



## LJMU Research Online

**Martin, D, Wilson, G, Morton, JP, Close, GL and Murphy, RC**

**The horseracing industry's perception of nutritional and weight-making practices of professional jockeys**

<http://researchonline.ljmu.ac.uk/id/eprint/6703/>

### Article

**Citation** (please note it is advisable to refer to the publisher's version if you intend to cite from this work)

**Martin, D, Wilson, G, Morton, JP, Close, GL and Murphy, RC (2017) The horseracing industry's perception of nutritional and weight-making practices of professional jockeys. *Qualitative Research in Sport and Exercise*. pp. 1-15. ISSN 1939-845X**

LJMU has developed **LJMU Research Online** for users to access the research output of the University more effectively. Copyright © and Moral Rights for the papers on this site are retained by the individual authors and/or other copyright owners. Users may download and/or print one copy of any article(s) in LJMU Research Online to facilitate their private study or for non-commercial research. You may not engage in further distribution of the material or use it for any profit-making activities or any commercial gain.

The version presented here may differ from the published version or from the version of the record. Please see the repository URL above for details on accessing the published version and note that access may require a subscription.

For more information please contact [researchonline@ljmu.ac.uk](mailto:researchonline@ljmu.ac.uk)

<http://researchonline.ljmu.ac.uk/>

# **The Horseracing Industry's Perception of Nutritional and Weight Making Practices of Professional Jockeys**

Martin, D., Wilson, G., Morton, J.P., Close, G.L. and Murphy, R.C.

The present paper provides a qualitative study exploring perceptions of nutritional and weight making practices of professional jockeys, as reported by key industry stakeholders. Semi-structured interviews were conducted with 26 participants, including professional jockeys (n=10), racecourse clerks (n=7), jockey agents (n=2), racehorse trainers (n=3), and jockey coaches (n=4). Via thematic analysis, data provided an insight to the industry-specific factors influencing current nutrition practices amongst jockeys. A perceived lack of industry-wide nutrition education, combined with conflicting views over the recognition of jockeys as athletes act as barriers to optimal nutrition and wellbeing support associated with other sports. The development of an industry-specific education platform for jockeys would equip them with the knowledge to make independently informed choices and the applied skills to implement better nutrition strategies, in the absence of industry support.

Keywords: jockeys, horseracing, nutrition, interviews, thematic analysis

## **Introduction**

Professional horseracing in the UK attracts in excess of six million spectators per year (RCA, 2015) making it the second most attended sport after association football (Lees, 2015). Divided into two codes of Flat and National Hunt, each operates a minimum riding weight facilitated by a handicapping system to enable equal competition (Wilson

*et al.*, 2012). At present in Great Britain, minimum riding weights of 50.8kg and 64.0kg are in operation for Flat and National Hunt jockeys, respectively, with the option for apprentice and conditional jockeys to potentially claim an additional allowance. These allowances permit inexperienced jockeys to ride up to 10 lbs lighter than the declared weight to incentivise their use by racehorse trainers. Unique to this sport is the necessity for jockeys to make such weights on a daily basis (Wilson *et al.*, 2014) unlike other sports such as boxing (Morton *et al.*, 2010) and other combat sports where weigh-ins may only occur a few times per year (Crighton *et al.*, 2016; Burke and Cox, 2009).

The use of dehydration techniques to facilitate weight making amongst jockeys is commonplace (Dolan *et al.*, 2011) with methods including long periods in saunas and salt baths, laxatives and self-induced vomiting, the latter more commonly referred to as ‘flipping’ (Cotugna *et al.*, 2011; Dolan *et al.*, 2011; Leydon and Wall, 2002; Moore *et al.*, 2002; Wilson *et al.*, 2014). This research similarly indicates excessive periods of calorie restriction, a term denoted within the industry as ‘wasting’. Health implications associated with such practices include poor bone density (Dolan *et al.*, 2011b; Dolan *et al.* 2012; Greene *et al.*, 2013; Waldron-Lynch *et al.*, 2010; Warrington *et al.*, 2009; Wilson *et al.*, 2012, 2015), hormonal disruption (Dolan *et al.* 2012; Waldron-Lynch *et al.*, 2010), and impaired mood profile (Caulfield and Karageorghis, 2008; Dolan *et al.*, 2011a; Wilson *et al.*, 2012) with performance indicators similarly compromised (Wilson *et al.*, 2013). Despite previous investigation and identification of these issues, it is as prevalent in the modern era globally as it was three decades ago (King and Mezey, 1987; Labadarios *et al.*, 1993). In contrast to the aforementioned methods, recent research in professional jockeys has demonstrated that adherence to a high protein, low glycaemic-index carbohydrate diet (with total energy intake equivalent to resting metabolic rate) can facilitate fat loss whilst maintaining lean tissue and improving

performance markers in elite jockeys (Wilson *et al.*, 2012; Wilson *et al.*, 2015). Despite the presence of these effective strategies for weight management in jockeys, a reliance on archaic practices still exists. A lack of athletic identity in favour of a jockey identity and acknowledgment of nutrition as a fundamental part of performance may be contributory factors. The phenomenon of athletic identity which refers to the level of which one self-identifies as being an athlete (Brewer *et al.*, 1993) has been explored widely in other sports (Mitchell *et al.*, 2014) however never in horseracing. Alternatively, adverse nutrition strategies may be inherited from one generation of jockey to the next. Previous literature has indicated up to 85% of current professional jockeys have a parent or sibling either still currently riding, or now retired (Greene *et al.*, 2013). This statistic may contribute to the estimated 63% of jockeys who prefer to seek weight-making and nutrition advice from their senior peers and retired elders rather than a qualified nutritionist or dietician (Moore *et al.*, 2002).

At present, no previous attempts have been made to investigate the cultural assumptions of the horseracing industry and why, despite a growing base of empirical evidence showing safe and optimal practices, the outdated and compromising methods are still widely maintained. To address this paucity in the literature, research is required that explores on an industry-wide basis, the ideologies of its stakeholders. Given the scope of the proposal, qualitative approaches were adopted to gain a depth of understanding into the reasoning or philosophies behind nutritional malpractices. As such, the outcomes of this research should contribute to our understanding of the influences, barriers and processes that facilitate archaic weight-making and provide a platform on where to focus strategies for change. As such, the aim of the present study was to explore the perspectives of key stakeholders within the horseracing industry on their perception of nutritional and weight making practices of professional jockeys.

## **Methods**

### *Participants*

To gain depth and insight into the industry's perception, stakeholders from multiple facets of the sport were invited to contribute. This approach, comparable to previous qualitative exploration in professional sport (Cook *et al.*, 2014), was favoured in order to capture a complete subcultural picture. Stakeholders were identified based on industry vocations which required regular and direct interaction with jockeys, therefore likely holding the most relevant information. Participants worked in a variety of capacities including Clerks of Courses (n=7 (5 male, 2 female)), Jockey Coaches (n=4 (3 male, 1 female)), Racehorse Trainers (n=3 (1 male, 2 female)), Jockey Agents (n=2 (1 male, 1 female)), and Jockeys themselves (n=10 (8 male, 2 female)). Only limited details of the participants are given to ensure anonymity is not compromised. Ethical approval was granted by Liverpool John Moores University to invite licensed and registered industry professionals to contribute. Jockeys were contacted via an open letter in their monthly industry publication followed by snowballing sampling from initial respondents. Maximum data sampling was employed to ensure complete representation of the jockey fraternity (Polkinghorne, 2005), including apprentice and conditionals through to experienced senior jockeys. Other industry professionals were contacted and invited through gatekeepers (general secretaries, chief executive officers) of their respective bodies via an email containing details of the study and participant information details. Respondents were vastly experienced with industry involvement ranging from three to in excess of thirty years.

### *Data Collection*

Semi-structured interviews were undertaken with all participants. An ‘open-ended’ (Gall *et al.*, 2003) format was adopted presenting all questions in a conversational and informal manner to develop rapport, and to allow maximal voluntary contribution and detail (Lincoln and Guba, 1985). For example, initial questions started with phrases such as ‘*what is your opinion on*’ or ‘*what do you think of*’. Subsequent ‘probing’ occurred (Gratton and Jones, 2004) via naturally occurring follow-up questions which facilitated further depth in responses (Turner, 2010). This format of enquiry allowed participants the liberty to express their experiences and opinions with minimal constraints and to self-navigate towards areas they felt significant (Braun and Clarke, 2013). The interview was centred on seeking the perceptions and thoughts of current weight-making practices in jockeys, how they identify jockeys in relation to other elite weight-making sportspeople, and their opinions of current race-day food provision at racetracks. Questions were devised with the outcomes of previous literature in mind (Dolan *et al.*, 2011; Greene *et al.*, 2013; Wilson *et al.*, 2012; Wilson *et al.*, 2013; Wilson *et al.*, 2015) as well as the research group’s own ideas in capturing the necessary responses to achieve the study aims.

Interviews were conducted in a variety of locations. All participants were invited for interview to the university however to increase the feasibility for participants, were also offered local racecourses, industry injury-rehab centres, and jockey schools. All interviews were conducted face-to-face, were recorded using a dictaphone and subsequently transcribed verbatim. Average interview length was 39 minutes. The interviewer was acquainted with the horseracing subculture being an industry performance nutritionist for the previous two years. This could be viewed conversely due to the potential for them to lead the interview based on their own

personal views and experiences. Contrarily, this was deemed advantageous due to his fluency in their jargon and informal terminology (Abramson and Modzelewski, 2011; Cook *et al.*, 2014). Similarly, being recognised as an ‘insider’ would elicit more truthful answers and minimise the ‘interaction’ effects of a researcher perceived as outside the industry (Burawoy, 1998).

### *Data Analysis*

All transcripts were uploaded to software package NVivo10 (QSR International Ltd., 2012) to facilitate the analysis process by managing and organising data. A six-stage process of thematic analysis (Braun and Clarke, 2006) was adopted. *Immersion* of the data was achieved through multiple readings of the transcripts allowing the researcher to become engrossed in its content. A systematic line-by-line process of *initial coding* took place on each of the transcripts with the researcher identifying any relevant content. Once coding was complete, these were arranged in order to *identify themes* where a ‘common thread’ (Sparkes and Smith, 2014) ran through the data. Themes were consequently *reviewed*, developing identifiable frameworks. At this stage, some individual codes were transferred to other themes whilst other data was removed from analysis due to it being considered irrelevant or already adequately covered. Before *writing the report* on the outcomes of data analysis, each of the themes were *named* or *defined* to clearly give the reader a sense of each one. This process took place for each of the five participant groups’ data.

### *Quality Standards*

In order to maintain a quality investigative and analytical process the present study adhered to the guidelines constructed by Smith *et al.*, (2014) which draw on criteria of

previous qualitative theorists (Lielich *et al.*, 1998; Richardson, 2000; Sparkes, 2002; Holman-Jones, 2005; Sparkes and Smith, 2009; Tracy, 2010; Barone and Eisner, 2012; Smith and Caddick, 2012).

*Substantive Contribution* and *Width* were achieved through the interviewing of elite standard jockeys and their associated support network in one of the leading professional sports industries. The multiple interpretation of their data as laid out in the results allow the reader to cast judgement as to its quality. The decision to use a range of participants similarly enabled a *dialogue of debate and negotiation* to occur through eliciting meaningful opinions from a range of people, albeit not directly with each other. *Coherence* and *Aesthetic Merit* are endeavoured via a transparent process of thematic analysis and subsequent development of themes. This process allowed the creation of a coherent story expressing the views of contrasting stakeholders within horseracing and how these blended together to create a single panoramic perspective. *Transparency* was maintained throughout by the experienced supervisory members of the research group who remained distanced from the 'hands on' element of the study. Acting as a 'critical friend' (Stenhouse, 1975) they consistently questioned the processes of data collection, handling, and interpretation as well as providing a theoretical sounding board (Sparkes and Smith, 2014). This transparent model also prevented any inadvertent bias during interviews. The undertaking of a pilot interview with an ex-jockey and trainer in essence permitted the 'refinement and development of the research instrument' (Creswell, 2013), providing the work with a level of *rich rigour*. Referring back to the interviewees via member checking upon transcription and interpretation of themes similarly helped achieve a good standard of *trustworthiness* of the data. Alternative to seeking external modes of validation, the lead researcher consistently upheld a level of



self-reflexivity and critical thinking throughout the duration of the study, contemplating his own views and ideologies to evidence *sincerity* in the process.

The relevance, timing and significance of this topic in context of the horseracing industry and outcomes of previous quantitative enquiry (Dolan *et al.*, 2011, 2012; Wilson *et al.*, 2012, 2013, 2014, 2015) makes the present research a *worthy topic*. Furthermore, it could be considered *incisive* in that it is the first of its kind to explore beyond the superficial happenings of day-to-day racing, and attempts to investigate the explicit views of traditionally covert industry members who may be contributory to the adverse practices of jockeys. Readers affiliated with horseracing may feel a level of *resonance* and re-evaluate their outlook on current practices following the reading of, and reflection upon the data illustrated within the results and discussion sections of this paper. In doing so, the paper has potential to *engage embodiment for change* amongst its readers. Whether they do or not is down to how they interpret the data and how their own experiences have shaped their current position.

## **Results and Discussion**

Within this section, themes that emerged through the data synthesis process are outlined using verbatim quotes to highlight the participants' narrative. The section is split into two sub-categories a) the perception and attitudes of jockeys, and b) of the perception and attitudes of the support network (i.e. clerks, trainer, agents, coaches).

### *The Perception and Attitudes of Jockeys*

Three general dimensions emerged in relation to jockeys' perception of their identity and industry nutrition. These dimensions are 1) Cultural weight-making practices adopted by jockeys, 2) Individual Influences on Eating Practices, and 3) Social

Influences on Eating Practices. Dimension one gives insight to the practices of ‘how’ jockeys make weight, whilst dimensions two and three highlight ‘why’ they engage in such regimens, drawing on both intrinsic and extrinsic factors that influences nutritional and weight-making practices. Higher order themes within these dimensions are indicated by the use of italic text.

***Cultural weight-making practices adopted by jockeys***

This initial dimension demonstrates the presence of adverse nutrition practices in jockeys to make necessary riding weights (Dolan *et al.*, 2011). Two themes embodied this general dimension identified in Table 1, *dehydration to make weight* and *disordered eating to make weight*.

Table 1. Cultural weight-making practices adopted by jockeys

<b>Raw Data</b>	<b>Higher Order Theme</b>	<b>General Dimension</b>
I'm not fantastic with my weight, I sit around 8 (stone) 7 (lbs) but because I'm still claiming (a weight allowance) I sometimes need to go way down to like 8-2, 8-3 so to make those weights, yeah, I sweat a lot. (Jockey 3)	Dehydration to make weight (n=10)	Cultural Practices Adopted and Presumed as a Matter of Routine
I skip breakfast, lunch is my main meal and I don't often have dinner. I'll usually have an apple if I'm riding heavy and some sweets if I'm riding light. (Jockey 10)	Disordered eating to make weight (n=9)	

Jockeys expressed that never having to make weight would be the ideal situation and where weight-loss is necessary, doing it safely and sustainably is preferred. Jockey 3

however identified where that isn't possible, dehydration is the single best method to lose weight quickly:

Well I try to do it properly. I run every night a good 3 to 4 miles to run my tea off or whatever, lose a bit of sweat, then I'll run in the morning – sweat suited up like. If I'm struggling I'll wear it in the car, you know get the heaters on, then if I'm still a bit over I'll jump in the sauna when I get to the racecourse. (Jockey 3)

Jockeys openly described the use of *disordered eating to make weight*. A unique feature of the present research is the discovery of their thought processes, the rationale and justification, and own perception of their uses and effects. These findings develop those from previous research where jockeys have only completed anonymous questionnaires simply identifying their strategies (Leydon and Wall, 2002; Moore *et al.*, 2002). One jockey shares their experience:

I've never done it the right way. From pony racing to now I've used laxatives on a daily basis. I find that when I stop and come off them, I just gain like 5 or 6lbs really quickly. And when I've had to do light, if I'm not there I'll go and flip. (Jockey 10)

Methods such as laxatives and self-induced vomiting to maintain weight are characteristic of the eating disorder Bulimia Nervosa, a condition often motivated by a distorted body image (American Psychiatric Association, 2013; Stewart *et al.*, 2015). Bulimia is a complex disorder that goes beyond the remit of this investigation to analyse in detail however is a term that has historically been widely referred to when describing jockeys (Chaudhary, 2000; Graves and McMurray, 2008). Jockeys are keen to address practices such as self-induced vomiting are not done in pursuit of an 'ideal' body image (as may be the circumstance in some cases of Bulimia), but rather a tool to facilitate

weight loss and only engage in such practices as a last resort often after all else has failed:

Its fucking disgusting and I hate doing it, but some mornings when you're doing light you wake up, check your weight, go for a run, sweat... it's getting closer to the race and I'm still over the weight, I just take myself off and flip. I hate doing it, I hate the thought on the morning knowing that I might have to do it. (Jockey 10).

### ***Individual Influences on Eating Practices***

This general dimension reflects the factors and influences affecting nutrition choices which can be attributed to the individuals themselves. Table 2 illustrates four higher order themes that express this dimension, a) *reluctance to change*, b) *self-identification of athlete status*, c) *denial and bargaining*, and d) *the horse is the athlete*.

Some jockeys may be predisposed to disordered practices (Garfinkel and Garner, 1982) due to their physical stature, for example being a tall and naturally heavier jockey. Other factors may precipitate and perpetuate the issue, for example curiously trialling adverse cultural practices and experiencing initial success (e.g. winning a race) (Drinkwater *et al.*, 2005). This approach exemplified by Jockey 3: “*when I was younger I guess you sort of experiment seeing what you can do and what you can't do (with regards to weight making)*.” Whether done with intention or coincidental, this acts as a validating process leading to an autonomous maintenance of adverse practices with little or no external influence.

It appears once these individual paradigms have been established there is a *reluctance to change* and are difficult to convince of a paradigm shift:

The older lads are set in their ways, and they're going to do it (sweat) anyway, so they've found the routine obviously works this long that they're going to do, so they probably won't change it. (Jockey 1)

Table 2. Individual influences on the eating practices of jockeys

Raw Data	Higher Order Theme	General Dimension
The older lads are set in their ways, and they're going to do it (sweat), so they find the routine obviously this long that they're going to do, so they probably won't change it. (Jockey1)	Reluctance to Change (n=9)	Individual Influences on Eating Practices
We're not the same. I mean, you see them elite guys like Lewis Hamilton, earning millions of pounds per year. We ride around in a race with three ambulances following us for a hundred and fifty quid, and that's before deductions. Do you know what I mean? (Jockey 6)	Self-identification of 'athlete' status (n=10)	
I know it's not good for you, but it's just what people like, and you know, if you don't have too much of it, surely it's not going to be that bad for you, just one can of Red Bull or something after you've done a lot of sweating, is it? (Jockey 5)	Denial and Bargaining (n=9)	
The horses are the real athletes, but you have to do them justice, but it is a lot of the time, if you're on the best horse, it wins, which jockeys don't have that much difference. (Jockey 1)	The horse is the athlete (n=5)	

A common phrase “it works for me” was repeatedly used by several participants when discussing sub-optimal eating strategies and further consolidates the view of an averseness to change habituated practices. Of participants who were open to the discussion of evidence-based practices, there was a prevalence of *denial and bargaining* during interviews, and upon author reflection some of this could be attributed to a lack of nutritional knowledge. Through discussing the necessity of high energy drinks Jockey 1 suggests “*Red Bull I think should probably be kept, because the boys that are sweating, it obviously helps them.*” Similarly, when discussing racecourse foods Jockey 4 offers “*chicken nuggets, they're not that unhealthy if they're cooked properly*” and “*I know you mostly don't think chips are that healthy, but you don't always want to be healthy, do you know what I mean?*”.

An explanation for reluctance to change or perceived denial can be attributed to a lack of *self-identification of athlete status*. Despite a lifestyle with multiple parallels to other professional sports, and specifically weight-making or weight-sensitive athletes (e.g. boxing and motor sport), some jockeys do not feel on par with their counterparts:

Anthony Crolla or Anthony Joshua or someone. I mean, you see the sacrifice. I mean, don't get me wrong, we put ourselves through sacrifice, and it's mental and tortuous... but I mean, sort of that's the sort of career path we chose, so, you know? I suppose different sports, they demand different things, but it's very hard to compare yourself to someone like them. (Jockey 6).

An alternative thematic explanation in the narrative is that of *the horse is the athlete* by where the jockeys believe their contribution to the outcome of the race is trivial and is largely foregone based on the ability of the horse:

No matter how good of a jockey you are, yes you can get a better tune out of some horses, and you can get a bit more out of some horses, but ultimately, you cannot make a slow horse beat a fast one. It's like lining up in a Formula One race in a Mini. You'll get round the track, but they're going to lap you. (Jockey 5).

Previous research has indicated voluntary dehydration of 2% is enough to impair race-riding performance over a 2-mile simulated ride as well as upper and lower body strength (Wilson *et al.* 2013), offering an alternative perspective to that of the jockey. Some jockeys did self-identify as an athlete drawing on the necessity to be “very fit, very strong” to do what they do. In order to foster and develop this attitude, jockeys who hold and share these perceptions should be positively reinforced and encouraged so as not to be deterred.

### ***Social Influences on Eating Practices***

It is documented that in addition to their own perceptions and philosophies towards nutrition, athletes are exposed to and influenced by a number of external influences (Birkenhead and Slater, 2015). The following dimension purveys the social or extrinsic factors with varying degrees determine jockeys’ eating practices, summarised in Table 3.

The relationship amongst jockeys is complex given that they are all self-employed and therefore are each other’s competitor both on and off the track, yet at the same time, are all part of a unique fraternity, described by Jockey 8 as “a bubble” with a strong culture of learning from experienced others and respecting traditions:

So the thing is in racing, jockeys are a little bit like sheep. The young lads will watch what the old lads do, and when the old lads aren't that well educated, it sort of filters

down the line, so the young lads aren't. If everyone was better educated, everyone would have a better understanding of it. (Jockey 6)

Table 3. Social influences on the eating practices of jockeys

Raw Data	Higher Order Theme	General Dimension
It would be wrong to blame them fully as it's up to us as individuals to make the weight appropriately. Some of the trainers are decent, make sure we don't do too much too soon, others not so much, couldn't give a fuck about jockeys, apprentices anyway, there's always another one to turn to. Easy come, easy go, you know? (Jockey 3)	Peers and Trainers Influence and Pressure (n=7)	Social Influences on Eating Practices
No this is my first time but I'm hearing a lot more about the work been done over there, a few of the lads I've spoken to have been across to sees you and all say it's worth going over. I think once I'm further on my way with this rehab I'll book in to come across and get sorted. (Jockey 8)	Professional Nutrition Support Networks (n=7)	
Some are better than others, but I know some of the food they give you, it's not what we should be eating, but that's probably just because it's easy food. (Jockey 5)	Racecourse Food Provision	

The notion of education being a potential solution aligns with the thoughts of other jockeys who voiced recognition and reported positive influences from the available *support networks* that provide nutrition and wellbeing support. Jockey 8 shared “*I'm hearing a lot more about the work been done over there (Liverpool JMU), a few of the lads I've spoken to have been across... and all say it's worth going over*”, echoed by



having a sense of “*good knowledge*” nutritionally by Jockey 2 based on working with the industry’s nutrition support team. Based on the insular tendencies of the jockey community when seeking nutrition support, it is crucial to create positive and successful experiences with the few jockeys who interact with these support groups so the reputation and benefit of accessing the nutrition support networks will spread from within.

Several identified that as jockeys who spend much of their week at various courses that the racecourse’s food provision was their main opportunity other than visiting motorway service stations to eat. This higher order theme reflected some levels of discontent with the type of food, its quality, and the frequency of turnover:

They leave it out on the table all day, so after two races it's turning rotten. Not rotten, but it's lost its colour, and it looks shit. Then you wouldn't eat it, and it's the same with like all the other stuff. (Jockey 2)

Within these narratives however were notions of an improved service compared to previous times, and relationships with catering staff members was pivotal in how well they perceived a racecourse in terms of its service to jockeys.

### ***The Perception and Attitudes of the Jockey Support Network***

Interview responses within this theme are represented in Table 4 and ordered in to five general dimensions: 1) influence of trainers on weight making practice, 2) influence of agents on weight making practice, 3) influence of coaches on weight making, 4) contention over recognising the jockey as an athlete, and 5) a need for industry education.

Table 4. The Perceptions and Attitudes of Jockeys' Support Network

Raw Data	Higher Order Theme	General Dimension
<p>There's a yard in the south... he's very good in all ways with staff and jockeys. Many of them stay and live on site. He provides a cook who cooks three meals a day for them, he has rest rooms for them, simulators for them. (Jockey Coach 3)</p>	<p>Outward Facing Views on Nutrition and Science Support (n=6)</p>	<p>Influence of Trainers on Weight Making</p>
<p>A lot of trainers are so old-fashioned. Some. It's probably wrong to say a lot. Some are so old-fashioned and they're stuck in their ways, they're not interested. They feel it's the responsibility of them [jockeys] to look after themselves, because there's always another one coming along if that one can't cope with it. (Jockey Coach 3)</p>	<p>Cultural Reluctance and Lack of Time Inhibits Mentorship of Jockeys (n=13)</p>	
<p>My relationship is completely different to most agents. I treat them as if they were my children, because I get these lads come over from Ireland, and they've left their families and home. We're from a farming family, we try and give them a bit of love, you know. (Agent 2)</p>	<p>Family-like approach to support (n=3)</p>	<p>Influence of Agents on Weight Making</p>
<p>“Get in the sauna, don't eat anything and you can ride the light weight for me.” That sort of approach comes straight from the agent or trainer. (Jockey Coach 4)</p>	<p>Assigned too many jockeys with too much control over booking rides (n=6)</p>	
<p>Most of the time I try to be like more as a mentor and a friend... I try to associate situations that happened in your past to situations they're possibly having difficulty with. (Jockey Coach 3)</p>	<p>More than just a coach (n=4)</p>	<p>Influence of Coaches on Weight Making</p>

<p>Jockeys initially. Is that wrong or right? I don't know. I see them as jockeys. They're a different breed .(Agent 2)</p>	<p>Lack of recognition of jockeys as professional athletes (n=10)</p>	<p>Contention over recognising a jockey as an 'athlete'</p>
<p>I definitely would [classify jockeys as athletes], yes, definitely, having sort of been there, and knowing the sort of demands and what not. They're definitely doing that. (Jockey Coach 2)</p>	<p>Support of views of professional athletes (n=11)</p>	
<p>I think we've got to, as soon as we get hold of them, we've got to say, "You're not going to be a jockey, you're going to be a professional athlete, who happens to ride horses on the racecourse, and we call that a jockey, the same way we call Wayne Rooney a centre forward. (Trainer 2)</p>	<p>Get jockeys at beginning of career (n=8)</p>	<p>A need for industry education</p>
<p>In my head, it's the [<i>names three jockeys</i>] the lads who are doing it properly, you can see it on the benefits they get from it, and it's not an accident, is it? So they're the people who they should be looking up to. (Jockey Coach 2)</p>	<p>Use of a role model key for delivery of message (n=9)</p>	
<p>I'm very into nutrition and the whole thing. Do you know what I mean? And there's so much information out there, and you don't know what's bullshit and what's not, do you? (Jockey Coach 1)</p>	<p>Education needed for all industry members (n=8)</p>	

### *Influence of Trainers on Weight Making*

This initial dimension identifies the perceptions of industry members on the influence, both positive and adverse of racehorse trainers on jockeys, embodied by two polarised higher order themes of *outward facing views on nutrition and science support* and *cultural reluctance and lack of time inhibits mentorship of jockeys*. There are a number

of trainers that hold a liberal view towards supporting and promoting jockeys making weight in a safe way, facilitating performance and health simultaneously exemplified by Trainer 2 and the experiences of Jockey Coach 3 with various trainers:

For me, if you've got a healthy, fit, strong jockey riding a sensible weight, who's in a good place mentally, he's going to do a better job on your horse than a jockey who's under-nourished, smashed a bit, carrying a lot of discomfort and mental angst. (Trainer 2).

There are undoubtedly some trainers who are definitely on board, and it might be worth getting to know these yards. For example, there's a yard in the south, [names trainer] who is very good in all ways with staff and jockeys... he provides a cook who cooks three meals a day for them, he has rest rooms for them, simulators for them. Another trainer [names a second trainer] looks after his staff race-riding-wise, he's very supportive of his own conditionals and again, they do breakfast... as does [names a third trainer]. (Jockey Coach 3).

Several anecdotes of supportive acts occurred naturally during discussions including trainers refusing to allow jockeys to ride too light in concern for their wellbeing and food being prepared for jockeys on the yard (Agent 1). In contrary however, there is a feeling both from within this group of receptive trainers and the other jockey support network groups that alternative training yards do not provide adequate support to jockeys either through a lack of time, a diminished sense of obligation, or an elected stance of neglect towards the issues:

A lot of trainers are so old-fashioned. Some. It's probably wrong to say a lot. Some are so old-fashioned and they're stuck in their ways, they're not interested. They feel it's the

responsibility of them [jockeys] to look after themselves, because there's always another one coming along if that one can't cope with it. (Jockey Coach 3)

### *Influence of Agents on Weight Making*

Similar to trainers, this dimension emerged when talking about the perception agents hold of jockeys and the relationship that exists between the two. Themes emerging within this dimension are comparable to trainers in that they are divided between a *family-like approach to support* against a feeling agents are *assigned too many jockeys with too much control over booking rides*. Acting as an official representative for their registered jockeys, agents secure work with trainers based on the availability of their clients and a commitment to make the required riding weight. During interviews, it emerged some agents stand accused of exploiting the situation:

Every time the agent books them a ride, they get 10% of the riding fee. So he's not missing his dinner, but his [jockey] is. So they'll go and book them a ride that's probably too light... if you haven't got a good agent, they can abuse the situation a little bit, and make you do lighter than you want to do. (Jockey Coach 1)

Validation of this perception emerged from fellow agents who were interviewed. Agent 1 who suggests they have a modest and therefore more personal portfolio of jockeys confirms “*some of the agents that have a lot of jockeys don't have the same relationship with them*”. Agent 2 commented “*my relationship is completely different to most agents*” in the sense that they are sympathetic of the demands of being a jockey and took a more holistic approach to being an agent, communicating more frequently and refusing to place either physical or mental wellbeing in jeopardy for the sake of a ride. It is pertinent to mention that the initial work between professional jockeys and our

research group was instigated through a concerned agent seeking support for his jockeys, underlining the proactive and compassionate nature of some. Describing the relationship with *“I treat them as if they were my children”* and openly embracing them within the agents own family life was the cornerstone of the *family-like support* theme. Agent 1 consolidated Agent 2’s approach:

They all think I treat them like their parent. I think you've got a responsibility to them at the end of the day. If I can help them with anything, I will. Yes, I get their rides, but I do feel that I have a responsibility to look after them. I could put them on horses every day that are at their minimum weight, but I don't want to kill them. I don't want them to phone up and go, "I can't do this anymore. I'm not riding". So I do try to look after them, because I know it's hard. (Agent 1).

The number of jockeys allowed to be assigned to one agent is currently open-ended. *“I've got twenty-five on my books, which probably sounds a lot, but... there's [Agents](who have in excess of) probably sixty jockeys”* (Agent 2). All jockey coach and agent participants conveyed the opinion that this may lead to impersonalised representation, where agents may focus less attention on the welfare of riders in favour of ensuring jockeys have rides.

### *Influence of Jockey Coaches on Making Weight*

This general dimension acknowledged the work done by jockey coaches, in working individually with jockeys on the demands of being a professional jockey through their period of being an apprentice or conditional rider. The sole theme emerging via discussion of the relationship was that coaches were *more than just a coach* and several participants referred to them as a “friend” or “mentor”:

I had one boy in the winter, and I did everything from yoga, cooking lessons, equiciser, anything. He couldn't cook, so he couldn't eat properly, so I actually did cookery lessons with him. I can basically do anything I want if they want it. (Jockey Coach 1)

At present only a modest number of jockey coaches exist and due to the dispersed geography of racing yards around the UK, there is a “lack of consistency” (Jockey Coach 3) with contact time between some young riders and their designated coaches. Unlike others in the jockeys auxiliary group, jockey coaches appear to be the ones who have no other interests other than the development and welfare of riders. A subsidiary theme within the interviews was an increase in coaching numbers would be a worthy consideration.

#### *Contention over recognising the jockey as an ‘athlete’*

Analogous to the views of jockey themselves, the concept of recognising jockeys as professional athletes similarly divides opinion between other industry professionals:

They are [athletes], what they do is physical, massively physical. It's no less physical, apart from the accidents and thumps. It's similar to being a boxer. It has similar sort of requirements. (Trainer 2)

It is apparent that those industry members who recognise that jockeys are athletes have more outward-facing views on the value of nutrition and evidence-based approaches to weight-making, and similarly appear to recognise the detrimental impact on both health and performance of rapid weight-loss engagement. Traditional views are still maintained by many, considering jockeys to be “*somebody to sit on your horse and ride it*” (Clerk 6):

I'm old-fashioned... I've always considered jockeys as jockeys, as opposed to athletes, and it's only in the last year or two... that the word "athlete" had been brought into the equation.

(Jockey Coach 3)

The term 'jockey' derives from the 17<sup>th</sup> century denoting a small man who used to ride horses to deliver post (Wilson *et al.*, 2014), and void of consideration of the athletic demands placed on modern day riders. It was discussed that we associate the terms 'footballer' or 'tour de France cyclist' with athletes, and their names simply identify the sports they play. Similarly, the term 'jockey' should bring identity to horseracing however not at the expense of athletic recognition.

#### *A Need for Industry Education*

The most apparent general dimension emerging from support staff was the need for more industry education with regards to nutrition and weight-making. A consistent theme which emerged from all stakeholders was *educating jockeys at the beginning of the career*. At present only one afternoon during a licensing course is allocated to nutrition education with no obligation to maintain or develop this knowledge further throughout their career. A consensus that more emphasis needs to be placed on nutrition early in their careers is represented by Agent 2:

How do you change it? The grass-roots is always where the best comes from. Instil it into them early, and a lot of that needs to be from the BHA. They've got these apprentice schools. They need extra days at these schools to spend more time on it [nutrition]. (Agent 2).



The logistics of additional nutritional education was beyond the remit of the interviews however the *use of a role-model to deliver key messages* was second prominent theme. Suggesting that jockeys are “*very role model oriented*” from Jockey Coach 1 was supported by others suggesting the use of senior and/or successful jockeys to endorse evidence-based approaches would be best-practice and even necessary to create an industry-wide movement. This logic aligns with previous comments surrounding the “bubble” and a tradition of learning from within as well as jockeys’ previous acknowledgement of sourcing advice from senior jockeys over nutrition professionals (Moore *et al.*, 2002). In addition to jockeys requiring substantive nutrition education, a feeling of *education needed for all industry members* stood out in order to better understand the benefits of optimising nutrition, the implications of adverse practices and to, where possible, help their associated jockeys:

The trainer or the coach therefore on [the jockey’s] behalf must have a basic knowledge of diet. I don't remember in our classes to become coaches that the diet was mentioned other than from a rugby coach tutoring us who had no idea of a jockey’s lifestyle. I think the major step forward we can make is to make jockeys realise they are athletes and improve their lifestyles especially the diet and have trainers and agents understand this. (Jockey Coach 4)

Within this, it emerged key support staff such as trainers, agents, and coaches are unaware of the available nutrition support teams or how to help jockeys access them.

## **General Discussion**

The aim of this research was to explore the culture within horseracing and determine the perception and influences of its key stakeholders on nutritional and weight-making practices of professional jockeys. Initial themes which emerged consolidate findings

from empirical studies on the weight-making practices of jockeys (Dolan *et al.*, 2011; Cotugna *et al.*, 2011; Wilson *et al.*, 2013) confirming disordered eating and dehydration are preferred methods. A novel aspect of the present study also sought the experiences and narratives of the wider racing community, and in doing so identifies a widespread awareness of nutritional malpractice amongst jockeys suggesting a level of cultural acceptance and conformity towards the issue. In addition to the consolidation of previous literature, new findings relating to the factors behind *why* jockeys engage on archaic practices emerged from the present study.

There appears to be a range of social factors influencing dietary approaches, reflected in the accounts of both jockeys and the professional network around them. Recent research has indicated that a combination of physiological, educational, psychological, social, and economic factors all play a part in the food choices of professional athletes (Birkenhead and Slater, 2015) and appears especially relevant in weight-making sports (Sundgot-Borgen *et al.*, 2013). Specifically, influences from trainers, agents and some racecourses food provision appear to be negative and based on the traditional preferences of the sport and furthermore are present from the very start of a jockey's career. It is reported early sport-specific training, frequent weight-cycling and pressured coaching are all risk factors of developing disordered eating practices (Sundgot-Borgen and Torstveit, 2010) and perhaps all are no more prevalent in any other sport than horseracing. Narratives of positive influences were present in the data indicating that sections of the racing community are in favour of evidence-based approaches and the delivery of a high standard of jockey welfare. The promoting of such practices from industry bodies may help to encourage their adoption more widely.

There is a clear contention in the industry over the recognition of jockeys as athletes and subsequently acts as a barrier to acknowledging the necessity of optimal

eating and healthy weight-making strategies. There is a lack of prominence in horseracing placed on jockeys developing an “athletic identity” (Wiechman and Williams, 1997). It is documented that where strong athletic identity exists, continuing psychological benefits such as increased motivation, greater positivity and improved social interactions are reaped (Brewer *et al.*, 1993). In endurance running, a significant relationship between athletic identity and personal best times exists (Horton and Mack, 2000) suggesting that if jockeys approached all facets of their trade with an athlete mind-set, there is an increased likelihood of better riding performance. Cultural assumptions on the horse being the athlete needs to be challenged and promote the athletic ability of the rider can influence the outcome of the race. After all, between 2007-2012, only 32% of race wins went to the predetermined ‘favourite’ horse (Sports Media Society, 2012).

To our knowledge this is the first body of research to investigate the opinions and practices of racehorse trainers in relation to jockey welfare and opens up a debate. From extensive applied work in the industry from the first and second author, trainers are often an elusive group who work independent from each other with a level of concealment and we feel the low number of participants is reflective of the current position in industry. From in excess of 400 invites to participate only five initially expressed interest. Whether this is due to a lack of time or an example of cultural reluctance, it is clear further engagement with trainers is required to establish a clearer landscape and devise strategies to build on the already positive work taking place within their network. It appears a relationship exists between industry members who identify jockeys as athletes and their philosophy on the importance of nutrition. Similarly, individuals with an athlete-oriented perception appear to themselves provide a more holistic and liberal approach within their respective roles. Further investigation into

horseracing would help to determine the reasoning behind the cultural reluctance to proactively facilitate a healthier approach to riding, and what more can be done to develop the number of forward thinking practitioners.

Perhaps the clearest finding is the current perceived systemic lack of nutrition education within the sport, and the necessity to develop this as voiced by the participants of this study. Insufficient emphasis is placed on nutrition during the licensing courses and developmental apprentice and conditional periods. Similarly, there is no mandatory requirement to attend supplementary` sessions beyond this initial period of their career (Caulfield and Karageorghis, 2007). Consequently, jockeys are entering the industry with little or no theoretical or applied knowledge of nutrition and weight-management in a sport where the necessity to manage weight is greater than any other sport based on their need to make weight every day. No recognition of jockey nutrition, or strategies to facilitate the need is apparent on equivalent courses to become a jockey agent, racehorse trainer, or racecourse clerk. Subsequently, a potential exists where an entire jockey entourage may lack knowledge of a cornerstone aspect of the sport, and one which perturbs its athletes in a fashion that impacts on both physical and mental wellbeing. The minimal education similarly means there is a lack of awareness of the specialist nutrition support groups available for jockeys to be signposted to.

Based on the unique findings of the work further areas of investigation and practical recommendations have naturally presented: 1) The development of an industry-specific nutrition education platform would benefit professional jockeys entering the industry. Through a more comprehensive approach to nutrition education, jockeys would be equipped with the necessary skill-set to autonomously deliver an evidence-based approach to weight-management. Similarly, the instilling and fostering of jockeys being athletes should be embedded during such education schemes and

reinforced within industry. 2) A strategy to share best practice amongst industry members should be considered. Sections of the racing industry are already delivering excellent jockey welfare provision and approaching jockeys as professional sportspeople, this should be recognised and given the opportunity to disseminate to others. This, in tandem with the inclusion of the jockey athlete in the licensing process of agents, trainers, clerks and coaches will hopefully direct and encourage more industry members to embed a more holistic approach to their trade, and actively promote the use of the nutrition support teams. 3) Racecourse food provision appears to be an ideal target for the industry to implement best practice given the daily racing calendar therefore future work should look at strategies to optimise nutrition based on jockey needs.

Despite providing a unique insight into the perceptions of the horseracing industry, certain limitations prevented a further robust study. Only three racehorse trainers volunteered for participation, potentially providing a somewhat narrow perspective on this group despite commenting on their counterparts' practices as well as their own. Similarly, only two jockey agents were available for interview. Both of these professions were the subject of anecdotes claiming substandard care of jockeys, however the trainers and agents who were interviewed in this research were more supportive towards jockeys and likely due to this interest. The addition of participants with traditional approaches would have further strengthened the data.

The present paper seeks to debate, rather than dictate the athletic status and professional practices of the horseracing industry. The findings from this paper suggest whilst some good practice occurs, cultural barriers inhibit the widespread development of optimal athletic practices in jockeys. The development of an education platform may be the most effective way to challenge and remedy the current position. In addition to

the factions within the industry who already deliver excellent support to jockeys, it is clear that others are similarly ready to embrace change and make better practice more widely available. We hope this research gives them the impetus to do so.

### **Acknowledgements**

The authors would like to thank the British Horseracing Authority for the funding provided towards this research.

### **References**

1. Abramson, C.M. and Modzelewski, D. (2011). Caged Morality: Moral Worlds, Subculture, and Stratification Among Middle-Class Cage-Fighters, *Qualitative Sociology*, 34, 143-175
2. American Psychiatric Association (APA). (2013). *Diagnostic and statistical manual of mental disorders, 5th edition*. Washington, DC: American Psychiatric Association, 539–550.
3. Barone, T.E., and Eisner, W.E. (2012). *Arts based research*. London: Sage
4. Birkenhead, K.L. and Slater, G. (2015). A Review of Factors Influencing Athletes' Food Choices, *Sports Medicine*, 45, 1511-1522
5. Braun, V., and V. Clarke. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101
6. Braun, V. and Clarke, V. (2013). *Successful qualitative research: a practical guide for beginners*. London: Sage
7. Brewer, B. W., Van Raalte, J. L., and Linder, D. E. (1993). Athletic identity: Hercules' muscles or Achilles heel? *International Journal of Sport Psychology*, 24, 237-254

8. Burawoy, M. (1998). The extended case method. *Sociological Theory*, 16, 4–33
9. Burke, L., Cox, G. (2009). Nutrition in combat sports. In: Kordi, R., Maffulli, N., Wroble, R.R., and Wallace, W.A. *Combat Sports Medicine*. 1st edition. London: Springer, pp. 1-20.
10. Caulfield, M.J., and Karageorghis, C.I. (2008). Psychological effects of rapid weight loss and attitudes towards eating among professional jockeys. *Journal of Sports Science*. 26(9), 877–83
11. Chaudhary, V. (2000). Eating disorders blight racing [online] Available at: <https://www.theguardian.com/uk/2000/oct/24/vivekchaudhary> [Accessed 17/04/2017]
12. Cook, C., Crust, L., Littlewood, M., Nesti, M., and Allen-Collinson, J. (2014). ‘What it takes’: perceptions of mental toughness and its development in an English Premier League Soccer Academy, *Qualitative Research in Sport, Exercise and Health*, 6(3), 329-347
13. Cotugna, N., Snider, O.S., and Windish, J. (2011). Nutrition assessment of horseracing athletes. *Journal of Community Health*. 36(2), 261–4
14. Creswell, J.W. (2013). *Qualitative inquiry and research design: choosing among five approaches*. 3rd edition. California: Sage
15. Crighton, B., Close, G.L., and Morton, J.P. (2016). Alarming weight cutting behaviors in mixed martial arts: a cause for concern and a call for action, *British Journal of Sports Medicine*, 50, 446-447
16. Dolan, E., Crabtree, N., McGoldrick, A., Ashley, D.T., McCaffrey, N., and Warrington, G.D. (2011b). Weight regulation and bone mass: a comparison between professional jockeys, elite amateur boxers. And age gender and BMI matched controls. *Journal of Bone Mineral Metabolism*. 30, 164-170

17. Dolan, E., O'Connor, H., and McGoldrick, A. (2011). Nutritional, lifestyle, and weight control practices of professional jockeys. *Journal of Sports Sciences*. 29(8), 791–9
18. Drinkwater B, Loucks A, Sherman R, Sundgot-Borgen J, and Thompon R. (2005). *International Olympic Committee Medical Commission Working Group Women in Sport. Position Stand on the Female Athlete Triad*, International Olympic Committee
19. Gall, M.D., Gall, J.P., and Borg, W.R. (2003). *Educational research: An introduction* (7th ed.). Boston: A & B Publications
20. Garfinkel, P.E., and Garner, D.M. (1982). *Anorexia nervosa: a multidimensional perspective*. New York: Brunner-Mazel
21. Gratton, C., and Jones, I. (2004). *Research Methods for Sport Studies*. London: Routledge
22. Graves, W., and McMurray, J. (2008). Jockeys still battle weight issues, but progress being made [online] available at: [http://www.espn.com/espn/wire/\\_/section/horse/id/3367868](http://www.espn.com/espn/wire/_/section/horse/id/3367868) [Accessed 17/04/2017]
23. Greene, D.A., Naughton, G.A., and Jander, C.B. (2013). Bone health of apprentice jockeys using peripheral quantitative computed tomography. *International Journal of Sports Medicine*. 34(8), 688–94
24. Holman-Jones, S. (2005). Autoethnography: Making the personal political. In: Denzin, N.K. and Lincoln, Y.S. (eds). *The Sage Handbook of Qualitative Research*. California: Sage, 763–90.
25. Horton, R.S., and Mack, D.E. (2000). Athletic identity in marathon runners: Functional focus or dysfunctional commitment? *Journal of Sport Behaviour*, 23, 101–119



26. King, M.B., and Mezey, G. (1987). Eating behaviour of male racing jockeys. *Psychology in Medicine*. 17(1), 249–53
27. Labadarios, D., Kotze, J., and Momberg, D. (1993). Jockeys and their practices in South Africa. *World Review of Nutrition and Dietetics*. 71, 97–114
28. Lees, J. (2014). Racing second best attended sport in 2014 [online] available at: <http://www.racingpost.com/news/horse-racing/royal-ascot-cheltenham-festival-epsom-derby-grand-national-ascot-racing-second-best-attended-sport-in-2014/1789508/#newsArchiveTabs=last7DaysNews> [Accessed 02/11/2016]
29. Leydon, M.A., and Wall, C. (2002). New Zealand jockeys' dietary habits and their potential impact on health. *International Journal of Sport Nutrition and Exercise Metabolism*, 12, 220–237
30. Lieblich, A., Tuval-Mashiach, R. and Zilber, T. (1998). *Narrative Research: Reading, Analysis, and Interpretation (Applied Social Research Methods)*, California: Sage
31. Lincoln, Y.S. and Guba, E.G. (1985). *Naturalistic inquiry*. Beverly Hills, California: Sage.
32. Moore, J.M., Timperio, A.F., and Crawford, D.A. (2002). Weight management and weight loss strategies of professional jockeys. *International Journal of Sport Nutrition and Exercise Metabolism*. 12(1), 1–13
33. Morton, J.P., Robertson, C., Sutton, L., and MacLaren, D.P. (2010). Making the weight: A case study from professional boxing. *International Journal of Sport Nutrition and Exercise Metabolism*, 20, 80–85
34. Mountjoy, M., Sundgot-Borgen, J, Burke, L. (2014). The IOC consensus statement: Beyond the female athlete triad – relative energy deficiency in sport (RED-S), *British Journal of Sports Medicine*, 48, 491-497

35. Polkinghorne, D.E. (2005). Language and meaning: data collection in qualitative research. *Journal of Counselling Psychology*, 52 (2), 137–145.
36. Racecourse Association. (2016). *Annual Report*, Racecourse Association Ltd: Ascot
37. Richardson, L. (2000). Evaluating Ethnography, *Qualitative Enquiry*, 6 (2), 253-255
38. Smith, B. and Caddick, N. (2012). Qualitative methods in sport: a concise overview for guiding social scientific sport research, *Asia Pacific Journal of Sport and Social Science*, 1(1), 60-73
39. Smith, B., Sparkes, A.C., and Caddick, N. (2014). *Judging qualitative research*. In: L. Nelson, R. Groom, and P. Potrac, eds. *Research methods in sport coaching*. New York: Routledge, 192–201.
40. Sparkes, A.C.(2002). ‘Autoethnography: self-indulgence or something more?’ in Bochner, A.P. and Ellis, C. (eds). *Ethnographically Speaking: Auto-ethnography, Literature and Aesthetics*, Oxford: Altamira Press, 209-232
41. Sparkes, A.C. and Smith, B. (2009). Judging the quality of qualitative inquiry: criteriology and relativism in action. *Psychology of sport and exercise*, 10 (5), 491–497.
42. Sparkes, A.C. and Smith, B. (2014). *Qualitative research methods in sport, exercise, and health: from process to product*. New York: Routledge.
43. Sports Media Society. (2012). How many favourites win horse races in the UK? [online] available at: <http://sports-media-society.com/how-many-favourites-win-horse-races-in-the-uk> [Accessed 06/12/2016].
44. Stenhouse, L. (1975). *An Introduction to Curriculum Research and Development*. London: Heinemann

45. Stewart, C., Voulgari, S., Eisler, I., Hunt, K., and Simic, M. (2015). Multi-family therapy for Bulimia Nervosa in adolescence, *Eating Disorders*, 23, 345-355
46. Sundgot-Borgen, J., Meyer, N.L., Lohman, T.G., Ackland, T.R., Maughan, R.J., Stewart, A.D., and Muller, W. (2013). How to minimise the health risks to athletes who compete in weight-sensitive sports review and position statement on behalf of the Ad Hoc Research Working Group on Body Composition, Health and Performance, under the auspices of the IOC Medical Commission. *British Journal of Sports Medicine*. 47, 1012–1022
47. Sundgot-Borgen, J., and Torstveit, M.K. (2010). Aspects of disordered eating continuum in elite high-intensity sports. *Scandinavian Journal of Medicine and Science in Sports*, 20 (2), 112–121
48. Tracy, S.J. (2010). Qualitative Quality: Eight “Big-Tent” Criteria for Excellent Qualitative Research, *Qualitative Enquiry*, 16 (10), 837-851
49. Turner, D.W. (2010). Qualitative Interview Design: A Practical Guide for Novice Investigators, *The Qualitative Report*, 15(3), 754-760
50. Waldron-Lynch, F., Murray, B.F., and Brady, J.J. (2010). High bone turnover in Irish professional jockeys. *Osteoporosis International*. 21(3), 521–525
51. Warrington, G., Dolan, E., and McGoldrick, A. (2009). Chronic weight control impacts on physiological function and bone health in elite jockeys. *Journal of Sports Sciences*. 27(6), 543–50
52. Wiechman, S. A., and Williams, J. (1997). Relationship of athletic identity to injury and mood disturbance. *Journal of Sport Behaviour*, 20, 199-211
53. Wilson, G., Chester, N., Eubank, M., Morton, J.P., and Close, G.L. (2012). An alternate dietary strategy to make weight improves mood, decreases body fat and

removes the necessity for dehydration: a case-study from a professional jockey.

*International Journal Sport Nutrition and Exercise Metabolism*. 22(3), 225-31

54. Wilson, G., Drust, B., Morton, J., and Close, G. (2014). Weight-making strategies in professional jockeys: Implications for physical and mental health and well-being. *Sports Medicine*. 44, 785–796
55. Wilson, G., Hawken, M.B., Poole, I., Sparks, A., Bennett, S., Drust, B., Morton, J., and Close, G.L. (2013) Rapid weight-loss impairs simulated riding performance and strength in jockeys: Implications for making-weight. *Journal of Sports Sciences*. 32, 383–391
56. Wilson, G., Pritchard, P.P., Papageorgiou, C., Phillips, S., Kumar, P., Routledge, H., Morton, J.P., and Close, G.L. (2015). Fasted exercise and increased dietary protein reduces body fat and improves strength in jockeys. *International Journal of Sports Medicine*. 36(12), 1008-1014