations).

This quarter shows:

- a decreased total injury rate of 32.9 per 1000 starts, the lowest for the previous three quarters;
- the lowest catastrophic injury rate since reporting began in 2016, at 0.8 per 1000 starts; and
- a slight increase in total injuries compared to the corresponding prior year reporting period (April-to-June 2018), the majority of which were minor in nature.

Data sources and injury classification

This report is prepared by the Commission's Chief Veterinary Officer and details greyhound injuries and fatalities that occurred at race meetings in New South Wales for the relative reporting period.

The information is compiled from data recorded by the Commission's On-Track Veterinarians (OTVs) using the Greyhound Examination Database (GED) managed by the Faculty of Engineering and Information Technology at the University of Technology Sydney (UTS). The injury data includes a description of the greyhound; the track, race distance, box and race number where the injury occurred; the anatomical location and nature of the injury; the incapacitation time applied; the location on the track where the event occurred; and all treatment information. This information also contributes to research into track design, safety and injury prevention being conducted by UTS.

Information relating to the number of race and number of dogs racing is drawn from data captured on the Commission business systems (including OzChase and OneGov systems).

All greyhounds that present at a race meeting are subject to a pre-race veterinary examination by the OTV.

In a post-race context the OTV undertakes examination of some greyhounds for a variety of reasons including:

- an examination initiated by a steward due to sub-optimal or inexplicable performance
- a racing incident (for example a race collision or race fall or a marring incident)
- where a greyhound fails to finish a race;
- an examination at a trainer's request; and/or
- an examination initiated by the OTV.

All greyhounds injured at the racetrack receive immediate veterinary treatment from an OTV, and trainers may be directed by the OTV to seek follow-up treatment for a greyhound from a veterinarian in private practice.

Injury Classification Methodology

Injuries are classified according to the number of days 'incapacitation' or stand-down from racing required to recover from the injury diagnosed at the time of examination. This provides an indication of the severity of an injury. The injury classification used by the Commission's OTVs is detailed in Table 1.

Table 1: Injury classification and examples of injuries

Injury category	Incapacitation period (days)	Example of injury
Minor I	0	No stand-down needed: torn nail or minor abrasion or spike.
Minor II	1-10	Minor cuts, abrasions, pad injuries, Grade 1 muscle injuries requiring treatment.
Medium	14-21	Moderate cuts and pad/toe injuries, joint sprains, ligament or tendon injuries, Grade 2 muscle injuries.
Major I	28-42	Fractured toes, severe split pads, dislocated joints, simple fractures, Grade 3 muscle injuries.
Major II	43-90	Long bone fractures; severe spinal, pelvic or skull injuries; major fracture dislocations, Achilles tendon ruptures.
Catastrophic		Euthanased or sudden death.

Prior to the Commission assuming regulatory oversight of greyhound racing on 1 July 2018, OTVs employed by Greyhound Racing NSW classified all injuries requiring an incapacitation period of 21-90 days as major. Separating this category into major I (28 to 42 days) and major II (43 to 90 days) improves understanding of the nature and extent of major injuries.

Some injuries - such as fractured toes and split paw webbing - may not be serious in nature but may require an incapacitation period of 28 days and thus be classified as major injury, due to the length of time the greyhound should be rested to allow the injury to heal fully before racing again.

All serious injuries that are career ending and may require significant rehabilitation and/or surgery will attract an incapacitation time of more than 42 days; such injuries can be differentiated as major II for follow-up.

Counting Methodology

Where an individual greyhound sustains injuries in more than one injury category, only the highest category is used in reporting.

Injury rates are reported both as injuries per 100 greyhounds raced (where each greyhound will be counted only once irrespective of how many times it raced), and injuries per 1000 starts (where a greyhound is counted every time it races within the quarter).

Causative Factor Analysis

There are many causes of injuries in racing greyhounds and the relative importance and interactions of causative factors vary. Causative factors can be divided into:

1. Greyhound factors: genetics, nutrition, physical growth and development, fitness, race preparation and previous injury history
2. Track factors: design and surface characteristics
3. Race factors: race distance, racing incidents and number of greyhounds in a race.

The causal factors for major and catastrophic race injuries are examined by the Commission's Race Injury Review Panel. A separate report is produced in relation to the findings of the Race Injury Review Panel.

Race Injury Prevention Strategies

The Commission is committed to reducing the incidence and severity of greyhound injuries and eliminating the unnecessary euthanasia of injured greyhounds. Various policies, programs and other measures are in place or will be progressively introduced to deliver this outcome. Current strategies include:

- the analysis of all catastrophic and major II injuries in racing greyhounds by the Race Injury Review Panel;
- obtaining advice and oversight by the Greyhound Industry Animal Welfare Committee into greyhound injuries and their causes;
- ongoing work through the greyhound industry Measurement and Reporting Working Group to compile a comprehensive data set, in conjunction with Greyhound Racing NSW (GRNSW), for multi-factorial analysis of injury causes and correlations; and
- work with GRNSW on track safety reform projects in conjunction with safety experts from the University of Technology Sydney (UTS) in order to improve understanding of the track-related aspects of racing injuries.

Injuries this quarter

Injuries reported during the quarter are shown in Table 2. Injury rates are reported both as injuries per 100 greyhounds raced (where each greyhound will be counted only once irrespective of how many times it raced), and injuries per 1000 starts (where a greyhound is counted every time it races within the quarter).

Table 2: Injury numbers and rates 1 April – 30 June 2019 (Q2 2019)

Injury category	Incapacitation period (days)	Number of greyhounds injured	Percentage of greyhounds injured per injury category	Cumulative total per injury category	Injuries per 100 greyhounds raced	Injuries per 1,000 starts
Minor I	0	76	11.5%	11.5%	2.1%	3.8
Minor II	1-10	303	45.8%	57.3%	8.4%	15.0
Medium	14-21	154	23.3%	80.6%	4.3%	7.6
Major I	28-42	71	10.7%	91.3%	2.0%	3.5
Major II	43-90	41	6.2%	97.5%	1.1%	2.0
Catastrophic	Euthanased/died	17	2.6%	100%	0.5%	0.8
Total		662	100%	100%	18.3%	32.9

Injury trends over five quarters

The total injury rate in this quarter (32.9 per 1000 starts) represents a decrease in the total injury rate in comparison to the previous two quarters (Table 3), with medium, major I and II and catastrophic injuries all having decreased in comparison to the previous two quarters. Minor I and II injuries showed a slight increase.

The rate of catastrophic injuries in quarter 2 of 2019 (0.8 per 1000 starts) is the lowest rate observed since reporting began in the 1st quarter of 2016. It is thought that an increased awareness of treatment options and prognosis for treating serious racing injuries as well as a renewed Steward focus on track safety and surface preparation has contributed to this decrease.

Table 3: Greyhound injury numbers and rates over 15 months

Injury category	Quarter 2 2018 ¹			Quarter 3 2018 ²			Quarter 4 2018 ²			Quarter 1 2019 ²			Quarter 2 2019 ²		
	Number	Per 100 raced	Per 1000 starts	Number	Per 100 raced	Per 1000 starts	Number	Per 100 raced	Per 1000 starts	Number	Per 100 raced	Per 1000 starts	Number	Per 100 raced	Per 1000 starts
Minor I	95	2.2	4.1	63	1.5	2.7	43	1.1	2.1	58	1.6	3.3	76	2.1%	3.8
Minor II	251	5.8	10.8	244	5.8	10.6	270	6.8	13.0	242	6.5	13.8	303	8.4%	15.0
Medium	218	5.0	9.4	210	5.0	9.2	215	5.4	10.4	205	5.5	11.7	154	4.3%	7.6
Major I + II	127	2.9	5.5	132	3.1	5.7	154	3.9	7.4	120	3.2	6.8	112	3.1%	5.6
Major I				111	2.8	5.2	111	2.8	5.4	92	2.5	5.3	71	2.0	3.5
Major II				11	0.3	0.6	43	1.1	2.1	28	0.8	1.6	41	1.1	2.0
Catastrophic	31	0.7	1.5	26	0.6	1.1	20	0.5	1.0	32	0.9	1.8	17	0.5%	0.8
Total	722	-	31.0	675	16.0	29.5	702	17.6	33.8	657	17.8	37.5	662	18.3%	32.9

¹GRNSW data: Quarter 2 - 1 April - 30 June 2018.

²GWIC data: Quarter 3 - 1 July - 30 Sept 2018; Quarter 4 - 1 October - 31 December 2018; Quarter 1 - 1 January- 31 March 2019; Quarter 2 2019 – 1 April – 30 June 2019.

Longer term trends

Trends in injury rates since the start of 2016 are shown in Figures 1 and 2.

The second quarter of 2019 has the lowest overall injury rate in the last three quarters and a similar overall injury rate to the same quarter in 2018. It is important to note that this quarter of 2019 reports injuries sustained during all races (TAB and non-TAB) in NSW. It is not clear whether previous reported data in quarter 2 2018 includes non-TAB injuries. The rates of major and catastrophic injuries has decreased since quarter 2 2018 (Figure 2).

Minor II injuries have increased from an average of 7.9 per 1000 starts in the first 18 months (2016 Q1 - 2017 Q2) to an average of 10.9 per 1000 starts in the following 18 months (2017 Q3 - 2018 Q4), and reached 15.0 per 1000 starts in this quarter. Medium injuries have been increasing from an average of 8.1 per 1000 starts in the first 18 months to an average of 10.1 per 1000 starts in the following 18 months and decreased to 7.6 per 1000 starts in this quarter.

Major I + II and catastrophic injuries have decreased significantly this quarter compared to the average over the last reporting year. Major I + II injuries average at 6.4 per 1000 starts for the reporting year and this quarter total 5.6 per 1000 starts. Catastrophic injuries have averaged at 1.2 per 1000 starts for the reporting year and this quarter record 0.8 per 1000 starts.

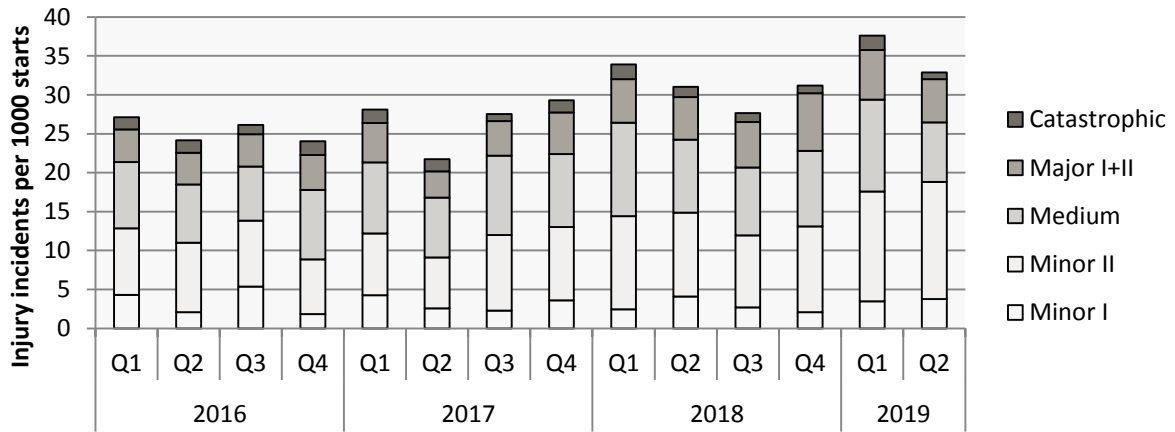


Figure 1: Injury trends by year quarters since 2016

*Data before Q3 2018 is from GRNSW reports available at <http://www.grnsw.com.au/welfare/veterinary/injury-report>

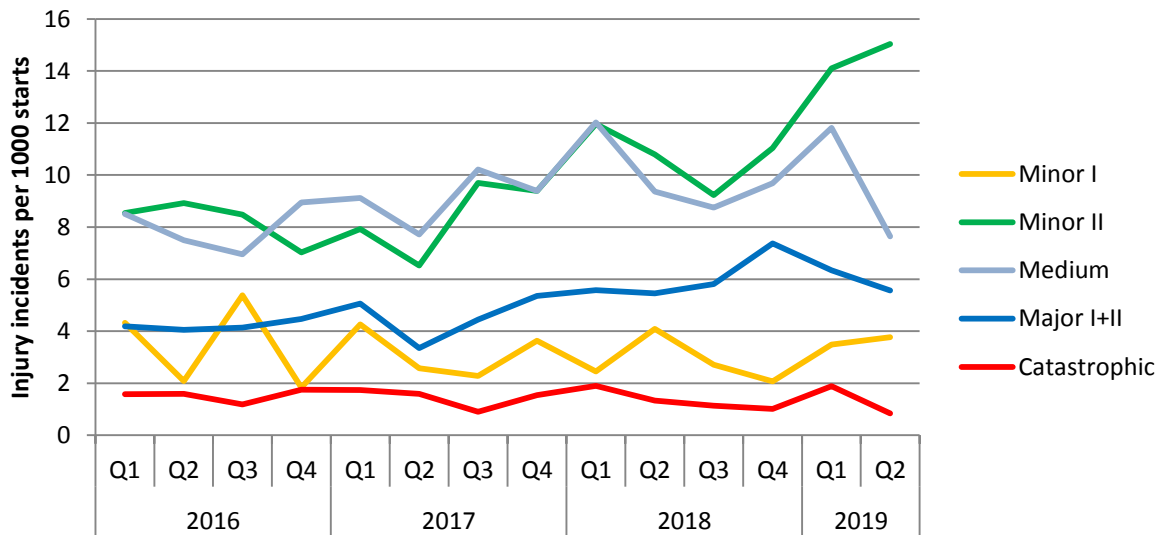


Figure 2: Trends in injury category by year quarters since 2016

*Data before Q3 2018 is from GRNSW reports available at <http://www.grnsw.com.au/welfare/veterinary/injury-report>

Injuries by severity

The largest proportion of injuries in this quarter were minor I and II (57.3%), followed by medium (23.3%) and major I (10.7%). Likely recoverable injuries (minor I, minor II, medium, major I) made up 91.3% of all greyhound injuries during this quarter. Major II injuries were 6.2% of all injuries, and catastrophic injuries were 2.6% of all injuries reported. Injuries which required an incapacitation of 21 days or less (minor I + minor II + medium) made up 80.6% of this quarter's injuries, an increase in the proportion of recoverable injuries in comparison to previous years (Table 4).

Injuries which were likely to be career-ending, require further surgery and/or rehabilitation, or be life-threatening, result in sudden death or require immediate euthanasia (major II + catastrophic) were 8.8% of all injuries in this quarter, compared to 9% in the fourth quarter of 2018 and 9.1% in the first quarter of 2019.

Table 4: Comparison of greyhound injuries over three calendar years by severity

	Calendar year				
	2016	2017	2018	Q1 2019	Q2 2019
Minor I + II + medium injuries	77%	78%	77%	77%	80.6%
Major I + II + catastrophic injuries	23%	22%	23%	23%	19.5%

The major II and catastrophic injuries occurring during this period were reviewed by the Race Injury Review Panel as it continued its work analysing contributing factors to major II and catastrophic race injuries.

The Panel continues to study all the contributing factors of major II and catastrophic injuries and, over time, the data collected will assist in informing prevention strategies and regulatory steps to minimise the incidence of racing injuries.

Fatalities

A fatality is defined as a greyhound which is euthanased at a race meeting as a result of an injury sustained during the meeting, or any sudden death occurring during the race meeting.

Of the 17 greyhound fatalities during this quarter, 16 were euthanased as a result of catastrophic injuries sustained during racing. There was one instance of sudden death occurring at a racecourse after the completion of a race, with a post mortem examination confirming the cause of death to be a ruptured internal artery. Thirteen fatalities occurred at TAB tracks (0.77 per 1000 starts), and four at non-TAB tracks (1.2 per 1000 starts).

The combined fatality rate for this quarter represents 0.8 per 1000 race starts, which is the lowest rate reported since 2016.

Four greyhounds (9.75% of major II injuries reported) were reported as having been euthanased by a private veterinarian as a result of an injury on track, after the OTV referred the greyhound for further diagnostics and treatment. This decrease in off-track euthanasia is likely to be the result of the race injury treatment scheme, which was introduced at the end of March 2019. This scheme is administered by GRNSW and provides financial support for the off-track diagnosis and treatment of serious injuries which occur during racing, thereby eliminating unnecessary euthanasia of injured greyhounds due to the financial commitments associated with surgery and on-going treatment of serious injuries.

Three greyhounds were reported as having been euthanased as a result of injuries sustained during unofficial club trials. These were not included in the total of catastrophic injuries reported above.

Injuries by anatomical location

Consistent with the previous quarter, the majority of injuries (57%) were to the right hind and right forelegs (Figure 3).

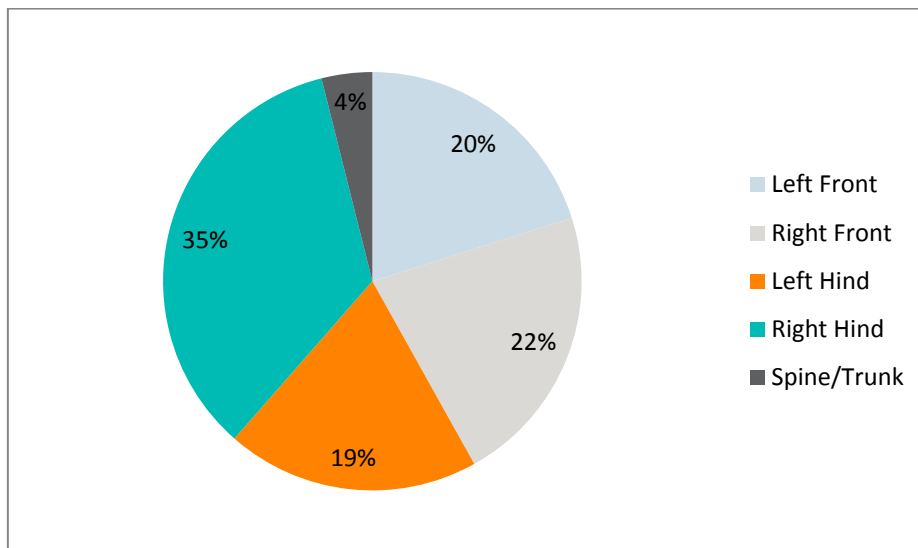


Figure 3: All injuries by anatomical location in quarter 2, 2019

Injuries to the right limbs are more common than left limb injuries as a result of greater forces on the right or outside limbs in races conducted in an anti-clockwise direction. The camber of the track, width of the turns and traction provided by the surface will all play a role in the forces operating on the outside limbs of competing greyhounds. Equally, the speed the greyhound is travelling; the centripetal force or amount of 'lean' into the corner; as well as the weight of the greyhound and the gravitational forces all account for the total forces in the right hind limb. Any bump or uneven movement of this limb when a greyhound is running at high speed can cause a bone injury, due to the significant forces involved.