EQUINE INJURY IN IRISH RACING RISK REDUCTION PROGRAMME (EIIRRRP)

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IHRB | Irish Horseracing Regulatory Board

Introduction

A key priority of the Irish Horseracing Regulatory Board (IHRB) is a relentless focus on the safety and well-being of all participants within Irish racing. As part of our commitment to lead and develop relevant research and projects, the IHRB established the Equine Injury in Irish Racing Risk Reduction Programme (EIIRRRP) in October 2022. The IHRB has worked with two world-renowned equine epidemiologists, Professor Tim Parkin as Programme Consultant and Dr Sarah Rosanowski as Programme Manager, supported by a project team of industry experts.

The purpose of the EIIRRR Programme is to improve, where possible, the safety of horses and riders racing in Ireland by reducing injury risk through analysis of Irish horseracing equine fatal injury data, evaluation of worldwide evidence of injury risk mitigation strategies and intervention where possible using the knowledge gained from both.

Executive Summary

The EIIRRRP has evaluated on-track equine fatal injury in Ireland, conducted risk factor analysis, identified evidence-based interventions and implemented mitigation measures for identifiable risks. Progress in this regard has been monitored and the IHRB veterinary team continues to keep abreast of and implement best practice in management and follow-up of raceday equine injury.

This programme, managed by Dr Sarah Rosanowski, has built on analysis of Irish horseracing data, which Professor Tim Parkin (University of Bristol) and Dr Euan Bennet (University of Glasgow), also experts in this area, began in 2016. The programme has been overseen by an expert steering group, the EIIRRR Project Board, working with the senior executives of the IHRB with close involvement from Horse Racing Ireland (HRI).

In 2023, the EIIRRRP identified risk factors for raceday equine fatal injury in Irish racing using data from 2012 – 2022, and in doing so confirmed consistency with risk factors identified globally. They included:

- Horse related factors including the age of the horse and the time since last run
- Race related factors such as the race distance, the going and the racing surface
- A change of trainer for the horse
- The type of race and the racecourse

Working with the data available from the EIIRRRP, in 2023 the IHRB veterinary team developed a mitigation plan for the risk factors identified during initial modelling. This work led to the initiation of Enhanced pre-race regulatory Veterinary Inspections – examining increased numbers of horses pre-race based on EIIRRR risk categories as well as those identified at increased risk individually.

Using initial risk factor modelling in Ireland and evidence from other racing jurisdictions, five categories of horse were identified as demonstrating an increased risk of fatal injury. These 'EIIRRR horses' are now subject to enhanced veterinary inspection (EVI) prior to racing:

- Horses aged over seven in Flat races and aged over 10 in National Hunt races
- Any horse aged over seven years of age making their racecourse debut
- Any horse that fell on its previous start
- Any horse which has run within the last seven days
- Any horse that has not had a race start in the previous 365 days

Throughout the programme the IHRB has engaged with stakeholders including the IHRB Board of Directors, IHRB staff and senior management, licensed trainers, veterinary surgeons, racecourses and regulatory experts.

The programme has drawn on the expertise of those already working daily to improve horse safety on raceday. Valuable input was provided by the IHRB Clerks of the Courses and Veterinary Officers, racecourse veterinary surgeons, trainers, the Irish Blue Cross, and racecourse management, all of whom actively manage this area of risk on Irish racecourses on an ongoing basis. Additionally, the programme has availed of the broader knowledge and evidence available about the global risk factors for raceday horse fatality and has applied this to the Irish racing setting as appropriate.

In 2024, the programme has been further developed into a formal quality and safety improvement programme which includes additional risk factor identification, continued translation of findings into operations, and development of an understanding of the risks and their mitigations through communication and engagement within and beyond the industry. Specifically, work directly related to or associated with the EIIRRRP has to date delivered the following.

- 2,482 EIIRRR horses were examined pre-race from November 2023 to August 2024 – this was over a third of all horses examined pre-race in this period. In that period over one third of all runners in Ireland were examined pre-race.
- Mid-2024 analysis of fatal injury indication that there may be a shift in fatal injury incidence towards reduction, based on comparison of January – July 2024 with the same period in 2023.
- The requirement for each racecourse in Ireland to have an effective pre-race inspection area in place by 1 January 2025, supported by HRI grant aiding.
- Development of a fatality review process, which will be further refined taking into account experiences of other jurisdictions.
- Expansion of the Suitability to Race and Horse Injury Assessment Programmes
- Presentation of the work of EIIRRRP at the HRI Welfare Symposium 2024 and the Irish Equine Veterinary Association summer scientific meeting.
- Successful piloting of pre-race horse medical record submission for two high-profile races at the Galway Festival 2024.

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Background

The use of raceday injury data in risk factor modelling to identify and reduce risk where possible is common practice in racing jurisdictions worldwide. IHRB veterinary officials are present at each of the almost 400 race fixtures held per year across Ireland, and they collate, assess and categorise detailed information on every horse injury or fatality which occurs, supported by the racecourse veterinary surgeons.

The data is combined with race information provided by Horse Racing Ireland (HRI) and analysed to form the basis of risk interpretation, through risk factor modelling. The greater the amount of information that is available about the risk factors for injury and fatality in the population of Irish racehorses, the better effective evidence-based interventions can be designed and implemented to mitigate those risks.

The veterinary team also uses the data operationally to monitor individual horses, direct raceday examinations and require examinations to be performed at home – all to ensure that those horses that present to race are suitable to race, and that their health and welfare is monitored once they leave the track. Understanding the risk factors at the level of the individual horse has the potential to inform constructive discussion and guide decision making by those who care for them, ultimately improving safety and welfare.

In addition, part of the role of an IHRB Clerk of the Course has always been to actively mitigate the risks associated with their racecourses, based on their own experience and expertise. Specific risk reduction has focused on the ground conditions, the management of obstacles, and engagement with jockeys on raceday. Specific consideration is given to obstacles in jump races, with these being moved or removed based on various factors such as safety considerations, ground conditions or the potential for low-lying sun. The types of obstacles, their construction and the take-offs and landings make up another key factor regularly considered by the Clerk of the Course.

Initial Aims and Objectives

The primary aims of the programme in 2023 was to analyse Irish horseracing data and identify risk factors associated with raceday equine fatality within the jurisdiction, to evaluate worldwide evidence of injury risk mitigation strategies, to determine how the identified risks might be mitigated in Ireland and to put this into practice to improve outcomes for our horses and riders.

The objectives were as follows:

- To review global findings in this area to establish context and best practice
- To describe, statistically analyse and interpret Irish raceday fatality data from 2012 to 2022
- To engage with stakeholders to understand and explain the data
- To develop and operationalise an equine injury risk mitigation plan for Irish racing

The EIIRRRP followed the DMAIC (Define, Measure, Analyse, Improve, and Control) approach. The identification and quantification of raceday fatalities and risk factors associated with raceday fatality was a starting point to enable the development of evidence-based mitigation strategies. These strategies should bring about a reduction in risk, with the continued monitoring of changes and the quantification of risk factors key to ensuring improvement is maintained over time.

It is important to note that risk factors are complicated, and interplay in a complex way with multiple contributions – each one makes a difference but only as one part of an overall complex risk matrix.

Global Risk Factors

Globally, there is a considerable body of evidence about the factors that contribute to fatal injury on raceday, particularly for flat racing. There is less evidence about risk factors for jump racing due to its smaller scale globally, but many do overlap with flat racing.

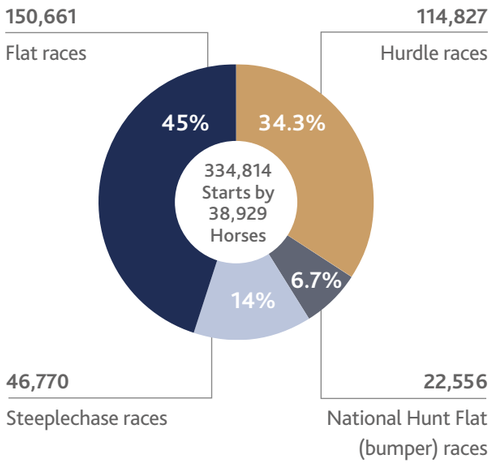
Raceday fatalities are complex, multifactorial events. Risk factors commonly identified globally relate to the horse, the trainer, the jockey and the racecourse. Risk factors that are commonly identified include horses having breaks from racing, the time between the previous start and the current start, whether a horse has experienced previous injuries or falls on raceday. Other factors include the age of a horse at the current start and at its first race start. Surface conditions including the going and the type of surface have also been identified as risk factors for fatality and injury, as has the type of race.

An example can be found in the work of Professor Parkin in the United States of America, where horses with prior veterinary events or breaks from racing of over 365 days were identified to be at a higher risk of a fatality. This population of horses and the raceday injury rates have been followed in North America since 2009. The monitoring of raceday fatality, the identification of risk factors, and the subsequent risk mitigation strategies have reduced the number of raceday fatalities since the inception of the project by 30%. The US Jockey Club continues to monitor and review their raceday data and recommendations annually, in order to monitor the impact of changes over time.

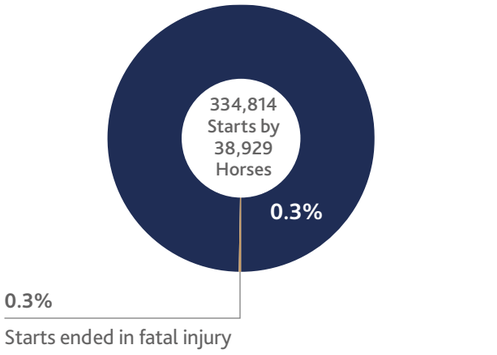
Irish Risk Factors 2012 - 2022

Between 2012 and 2022 there were 334,814 starts by 38,929 horses. Of these starts, 45% (150,661) were in Flat races, 34.3% (114,827) in Hurdle races, 14% (46,770) in Steeplechase races and 6.7% (22,556) in National Hunt Flat (bumper) races. Over this time, 0.3% of starts ended with a fatal injury.

2012-2022 Race Starts



2012-2022 Race Starts Ending in a Fatal Injury



Risk factor analysis of the data behind these injuries confirmed that the risk factors identified in other jurisdictions are also important in Ireland, for example:

Racecourse factors:

- Going – the firmer the going, the higher the risk;
- Race distance – the longer the race, the higher the risk;
- Racing code – racing over obstacles carries a higher risk.

Horse factors:

- Age – the older the horse, the higher the risk;
- Experience – previously racing on the same course or with the same jockey is protective.

Other factors:

- The timing of the race and the racecourse;
- Time of year and year itself – relating to weather conditions;
- Change of trainer;
- Racecourse – course by course variations outside other factors such as going.

There was some variation between the original model (2012 to 2017) generated by Professor Tim Parkin in 2018 and the current risk factor model because of improvements in how the data were collected over the lifespan of the dataset. Consistent within the two models were the type of race, distance of the race, the surface, the going, weight carried, the age of the horse, the year of the race, and the racecourse.

Risk analysis is complex. There are times when seemingly simple parameters are not straightforward. Age is a parameter which encompasses a horse's experience, history of injury and relates to number of starts. In the Irish racing context, for example, when looking at a horse's racing history, what appears to be age at 'first start' is not necessarily their first start on the racecourse because there is a start in a Point-to-Point race. Careful teasing out of these seemingly simple factors is important; this has been done in the modelling worked through by the EIIRRRP epidemiologist team.

Enhanced Regulatory Veterinary Inspections

IHRB regulatory Veterinary Officers are independent of the horse and its connections (owner, trainer etc.). They are on duty at every one of the scheduled racing fixtures held each year on the island of Ireland and inspect or examine every horse before racing. Horses have been "trotted up" on a broad "whole card" basis since 2014, with individual horses being examined more closely based on known relevant history.

The EIIRRRP has designed a risk assessment for raceday injury, allowing these veterinary inspections to be refined and expanded on a broader evidence and risk-based approach. Using initial risk factor modelling in Ireland and evidence from other racing jurisdictions, five categories of horse have been identified as associated with an increased risk of fatal injury and are now subject to enhanced veterinary inspection prior to racing:

- Horses aged over seven in Flat racing races and aged over 10 racing over jumps in National Hunt races
- Any Maiden starts in horses aged over seven years of age making their racecourse debut
- Any horse that fell on its previous start
- Any horse which has run within the last 7 days
- Any horse that has not had a race start in the previous 365 days

Implementing enhanced veterinary inspections has increased the number of horses assessed by the independent regulatory Veterinary Officer by about 50 per cent, with at least one in three of the approximately 35,000 runners per year now being examined. The IHRB is committed to implementing these enhanced veterinary inspections by further investment in training and resources for the veterinary team and administration resources to ensure robust tracking and recording of the effect of these risk mitigation measures.

Alongside increased inspections on track, for horses with a known history of injury, the IHRB veterinary team is working with trainers and their vets in advance of any planned return to racing to maximise understanding of and care around the horses and to ensure their suitability to race.

The Horse Injury Assessment (HIA) is an essential step in which the IHRB works with the trainer and their own vet to ensure that should a horse sustain an injury at the racecourse, it is properly followed up, diagnosed and treated. Any horse that leaves the racecourse with an injury is required to be assessed to provide an early understanding of the injury and so necessary treatment plan. Following this process, before a horse is allowed to return to racing, a Suitability to Race (STR) examination is required.

The STR examination, also conducted by a veterinary surgeon, ensures the horse is fully suitable to race, with detailed findings - including diagnostic information - shared with the IHRB for evaluation. This comprehensive process allows for a long-term view of the horse's recovery, reducing risks associated with premature returns to racing and promoting greater animal welfare.

These processes facilitate close collaboration between the IHRB veterinary team, trainers, and their veterinary surgeons, allowing well-informed decisions to be made about each horse's condition and suitability to race. By relying on clinical information and thorough assessments, the IHRB aims to ensure that horses only compete when they are fit and safe to do so. This approach prioritises the horse's safety and welfare and reduces the risk of injury. Additionally, having comprehensive information available increases the chances of the horse running if deemed safe, as opposed to erring on the side of caution when making decisions in the absence of sufficient data, where the horse might be more likely to be withdrawn from racing.

Future Direction

The risk factors for equine fatal injury in Irish racing from data collected between 2012 and 2022 align with what is known globally. Although many risk factors have been identified, we do not claim that all risk factors that exist will have been identified, simply because some will be related to data that is not currently collected on a routine basis or available for analysis. While this may somewhat limit the impact that can currently be achieved through the design of interventions based on risk prediction, it in no way negates the value of the research.

The purpose of identifying risk factors is to design interventions to reduce the risk. Risk factors vary in the extent to which they may be modified along a spectrum, from non-modifiable aspects inherent to the sport itself, such as the participation of the horse, through to modifiable factors such as racecourse preparation and enhanced veterinary inspections, alongside more challenging factors such as trainer and jockey experience and knowledge.

The first recommendation of the EIIRRRP has been operationalised in the form of enhanced veterinary inspections. The number of inspections, and the outcome of inspections (e.g. pass or fail) will require ongoing monitoring and assessment over time. Additionally, more granular analysis should lead to recommendations based on models specific to Flat, Bumper, Hurdle and Steeplechase races.

Future work planned in the programme includes:

- Evaluation and review of the composition of the programme team
- Scoping of collaborations with Irish research teams
- Inclusion of 2023 data in the risk factor model
- Risk factor modelling of individual race types – Flat, Bumper, Hurdle and Steeplechase
- Development of systematic race-day fatality review
- Assessment of outcomes of the enhanced veterinary inspections
- Continued stakeholder engagement – specifically the racecourses
- Working with racecourses and Clerks of the Course to ensure the safest possible construction and placing of obstacles
- Continuation of Trainers' seminar series to transfer knowledge on this topic
- Development of collaborations to better understand similarities and differences between Irish and British risk factors to include exploring better data sharing.

Conclusion

Enhancement of race-day regulatory veterinary inspections using findings from EIIRRR to specifically target those horses which may be at increased relative risk of injury is only the first in a series of measures to be implemented. Reducing the risk of injury to racehorses on track, particularly fatal injury, is a significant challenge to racing jurisdictions world-wide and one which is a strategic priority for racing's regulatory bodies. The IHRB is committed to fulfilling its role in promoting and protecting horse care and safety, and thereby minimising injuries to racehorses. Irish equine injury data will continue to be collected and monitored on an ongoing basis and, combined with best practice from this and other jurisdictions, will continue to inform our relentless focus on the safety and well-being of our human and equine participants.

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