I.C.H.S.W.J.
International Conference
Health, Safety & Welfare of Jockeys

Meydan Hotel - Dubai 2019

DAY 1 — AGENDA (with Summaries)

Thursday, 7th November 2019

TIME	TOPIC	SPEAKER(S)
9.00am	Welcome and Introduction by Chairman	Denis Egan
9.15am-10.35am	**SESSION 1: BONE HEALTH** (Chair - Dr Jerry Hill)	
9.15am-9.35am	• Bone health and body composition in jockeys along with associated nutrition and exercise practices. The presentation takes a closer look at the accuracy of skinfold prediction equations at estimating % body fat in professional jockeys and also the risk factors for bone fracture in Irish jockeys. Skinfold prediction equations are available for estimating % body fat in athletes, however the accuracy and variability of these equations in a jockey cohort are unknown when compared to DXA. The findings suggest poor levels of accuracy and high variability between the prediction equations and DXA. Using the collected dataset, jockey-specific equations were constructed and assessed. The results reported a high level of accuracy when compared to DXA however, cross validation in an independent jockey cohort is required. A model for predicting bone fracture was developed using a range of variables including bone status and body composition, dietary intake and lifestyle factors. The model found that jump jockeys, timing of weight loss and supplements were predictors of bone fracture. When implementing nutrition and exercise strategies for protecting against bone fracture it would be important to consider these variables.	Arthur Dunne
9.35am-9.55am	• DEXA Scanning of jockeys – a review **SYNOPSIS** 2005 National Coaching and Training Centre, University of Limerick: **i) Initial Study** –Published 2009 27 subjects (17 Flat, 10 National Hunt) - Nutritional Analysis - Blood Screening - Bone Mineral Density Screening - Hydration Analysis - Musculoskeletal Screening - Anthropometric Assessment **ii) Study Two** –Dr. Eimear Dolan 2007 DCU - The Effects of a 4% Reduction in Body Mass in 48 Hours on Physiological and Cognitive Function in a Group of Professional Racing Jockeys - A Comparison of Bone Mass between Professional Jockeys, Elite Amateur Boxers and Age, Sex and BMI Matched Controls - An Analysis of Bone Mass, Turnover and Metabolism in Jockeys - The Effects of 6 months Whole Body Vibration Therapy on Bone Mass and Turnover in a Group of Horse-Racing Jockeys	Dr Adrian McGoldrick

iii) Study Three –Dr. S.J. Cullen 2014

- All apprentice jockeys (male n=46; female n=6) holding a racing license in 2014 had a DXA scan
  - Group 1: "10lb claim" (46%)
  - Group 2: "7lb claim" (30%)
  - Group 3: "5lb claim" (11%)
  - Group 4: "3 lb claim" (13%)
- An age, gender and BMI matched control group (n=46)
- Body Composition: Fat mass; Lean mass; % bodyfat
- BMD: TB, L2-4 and FN; Z-scores; BMAD was calculated

iv) Study Four –A. Dunne 2018-2019

- Update already provided by Arthur Dunne.

WHAT HAVE WE LEARNED?

2005 Study

- A substantial proportion of the professional jockeys in Ireland have low-normal BMD, low BMI, and high bone turnover that may result from weight and dietary restrictions. These factors seem to have a deleterious effect on their bone health and predispose the jockeys to a high fracture risk and should be remediated.

2007 Study

- Differences in bone mass between both jockey groups versus the boxer and control groups reached statistical significance for total body BMD and BMC less head, L2–4 BMD and femoral neck BMD and BMC. Flat jockeys appeared to be most affected at all sites.
- It is possible that chronic exposure to low levels of energy availability may have impaired the development of bone (and lean) mass in jockeys.

2014 Study

- A WB and L2-4 Z-score < -1.0 SD, indicating low bone mass, was displayed in 87% and 80% of apprentice jockeys respectively, more than twice that of controls at 41% and 33%. Furthermore, low bone mass for chronological age (Z-score < -2.0 SD) was apparent in 17% and 24% of the jockeys for TB and L2-4 respectively. In contrast, only 7% of the controls displayed low bone mass for age in the sites for TB and L2-4.
- No adverse long-term musculoskeletal implications: "The effects of chronic weight cycling on musculoskeletal health and kidney and liver function in retired jockeys" (Cullen et al., 2015a)
- A mean low BMI, relatively high fat percentage for weight category athletes

% Bodyfat	Controls	Jockeys
	14.7 ± 2.5	13.3 ± 1.7*
	(11.2-21.1)	(9.9-20.3)

2018-2019 Study

- See Arthur Dunne's summary.

WHAT DO WE STILL NEED TO LEARN?

- When analysing DXA scans in jockeys what is the more appropriate area to report on: L2-L4 or L1-L4?
- Is there a correlation between abnormal DXA scans and fracture occurrence. Need for 10-year retrospective study to see if there is a correlation between BMD and lumbar fractures?
- Are jockeys receiving an osteogenic stimulus when in the saddle? If so –where? - Hips, Lumbar spine, Forearms.
- Do jockeys suffer from RED-S?
- What is the most appropriate management of jockeys with reduced bone density?

9.55am-10.25am	• Current GB Apprentice Do Not Have A Body Composition to Make Minimum Weights: - Time to change the Weights or change the Jockeys	Dr George Wilson

	Given the weight allowance for apprentice jockeys (dictated by the number of winners they have ridden), research undertaken at LJMU has shown that the vast majority of male apprentice jockeys are unable to make current minimum race weight in GB with their current claim allowance. Therefore, it raises the questions, in the interest of 'athlete welfare', does minimum GB racing weight need to be raised or does the GB racing industry need to recruit smaller and therefore more suitable apprentices?	
10.25am-10.35am	• Panel Discussion	Arthur Dunne Dr Adrian McGoldrick Dr George Wilson
10.35am-11.05am	**SESSION 2: OPEN SESSION** (Chair - Denis Egan)	
10.35am-10.50am	• Care of paralysed jockey Communicare Healthcare is an Irish owned, nurse led company that offers a range of specialised care services comprising Complex Homecare, Paediatrics, Psychiatric, and Physical, Sensory and Intellectual Disabilities Care. Led and delivered by experienced healthcare professionals, our services are tailored to the requirements of each client, holistically encompassing all aspects of care needs including physical, psychological, emotional and social. Today's presentation outlines through a case study, the key aspects of a managed care service model in the provision of care for a paralysed jockey and how to address the myriad of challenges that arise to support a care programme for life. We will be demonstrating how, given a robust framework of clinical governance and appropriate supports, these jockeys can go on to live their best lives within the restrictions of a highly complex condition.	Bereneice O'Rourke
10.50am-11.05am	• HKJC – Developing partnerships to enhance safety In order to enhance the safety and wellbeing of industry participants, and in particular Jockeys and Work Riders, the Hong Kong Jockey Club has embraced the opportunity to develop relationships with external entities to provide the best available equipment, knowledge and expertise to ensure a safer working environment. Two such entities are Steriline Racing, acknowledged as a manufacturer of world-class racing equipment, which has a long association with the HKJC as well as the Union Hospital which, since 2017, has been engaged by the HKJC to provide its expertise in fulfilling the Chief Medical Officer role together with ancillary specialist medical care for Jockeys and Work Riders. This presentation will touch on the latest safety enhancements for barrier stalls being explored by Steriline Racing and also the role played by the Union Hospital to enhance rider safety in Hong Kong.	Steve Railton John Fargher Dr Johnson Chu
11.05am-11.20am	***COFFEE BREAK***	
11.20am-1pm	**SESSION 3: PHYSIOLOGICAL DEMANDS** (Chair - Dr Giles Warrington)	
11.20am-11.40am	• Effect of a Competitive Racing Season on Markers of Immune Function in Hong Kong Jockeys Project Summary The use of potentially dangerous acute and chronic weight-making strategies, including extreme calorie restriction, sporadic eating, self-induced vomiting soon after consumption, laxative use, sweating in saunas and hot baths, and excessive exercise in sweat suits have been reported among professional jockeys. These practices can lead to severe health problems, including bone fracture, osteoporosis, hormonal dysfunction, eating disorder, depression or even death. The objective of this study was to compare body composition, bone health and markers of immune function in Hong Kong jockeys before and after a full racing season	Dr John O'Reilly Dr Sinead Sheridan

		17 jockeys were recruited (Age: 29. 1 ± 5.4 yrs; Weight: 53.1 ± 3.3 kgs). Whole body Dual-energy X-ray absorptiometry (DXA) was conducted pre- and post-season to assess markers of bone health and body composition. Fasting blood samples were taken early and late season in the early morning prior to midweek track work from each participating jockey to assess key biomarkers relating to stress, inflammation and immune function. Almost 50% of jockeys had low neutrophil count at post-season (2.46 ± 0.63 10^3/uL, p: 0.597). Post-season testosterone was significantly reduced compared to pre-season values (7.01 ± 1.86 ng/ml vs. 8.38 ± 2.35, p = 0.013) while post-season C-Reactive Protein (CRP) was significantly higher compared to pre-season (1.34 ± 1.25 vs. 0.69 ± 0.47 mg/L, p: 0.049). No significant difference in leptin, cortisol and cytokines between pre- and post-season were observed. No significant difference was observed between pre- and post-season body composition and bone health indices. LMM decreased in 29% of jockeys following the racing season. Approx. 50% of jockeys had suboptimal pre-and post-season Z scores. It is recommended that there be a shift from observational research to a more individualised intervention approach. Provision of a suitable exercise program for jockeys to improve bone health and body composition, depending on individual needs, along with nutritional support for jockeys to enhance body composition, bone health and immune function is required. In addition, regular DXA scans are warranted to monitor bone metabolism and enhance future health outcomes of professional jockeys.	
11.40am-12 noon	•	Use of salivary biomarkers in athletes The use of salivary biomarkers to measure stress and immune function has become commonplace in elite sport. With the advent of real-time analysis enabling results to be determined in a matter of minutes, such technology can be used to categorise responses to training, competition and lifestyle challenges and enable effective interventions leading to more successful outcomes. This talk describes how such tests are used in several sports to improve athlete welfare and performance. Given the dearth of published research using such tests in Jockeys, this talk explores avenues for the use of such testing in the jockey population and also in racehorses as well.	Joe Dunbar
12 noon -12.20pm	•	Physiological demands on Flat and Jump Racing – implications for training The presentation will focus on the physiological demands placed on both flat and jump jockeys during racing. He will first describe the research that has provided a foundation for the current study before presenting new data from two race distances for both flat and jump jockeys. Relevant training implications will be proposed while future steps to add to this body of research will be identified.	Mikey Kiely
12.20pm-12.40pm	•	The physical profile of the jockey athlete – the story so far This presentation will explore the physical determinants that underpin the technical skills of the sport, and how this is achieved through performance modelling. We will then outline how we go about assessing the physical characteristics of the Jockey Athlete and whether there are key qualities that separate developmental from professional codes. To conclude we will present what the data suggests the physical profile of the jockey athlete may look like.	Ed Stroud Danny Hague
12.40pm-1pm	•	Developing a holistic training model for jockey apprenticeship After 11 years of working at the South African Jockey Academy, Registered Nurse Deborah Butt has helped gather and develop a	Sr Debbie Butt

	team of professionals who now offer world class support to the apprentices who train there. It has taken a lot of trial and error to get the 'dream team' together – some of the biggest battles being with the racing community itself – change is a frightening reality for some, but the effect of having these ladies (all the team bar one is female) working with the apprentices has been phenomenal. Gone are the days of guesswork, broken lines of communication and an amateurish approach. We aim for professional elite sportsmen and women to leave the academy each year, and every apprentice has an individualised plan and goals which the team around them have assisted in identifying, and their support helps make it happen.	
1pm-2pm	***LUNCH***	
2pm-2.10pm	**SESSION 6: COUNTRY UPDATES**	
2pm-2.10pm	• Country Update from UAE The Emirates Racing Authority (ERA) is the body corporate formed by Emiri Decree to govern flat horse racing in the United Arab Emirates. Due to the frequent warm weather in the region, racing is restricted to a period from late October through to early April. Most jockeys base themselves in the UAE for this period of time, however venture to their home authority when the season concludes. As the ERA is a middle destination for many jockeys, it provides its unique challenges when addressing their Health, Safety and Welfare. The ERA did not present at the last ICHSWJ, therefore this presentation will consist of an overview of general information, relevant rules, medical policies, facilities and challenges faced by the ERA in recent years. The ERA consistently have top class riders from other racing jurisdictions compete at the Dubai Racing Club Carnival and the World Cup race-meeting, therefore as part of its continual development and in attracting future top class riders to be based in the UAE for upcoming seasons, the Health, Safety and Welfare of jockeys is a vitally important aspect of racing in the UAE.	Samuel Shinsky
2.10pm-3.20pm	**SESSION 4: CONCUSSION** (Chair - Dr Kelly Ryan)	
2.10pm-2.30pm	Concussion Concussion management continues to be an evolving process and while some racing jurisdictions do have a protocol, there are many more than have no protocol, or they are based on out-dated recommendations. The objective of this talk is to discuss the key components of a concussion protocol amongst leaders in this field for jockey injuries, and attempt to reach more of a consensus, to provide consistency, and guidance to other tracks who do not have the resources to develop such systems. This includes, education, recognizing injury, management, communication, removal from riding, return to riding, baseline testing recommendation, and future research opportunities among our groups.	Dr Kelly Ryan
2.30pm-2.50pm	• Concussion Protocols re race day assessment, stand down period through to Baseline Test with a clearance to ride. The presentation sets out the protocol in place in Australia for dealing with concussed riders. This policy applies when a rider suffers concussion following a race/trial or track work incident. Concussion occurs when, after a blow to the head, there is brain injury with some immediate disturbance to cerebral function. 1. Where a rider is diagnosed by a Medical Officer to be suffering concussion following a race/track work fall or incident, that rider will automatically be stood down for a period of seven (7) days.	Kevin Ring

2. In making such an assessment, the Medical Officer must refer to the ORI Assessment of Concussion document which is attached. This document must be given to the Medical Officer in the event of a rider fall where a head injury may have occurred.

3. To resume riding, a rider who after being diagnosed with concussion by the Medical Officer and has been referred to a hospital may make written application to the ORI Stewards not less than seven (7) days after the incident.

4. Prior to the application being considered a rider;

(a) Must complete the Baseline Cogstat test. This test is to be conducted by the ORI Stewards or authorised ORI staff. These results will be forwarded to the Consulting Specialist for review and taken into consideration in issuing a riding clearance.

(b) A medical clearance from a Consulting Specialist namely, A Specialist Neurosurgeon, Neurologist or Sports Physician must accompany the application to resume riding.

2.50pm-3.10pm	• Concussion Update The presentation will outline the preparations for the next International Concussion Consensus meeting, organized by the IOC and taking place in Paris in October 2020. He will summarise the questions that this meeting will address and explain the processes involved. He will present some of the most recent research into concussion, as it relates to race riding, and update the meeting on the work that ICHIRF is currently undertaking. The ICHIRF research project is now in the 4th year (from April 2016) and has raised funding in excess of £1.75m to date. As part of this process, ICHIRF has reached an agreement with the University of Maryland Brain Bank, enabling jockeys in the USA to donate their brains for concussion research.	Dr Michael Turner
3.10pm-3.20pm	• Panel Discussion	Dr Adrian McGoldrick, Kevin Ring Dr Michael Turner
3.20pm-3.55pm	**SESSION 5: NUTRITION** (Chair - Dr SarahJane Cullen)	
3.20pm-3.35pm	• Racecourse Catering Study in Ireland ***Introduction:*** Horse racing is a unique weight-making sport which requires jockeys to maintain a chronically low body weight throughout an extended racing season. These athletes typically eat one main meal per day when racing and often depend on racecourses for food provision. To date, racecourse catering provisions to jockeys in Ireland has not been assessed. The aims of this study are to evaluate food provision at racecourses in Ireland, assess jockeys' satisfaction with current food provision and to explore key stakeholders' perceptions of current food provision. ***Methods:*** An audit tool was used to evaluate current food provision at 25 Irish racecourses. The audit for each racecourse was scored out of 44.5 points and categorised as <50% Requires nutritional guidance, 50-60% Bronze, 61-75% Silver, 76-90% Gold, >90% Platinum. Semi-structured interviews were conducted with jockeys (n = 125), racecourse managers (n = 2), catering managers (n = 2), and race day caterers (n = 1) to establish their perspectives on	Gillian O'Loughlin

	current food provision. Quantitative data was analysed using SPSS and qualitative data was analysed using thematic analysis. ***Results:*** Nine racecourses were identified as urgently requiring intervention from a dietitian/sports nutritionist, 13 racecourses received a Bronze award, and 2 racecourses received a silver award for their current food provision. Grade 3 racecourses achieved significantly lower audit scores than Grade 1 and 2 racecourses. The lowest and highest audit scores obtained were 14.5 and 27.5 respectively. Jockey's satisfaction ratings were positively associated with audit score. The main themes identified by jockeys included hot food, autonomy over food choices, and greater variety of foods. The main themes identified by managerial and catering staff were categorised under two dimensions, including perceptions on current provision and factors influencing it, and barriers to and facilitators for improved provision. ***Discussion:*** Support from a dietitian/sports nutritionist is currently required in 22 racecourses in Ireland to improve food provision to support the demands of modern-day jockeys. Weigh room food provision should be healthy, appetising and conducive to making weight. Recommendations include development of minimum standards for weigh room food provision and basic catering staff training on foods appropriate for making weight. Updated guidelines endorsed by the Irish Horse Racing Regulatory Board (IHRB) are required and racecourses should be re-audited periodically. Individual advice, tailored to each racecourse should be provided, based on facilities and feasibility of implementation.	
3.35pm-3.55pm	• The Development, Implementation and Evaluation of an industry specific nutrition Education and Behaviour Change Platform in Professional Horseracing This presentation details the use of behaviour change science and theory in the development and application of an industry-wide nutrition initiative, developed to reduce the incidence of rapid weight loss and poor dietary practices within professional jockeys. Previous nutrition interventions across all sports assume a position of education as the solution in addition to dietary prescription without ever really considering the issues of why poor dietary behaviours are maintained. There is now a strong body of evidence to show the ill-effects of archaic weight-making practices such as the use of saunas and sweat suits, in addition to chronic low energy availability through prolonged periods of food and fluid deprivation on both health (physiological and mental), and athletic performance. Despite this being included within jockey education initiatives, many jockeys still employ sweating and starvation as their routine modality of weight management. The presented project utilises the concept of behaviour change science and introduces the notion that in order to change an individual's behaviour (i.e. dietary and weight management practices), whilst education is one part of the solution, several other aspects need considering and including within any potential intervention. This model of thinking has been used with success in medical and healthcare interventions however this is the first within any professional sport. This presentation outlines the step by step approach to developing a multi-faceted behaviour change platform within professional horseracing, which key stakeholders to consulted, how it was delivered and implemented within the industry, and the evaluation of its effectiveness.	Dr Dan Martin

3.55pm-4.10pm	***COFFEE BREAK***	
4.10pm-5.00pm	**SESSION 6: COUNTRY UPDATES** (Max 10mins)	
	• Australia This report focuses on the challenges facing Australian jockeys, heightened by recent media exposes into the welfare of horses within the Australian Racing Industry. Jockeys have been brought to the forefront of this due to the ongoing issue regarding the use of the whip, exacerbated by some racing industry figures calling for its banishment. The overarching dilemma facing the industry is the exiting of many high-profile brands from sponsorship which has had a negative effect on the procurement of sponsorship for jockeys Australia-wide. Revenue from this sponsorship goes directly to the National Jockeys Trust which assists those injured or in necessitous circumstances so the resulting impact from the ongoing issue of Horse Welfare within the industry could be unprecedented in its history. Away from this, there are, of course, many other issues that jockeys face which are continually ongoing particularly in finding the right balance between when and where races are run and the resulting wagering revenue. There has been increasing numbers of twilight and night meetings introduced into the fixture list which attract greater wagering turnover and thereby assisting with increases in prizemoney however it places a greater strain on jockeys who then need to be at trackwork the following morning. And while the prizemoney war between NSW and Victoria continues, the overlapping of rich and important races held on the same day in each state creates problems for jockeys who have to decide where to ride or be governed where they ride according to owners and trainers they are associated with. Many of these challenges are in no way exclusive to Australia, they are problems worldwide, particularly the Horse Welfare issue and this will require a consistent approach worldwide.	Martin Talty
	• France The French update focussed on: - The allowance of 1.5kgs for women on the flat (2kgs over jumps) - The use of Level 2 Safety Vests which have been mandatory since 1st March 2019 - Recording of Minimum Riding Weights for foreign riders since 1st January 2019 - Current protocols regarding riding on anti-depressants	Dr Benoit le Masson
	• Ireland In January 2019 Dr Jennifer Pugh succeeded Dr Adrian McGoldrick in the role of IHRB Senior Medical Officer. Dr McGoldrick continues in an advisory capacity and as Racecourse Medical Officer. Our most significant project this year was the completion and launch of our Race Day Catering Guidelines for Jockeys. This followed on from an audit completed in 2018 of all racecourses. Results and guidelines were issued to the Racecourses in September and we officially launched in October with a positive response. We have held educational seminars in relation to drug and alcohol misuse for our apprentice and conditional jockeys	Dr Jennifer Pugh

	earlier this year, and this work continues with further workshops planned for this Autumn. In September, our first two-day Licensing Course for all license applicants commenced with positive feedback from all stakeholders. Plans are underway to introduce a minimum riding weight assessment yearly for all apprentices from January 2020. The IHRB in conjunction with HRI have produced a Minimum Standards Document for Racecourses which includes the provision of appropriate medical facilities. This is aimed at improving existing facilities and guiding racecourses when new builds are being considered. Our Research Group continues to be active with three Phd projects, including bone health, mental health and physiology. We also have continued injury reporting surveillance and a current project looking at cognitive function among jockeys during race day.	
	• Germany	Dr Peter Wind
	• Japan JRA established The Horse Racing School to train professional jockeys in 1982. The curriculums consist of a basic course and a practical course for three years. After completing these courses, they can be JRA jockeys after they pass jockey's license exam. In the Racing School the weight limit is specified into 4 categories between 45 kilos and 48 kilos and the weight check is strictly observed. We reviewed the curriculum in 2008 to improve students' performances. By increasing practical training, such as track riding and more mock races and also introducing physical and mental training program, the performance of younger jockeys has remarkably improved. JRA Jockeys' Guild dedicate their time to charitable activities such as supporting welfare facilities and donating to the region affected by natural disaster. Further, they contribute towards promoting JRA's brand image through getting involved with special events to meet racing fans. We believe that the education in this racing school has built the base of such a wonderful positive attitude.	Hideto Umemura

DAY 2

AGENDA (with summaries)

Friday, 8th November 2019

Friday, 8th November

TIME	TOPIC	SPEAKER(S)
9.00am-9.40am	**SESSION 1: INJURY SURVEILLANCE/PREVENTION AND RETURN TO RIDE** (Chair - Dr Kelly Ryan)	
9.00am-9.20am	• How to practically conduct or introduce an injury surveillance system	Dr Siobhan O'Connor

	Accurate injury surveillance is the foundation for the design, development and refinement of successful injury prevention and risk reduction strategies in horse-racing. This talk will discuss ways to easily and accurately incorporate injury surveillance methods into practice. It will go through how to conduct calculations to present the injury information clearly to other stakeholders. It will also detail the key information that should be monitored based on the European Consensus Statement. It will also give helpful hints on how to store and analyse the data.	
9.20am-9.40am	• Role of the Athletic Trainer & Policies and Procedures implemented at Delaware Park to protect the health and safety of the Jockey Jockey safety & health is a constantly evolving and researched area. Currently, there is not a single mandated standard of care for race tracks worldwide or even within some individual countries. These inconsistent standards have had an effect on injury prevention, injury evaluation consistencies and injury management respectfully. Being a medical provider in the United States at a race track located in the state of Delaware, we hope to improve the standards for jockey safety and health by sharing the experiences and standards we have implemented at Delaware Park. The role of a Certified Athletic Trainer and how one can benefit jockey safety and health is a topic we find valuable. Certified Athletic Trainers can be implemented as a means to help close the gap on issues found with jockey safety & health where no higher than emergency medical technicians are present. Thanks to the expertise & collaboration with Dr. Kelly Ryan, we feel we are on the brink of changing the standard of care in the United States and look forward to sharing the efforts made so far with our future plans.	Mandy Minutola Sam Cutrone
9.40am-10.05am	**SESSION 2: OPEN SESSION** (Chair - Dr Jerry Hill)	
9.40am-9.50am	• Update on Helmet Standards HELMETS are designed to attenuate energy on impact by deformation of the helmet and in particular the inner lining which is usually constructed from EPS (Expanded Polystrene foam). The prevention of catastrophic injury is the primary aim. Currently no helmet has been proved to totally prevent concussion but research is ongoing to develop a tangential impact test with a view to reducing concussion further - WG 11 CEN / Strasburg / HEADS – EU funded. When designing a helmet the preferred criteria used are: - Shock absorption - Penetration of the shell - Lateral deformation - Load distribution - Area of protection - Retention system strength - Retention system effectiveness - Field of vision - Helmet weight Background - ASTM F1163 – 1988(AMERICAN SOCIETY FOR TESTING OF MATERIALS) - PAS 015 – 1994 (PRODUCT APPROVAL SPECIFICATION – B.S.I.) - SNELL E95 DRAFT – SNELL FOUNDATION –NOT FOR PROFIT - AS 2063 -1977 AND AS 2073.3-1988 - NZS 8602 :1989 - BS 3686 – 1963 - REPLACED BY BS 6473 1984	Dr Adrian McGoldrick

- BS 4472 – 1969 – REPLACED 1988
- BS 6473 - 1984
- BS 4472 – 1988
- EN1384 – 1996
- Defects pointed out prior to introduction –
- No lateral rigidity or crush test
- Impact attenuation test energy less than ASTM F 1163-88
- BS EN 1384 -1997 -First European Standard

In 2011 CEN MANDATED WG5 TO REVISE EN1384 BASED ON PROPOSALS FROM MEMBER BODIES.

- DEC 2012 – EUROPEAN COMMISSION RAISE FORMAL OBJECTION AGAINST EN1384:1996.
- OCT 2014 – REFERENCE TO EN1384:2012 WITHDRAWN FOR THE OFFICIAL JOURNAL OF THE EUROPEAN UNION.
- 2OTH. JULY 2016– NEW DRAFT EN1384 SUBMITTED TO CEN FOR FORMAL VOTE.
- ACCEPTED BY MAJORITY –SENT TO COMMISSION FOR PUBLICATION IN OFFICIAL JOURNAL.
- NOV. 2017 –REJECTED BY EUROPEAN COMMISSION.
- WG5 REQUESTED TO AMMEND THE STANDARD.
- MARCH 2018 –REPLY TO COMMISSION.
- JUNE 2018 – EU COMMISSION REPLY INSISTING ON REVISED VERSION OF THE STANDARD.
- JAN. 2019 –NEW DRAFT STANDARD SUBMITTED.
- NO REPLY AS YET FROM COMMISSION.

Interim European solution since the withdrawn of EN1384 from the Official Journal of the European Commission

INTERIM Standards / Specifications:

- PAS015:2011 – LATERAL DEFORMATION TEST 800N.
- VG1 01.040 2014-12 –AGREED BY EUROPEAN MANUFACTURERS AND TEST HOUSES - LATERAL DEFORMATION TEST 630N.
- UTAC/CRITT 04/2015 –FRENCH STANDARD -LATERAL DEFORMATION TEST 430N.
- SNELL –LATERAL DEFORMATION TEST 1000N.

Other International Standards

- ASTM F1163-15 –NATIONAL STANDARD
- AS/NZS 3838:2006 –NATIONAL STANDARD
- JRA HORSE RACING AND EQUESTRIAN HELMET: ARAI-NATIONAL STANDARD
- ARB HS 2012 -SPECIFICATION

9.50am-10.05am	• New helmet test method for comparative evolution of protection capability A new helmet test method has been proposed by Strasbourg University and was exposed at the 2017-ICHSWJ, as well as in the CERTIMOOV helmet rating platform. Main originality of the novel test method is to consider oblique helmet impacts in addition to the linear impacts. A second key improvement is to introduce model based brain injury criteria via a coupled experimental versus numerical test method that considers the experimental 6D headform kinematic for the numerical computation of the brain injury risk. In this presentation, the new test method will be briefly exposed and the focus is than to apply the method to seven existing equestrian helmets types. The proposed helmet rating suggests 6 impacts (3 linear and 3 oblique) and each impact is reproduced three times, leading to 18 impacts on 6 helmets for each helmet type. All impacts are	Dr Benoit le Masson

	simulated with the brain Finite Element Model in order to assess the brain injury risk and the mean risk obtained is finally used in order to rate the helmet according to the brain injury risk. It is believed that the proposed helmet rating system will help jockey to choose their helmet, will assist manufacturer in the design of new products and will contribute to the evolution of helmet standards.	
10.05am-10.55am	**SESSION 5: COUNTRY UPDATES** (Max 10mins)	
	• Hong Kong The Hong Kong Jockey Club has recently undertaken a comprehensive review of the medical provisions for Jockeys and Track Work Riders including the first response arrangements for accidents in races, barrier trials and track work. This report will focus on the review which was carried out by Dr Adrian McGoldrick on behalf of the HKJC.	Steve Railton Dr Clara Wu
	• Belgium First things first! If we look at the equid populations per capita, it is clear that Belgium is a "horse nation". When we look at where we come from with an important reputation before World War I and more than a dozen race courses and where we stand now with only 3 racetracks, 100 horse owners and 350 Thoroughbreds in training, it is clear that the situation declined. About racing incidents: Taking into account the numbers of starters over the years, we can note that the numbers of incidents remain ± stable. What about the insurance of the jockeys? In Belgium our jockeys have the choice. They can choose between their own insurance or they can also be insured through the Belgian Galop Federation. The second one (also covering training accidents) consists of a fixed yearly fee and €25/race. This €25 fee per race are paid by the owner of the horse. The BGF created a Jockey-fund that sponsors the yearly fee of the insurance, the costs for training (internships) and welfare goals. In Belgium every jockey has to wear the level 2 body protector and the regulatory model helmets. To ensure the safety and health of the jockeys we also provide them the necessary information during our lectures about doping and nutrition. We also pay attention to the minimumweights of our jockeys and whenever possible, the weights to carry in the races can be raised after runner's declaration.	Marcel de Bruyne
	• Norway Norway (5 million inhabitants) is a (very) small country in the international race-horse sport. There is one racetrack in the country, Oevrevoll Race Track, in the suburbs of the capital Oslo. The races are completed from April through November (closed during the winter season). The last fatal jockey accident occurred more than 40 years ago, but less serious injuries occur regularly. The emergency medical service at the races is regulated by Oevrevoll Galopp/Norwegian Jockey Association and Norwegian National Tote (the latter are in charge of the bookmaking). A doctor and a two-person ambulance are obligatory present on all race days. As a consequence of numerous injuries afflicting both horses and jockeys, injury preventive measurements were implemented including new and lower hurdles (94 cm) with softer edges and an	Dr Ole Reigstad

	"escape" opening on the outer perimeter, water jump fences were removed, and steeplechase fences are never used. Obligatory safety equipment for the jockeys is according to international standards. A complete two year registration (530 races) after the implementation reveled 13 injuries, mostly minor, and for the last 5 year period no serious injuries have been reported. Due to a low frequency of injuries the race track authorities and the jockeys have been reluctant to introduce further safety measures. Norwegian race track sport is safe and demonstrates a low incidence of falls and injuries.	
	• Great Britain Following a brief update on recent injury surveillance data Dr Hill will summarise some of the research projects underway in Great Britain before outlining some of the planned industry initiatives aimed to support Jockey Athletes competing in the country.	Dr Jerry Hill
10.55am-11.15am	***COFFEE BREAK***	
11.15am-1pm	**SESSION 3: MENTAL HEALTH** (Chair – Paul Struthers)	
11.15am-11.40am	• Athlete burnout in professional jockeys in the UK **Context:** Following the findings of a previous qualitative exploration identifying the demands on professional jockeys, an investigation was taken to examine the prevalence of athlete burnout and possible contributing factors. **Research question:** Is perfectionism a significant predictor of athlete burnout in professional jockeys? **Analysis:** Mixed-methods approach using correlational (quantitative) and thematic (qualitative) analysis. **Quantitative Findings:** Burnout: 6/35 jockeys displayed higher levels of burnout (17%), nearly 50% higher in comparison to other athletic groups (12%). Of the 6, 4 rode over jumps with 2 riding on the flat, their mean burnout score was 11.2 (out of 15), and 4 were riding for 12+ years. Perfectionism: The average score for all participants was 14.79 (out of 21), which indicates high levels of perfectionism, typical in professional athletic populations. Following correlational analysis through multiple regression, no significant relationship was found between perfectionism and athlete burnout in professional jockeys **Qualitative Findings:** From ten optional qualitative questions, thematic analysis identified two themes and three sub themes: 1. Occupational stressors (1.1 Workload; 1.2 Schedule) 2. Self-expectation (2.1 Perfectionism) The final question asked participants: 'If you could change one thing about racing, what would that be?' Over 50% suggested the current fixture list required changes. **Conclusions:** This study showed athlete burnout is at a higher prevalence in professional jockeys in the UK compared to other athletic populations. Correlational analysis failed to show a significant relationship between burnout and dispositional perfectionism. It is posited that organisational demands, such as the current fixture list, could be a major contributing factor to considerably higher levels of athlete burnout in professional jockeys.	Aodhagan Conlon
11.40am-12 noon	• Exploring Jockey Mental Health – Lifestyle Challenges and Associated Risk Factors The mental health of athletes has gained increasing attention from the general media, academia and applied practitioners. Jockeys, a unique subset of the athletic population, are renowned for working	Lewis King

	in a sport that is extremely challenging and demanding, yet to date there is very little empirical research published in the area of mental health. The presentation explores some of the occupational stressors jockeys face, providing an in-depth insight into the stressors jockeys encounter during their career. The presentation also highlights the prevalence rates of mental health disorders of jockeys in Ireland and associated risk-factors. Recommendations for future research and applied support strategies are provided.	
12 noon -12.20pm	• Waking from the Dream: preparing for life after racing Racing is a theatre of dreams, but while competing, many jockeys forget about the alarm clock waiting to ring and wake them up to normal life. If I am no longer a jockey, who am I? How do I structure my life now? Can I find new meaningful goals? How will I earn money? These are some of the tough questions jockeys need to answer when they transition out of the racing world. Many are completely unprepared, but even those that have thought about life after racing are still faced with various challenges inherent in trying to build a new life. Almost half of all athletes suffer from some form of mental health issue during this transition, and jockeys are no different. We know retirement is the only guarantee we can give a jockey – all will stop racing one day - and so we need to better prepare them for this inevitable transition.	Dr Kirsten Van Heerden
12.20pm-12.45pm	• Case Studies in Sports Psychology This presentation aims at creating understanding about successful psychological management of a jockey's injury in a case of serious, but not permanent injury. The presentation demonstrates factors that are perceived as meaningful by the jockeys in regard to athletic identity and the psychology of athletic injury, during the challenging time of rehabilitation. Finally applied practice observations will be discussed.	Dr Ciara Losty
12.45pm-1pm	• Panel Discussion	All presenters
1pm-2pm	***LUNCH***	
2pm-3.20pm	**SESSION 4: INJURIES AND FALLS** (Chair – Dr Peta Hitchens)	
2pm-2.20pm	• A sustainable structure for jockey injury data management for the North American horse racing industry Jockey injuries in North American racing are not well understood. On average two jockeys die each year of injuries sustained during racing in North America. There has been only one study reporting the incidence of jockey falls in the state of California from 2007 to 2012 – with two jockey falls per 1000 race rides in Thoroughbred flat racing, with injuries occurring in 52% of associated falls. Globally, the incidence of jockey falls and injuries ranges from 2 to 4 falls and 1 to 2 injuries per 1000 race rides in flat racing, and 48 to 91 falls and 5 to 12 injuries per 1000 race rides in jumps racing. The types and severity of jockey injuries as well as exposure need to be better characterized in order to reduce risk. We consider existing data sources and the opportunity to combine this data with a new data collection effort to better understand and potentially reduce risk to riders. Using a two-phase approach we recommend (1) utilising the existing provisions in the Equine Injury Database to flag incidents that include a rider; and (2) enhancing the Jockey Injury Database to collect more detailed information for jockey injuries sustained in an incident that are unrelated to an equine injury. This two phase	Dr Peta Hitchens

	approach would ensure collation of useful information on jockey injuries that could inform efforts for risk reduction quickly and with modest resources. Initial successes may help to develop support for a more comprehensive data collection and risk reduction program.	
2.20pm-2.50pm	• An analysis of jockey falls in flat and jumps racing: a video observational study. This is part of a second study in a PhD thesis at the University of Sydney on jockey and rider safety. The objective of the study was to describe the characteristics of jockey falls from a sample of races in Great Britain, Ireland and New Zealand using video analysis. A Protocol was developed to standardise the method of obtaining data on event, horse and rider characteristics in falls and the Protocol was tested and refined in a two-day workshop with a panel of experts in flat and jumps racing. Falls where the rider ended up under their horse, impacted their head on the ground, or had hyperextension of their spine, were identified as High Risk Landings. An analysis was carried out to examine possible factors that were associated with High Risk Landings. The preliminary results from a sample of 80 videos analysed found that fall times do not vary significantly between different riding disciplines, and potentially modifiable factors associated with High Risk Landings included: • Hanging onto the reins at the point of ground impact • Reduced number of tuck-and-roll following ground impact It was also identified that where the jockey's head impacted the ground, in the majority of cases, the impact direction of the head was sideways. This may have implications for future improvement in helmet design and also is important for the design of simulation exercises when jockeys undertake fall safety skills training.	Lindsay Nylund
2.50pm-3.10pm	• Falls and Injuries in Professional Horseracing in JRA (2016-2018) The purpose of this presentation is to evaluate and confirm the rates of falls and medically treated injuries for professional racing jockeys in Japan (JRA). Between 2016-2018, we had about 49000 rides per year and total fall rates were 0.19-0.21%. Total injury rates (injuries/rides) were 0.04-0.06%. In jump racing falling rates were 2.53-2.94% and injury rates were also 0.45-0.96%. Jump racing had higher injury rates than flat racing (0.02-0.03%). Although injury rates have been lower than before, there is still a relatively high injury rate. In the horse racing, the fall means a high-energy injury because of the speed of a horse. We have continuously to do our best for reducing the number of injury cases.	Dr. Akihiro Ito
3.10pm-3.20pm	• Panel Discussion	All presenters
3.20pm-3.50pm	**SESSION 5: JOCKEYS ASSOCIATION PRESENTATION** (Chair – Denis Egan)	
3.20pm-3.40pm	• Presentation on behalf of International Jockeys Associations The presentation on behalf of the International Jockeys Associations updated on: - The setting up of the International Federation of Jockeys Associations - The importance of there being harmonised rules for weights, safety equipment and drug testing.	• • Andrew Coonan
3.40pm-3.50pm	• Discussion on points raised	
3.50pm-4.05pm	***COFFEE BREAK***	
4.05pm-4.50pm	**SESSION 5: COUNTRY** UPDATES (Max 10mins)	
	• USA The USA update highlighted the importance of the track being connected.	• • Dr Kelly Ryan

	Reference was made to the lack of medical protocols, the situation regarding concussion protocols and the importance of involving supporting organisations such as the Jockeys Guild, NTRA, ARCI etc. in the development of protocols. It was outlined that there is no standard way of communicating riders' injuries between States. Reference was also made to the lack of availability of injury data in the USA.	
	• New Zealand The New Zealand update focused on the main issues affecting jockeys including mental health, bullying and harassment, addictions and poor practices.	Dr Margaret Parle
	• OSAF The presentation from OSAF featured the results of a health and safety survey carried out on the racecourses in the OSAF region.	Dr Mayra Frederico
4.50pm-5pm	**SESSION 6: WRAP UP**	**Denis Egan**
	At the end of the conference it was agreed that a letter should be sent to the International Federation of Horseracing Authorities to ask them to consider the raising of the weight structures in flat racing, following a consensus reached at the conference. It was noted that research outlined at the conference indicated that weights need to rise by at least 7lbs/3kgs across the board. The conference also agreed that it is important that any increase in the weight structure be linked to the setting of a minimum weight for each jockey to preclude the current higher weighted jockeys from being able to ride more horses. It was agreed that scientific evidence will be submitted to the IFHA to assist on the determination of the increase in the weights and, also on the setting of minimum weights for jockeys.	