

# Nutrition Assessment of Horse-Racing Athletes

Nancy Cotugna · O. Sue Snider · Jennifer Windish

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**Abstract** Athletes involved in horse racing face weight restrictions like wrestlers and dancers, however, the literature is sparse pertaining to nutritional habits of jockeys. The practice of “making weight” causes these athletes to engage in potentially unhealthy practices. A gap in nutritionally sound practices and methods used by jockeys was identified and a desire for nutrition education was expressed to Cooperative Extension of Delaware by representatives of the riders at Delaware Park Race Track. Nutrition assessment was done using the Nutrition Care Process. Twenty jockeys were interviewed using an assessment form developed to target areas of disordered eating. Body mass index (BMI), mean weight loss on race day, methods of weight loss and ease of weight maintenance were examined. The jockeys were also asked for areas they wished to receive nutrition education on in the future. The BMI of the 20 jockeys ranged from 17.0 to 21.4 during racing season, with only one jockey in the “underweight” category. This range increased to 19.1–24.0 when the riders were not riding. The most common method of weight loss was the use of steam rooms, to lose an average 2.5 lb in 1 day. Eight of 20, the most common response, reported it very easy to maintain their racing weight. The jockeys

reported interest in future education sessions on meal planning and healthy food ideas. The assessment was used as the basis to develop nutrition education materials and presentations for the riders at the race track.

**Keywords** Eating habits · Jockeys · Nutrition assessment

## Introduction

There are many sports including dance, wrestling and horse-racing that are dependent on the weight of the athlete participating. Weight classes and restrictions are made to level the playing field, but also have a huge impact on the life of these athletes. Horse-racing jockeys are required to weigh a particular weight before each race, which is most often no more than 120 lb [1]. This weight also includes their equipment and clothing. From the point of view of the industry and horse owners, the weight restrictions are efficient in making the race a fair and even playing field. There is a gap in the concern for the health of the rider however. State racing associations provide their riders with different degrees of health care services and education, but nutrition is most always lacking. Jockeys resort to methods like sweat rooms, vomiting and dehydration to make weight. In Delaware, an attempt is being made by jockey representatives at Delaware Park Race Track to address some nutrition issues and educate riders about healthier eating in the future. The representatives contacted the New Castle County branch of Cooperative Extension to seek further resources in their mission. They expressed their concerns and ideas for further education programs. The purpose of this project was to develop and implement a sport-specific nutrition assessment tool to capture key nutrition issues of concern to the stakeholder group. The

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N. Cotugna (✉)  
Department of Behavioral Health and Nutrition,  
University of Delaware, 22 Carpenter Sports Building,  
Newark, DE 19716, USA  
e-mail: ncotugna@udel.edu

O. S. Snider  
Department of Animal and Food Sciences,  
University of Delaware, Newark, USA

J. Windish  
Nutrition Therapy, The University Medical Center at Princeton,  
253 Witherspoon Street, Princeton, NJ 08540, USA

results of the assessment would then be used to develop and present nutrition education sessions to the jockeys and their families.

Horse racing is one of the few sports of this generation where the objective is to slim down, instead of bulk up [2]. There has been very little research on health and nutrition issues in the horse-racing industry, especially in the United States. The focus seems to be more on the horse and less on the well-being of the rider. There are no rules and regulations on how jockeys make weight, unlike sports such as wrestling where hydration standards and drug tests are done routinely [2]. There is much concern over the health issues like electrolyte imbalances and heart problems caused by rapid weight loss through hot boxes, vomiting and starvation practices. There have been a few international studies looking at the health behaviors of riders [3]. Currently there is starting to be a push towards nutrition education for these athletes in America. Riders as well as dancers and wrestler-type athletes that face the need to make weight do face particular nutrition issues like dehydration and loss of lean body mass. Studies of female athletes have shown that sports which emphasize leanness can result in athletes with subclinical eating disorders [4, 5]. Suboptimal energy and nutrient intakes leave an athlete at risk for compromised nutritional status [6]. It is well known that the rate of weight loss is most important for healthy weight loss. A rate too high causes inappropriate loss of lean body mass as well as fatigue. Practices of cutting weight using severe caloric and fluid restriction, dehydration and other means are dangerous and can lead to less optimal physical performance [6]. Dietitians provide the means for education to athletes to combat these dangerous practices. Dietitians play a pivotal role in helping to prevent nutrient deficiencies that accompany weight loss practices by providing nutrition education [4].

## Methods

A meeting was held with an interest group comprised of an active, a retired and a managing jockey to determine the specific concerns and requests this Delaware Park group wished to have addressed. A diet assessment form was then developed by the authors and reviewed by the interest group to assure the questions would be acceptable to the jockeys. The assessment form was also reviewed by three food and nutrition professionals for face validity. The tool was then approved by the University Human Subjects Review Board. The tool focuses on the Nutrition Care Process assessment areas that could be applied to riders and athletes who may have disordered eating. Two weekend race days were set aside to conduct interviews with the jockeys at the park who were invited by their managers to

participate in the project. In total approximately 20–30 jockeys ride at the park in any given season and all were asked to participate. A private area at the race track was set up to conduct the interviews (by OSS and JW).

Questions were read to the participant and responses were recorded. Each interview took about 10 min and the identity of the jockey was never recorded. The jockeys participated voluntarily and could stop the interview at any point. In general the jockeys were available between races and after spending time in what is known as a “sweat box” or steam room. A few of the subjects spoke better Spanish than English. A Cooperative Extension employee was on hand to translate in these situations. After the assessments were completed the data were reviewed and organized. Frequencies were calculated using Microsoft Excel.

## Results

Twenty of the jockeys agreed to be interviewed and each answered all of the assessment questions. Of those 20, 19 were male and one was female. There were 16 English speaking riders and 4 that spoke predominantly Spanish. The ages of the riders were from 21 to 54 years with the mean age of 35. The years of jockey experience ranged from 1 year to 29 years with the mean of 15 years. The jockey weights and heights were self-reported. Table 1 shows the height, weight and body mass index of the 20 study participants during competition and off season. Range of height is 60–68 inches, weights 106–116 lb and body mass index of 17.0–21.4 in season and weights of 106–140 lb and body mass index of 19.1–24.0 when not actively competing. On race day, jockeys reduced an average of 2.5 lb, with a range of anywhere from 0 to 5 lb.

The jockeys were asked to describe a typical day of eating. Due to the racing schedule they all follow, the results of this question had many similar answers. Ten of the 20 jockeys reported having nothing but coffee or an energy drink before they ride in the morning. The energy drinks reported were either RedBull® or Monster®, two similar caffeinated, carbonated energy products. Five jockeys reported eating a piece of fruit or granola bar between morning training and racing. The most common pattern of daily intake was eating very little until after racing and then consuming a large entrée-type meal for dinner. Eight reported taking generic vitamin and mineral supplements during the day. Five take Emergen-C® with water throughout the day. This is a powder product mixed in water that contains 500 mg vitamin C as well as vitamin A, E, D, zinc, calcium, magnesium and eight B vitamins. The follow up question addressed the eating habits outside of racing season. Ten of the 20 jockey reported eating three meals a day when they are not being weighed in every day.

**Table 1** Height, weight and body mass index of jockeys during racing season and when not actively competing

Jockey number	Height (inches)	Weight (lbs) in season/ out of season	BMI in season/out of season
1	60	106/106	20.7/20.7
2	65	113/115	18.8/19.1
3	60	108/112	21.0/21.9
4	63	113/120	20.0/21.3
5	64	114/120	19.6/20.6
6	62	116/120	21.2/21.9
7	63	108/112	19.1/19.8
8	64	115/140	19.7/24.0
9	65	116/120	19.3/20.0
10	62	111/120	20.3/21.9
11	65	116/125	19.3/20.8
12	61	108/110	20.4/20.8
13	66	115/125	18.6/20.2
14	68	112/135	17.0/20.5
15	61	113/116	21.3/21.9
16	62	108/108	19.1/19.1
17	63	110/120	19.5/21.3
18	65	116/118	19.3/19.6
19	61	108/125	20.4/23.6
20	63	111/128	19.7/22.7

**Table 2** Methods of making weight used by Delaware Park jockeys

Method of weight loss	Number of jockeys
Hot box	12
Food restriction	7
Fluid restriction	1
Flipping/throwing up	2
Exercise	8
No methods used	3

Three reported eating two meals a day and five reported eating the same way in and out of racing season. Two reported eating similarly to racing season with a larger quantity of food at each eating time.

A question was asked about the methods jockeys typically used to make weight, either long term or on the day of a race. Table 2 shows all the different methods used to make weight, as provided by the interest group. The most often used method among jockeys at Delaware Park is the Hot Box, also known as a steam room. Six of the jockeys reported smoking on a regular basis. Two of the jockeys use smoking as an appetite suppressant, while the other four smoke as habit, unrelated to weight. The jockeys were asked to rate how easy or difficult it is for them to maintain their weight when racing. The majority ( $n = 13$ ) felt it was

very easy or easy to maintain weight, four felt it was difficult or very difficult, and three indicted neither easy nor difficult.

The last questions on the survey asked the jockeys if they were interested in nutrition education, what they would like to receive and in what format. Twelve of the 20 jockeys reported they would be interested in some form of nutrition education both in English and Spanish. The majority of those who responded did not have specific wishes as to what they would like to be educated on. Two jockeys specifically wished to receive education on meal planning and one reported interest in healthy meal and snack ideas. All of the jockeys interested in education would like to receive both printed materials and be able to speak to a nutrition professional in person.

## Discussion

Of the 20 jockeys interviewed only one had a body mass index in the classification of “underweight”, 18.5 or less. This particular jockey fell into a healthy, normal body mass index range for his non-racing weight. The remaining jockeys had weights both in and out of season that are classified as normal weight. A body mass index of a “normal” or healthy range is 18.5–24.9. As seen by the mean racing age of 35 and mean racing years of 15, these jockeys live in a constant state of restraint and have to be conscious of their weight year round. Most jockeys ride close to year round, traveling from the northern states to southern depending on the weather and time of year. What is referred to as “out of season” for jockeys is any time they have a break from racing, for a few months, they take a vacation or have an injury that causes them to not be able to ride. Even though the majority of jockeys had in and out of season BMIs within a normal range, there is still an associated health risk when their weights yo-yo when in and out of season. Most jockeys that found it easiest to maintain their weight were of lower height, where a lower weight would be closer to an ideal body weight for them. They were also those jockeys who reported having to reduce the least amount of weight on race day.

After interviewing this group of jockeys it was clear that their weight is of top concern on race day. The nature of the sport has built-in exercise, which may assist to make their weight restrictions second nature to them. Unlike wrestlers or dancers who must take separate training time for exercise to make weight, jockeys work all morning exercising the race horses for pay, before the race day even starts. On the other hand, wrestlers have to weigh in with as little clothes as possible, where jockeys’ weights incorporate clothing, their shoes and helmet, as well as horse tack. The tack includes the saddle and saddle pad as well as the crop

which jockeys must hold in hand when they step on the scale. This total weight must meet their weight restrictions. Most often a rider must really weigh 3 lb less than their restriction in order to compensate for the tack weight. The most popular weight reduction method among these jockeys, and jockeys across the sport, is the hot box, or sweat room. This is used for a few hours before racing to dehydrate the body and rapidly lose weight. As shown in studies of wrestlers and rapid weight loss, this weight loss method is very temporary [7, 8]. Weight is quickly regained along with cross sectional areas of muscle and fat tissue, which increases to their pre-dehydration size when the athlete rehydrates again. The constant dehydration, although it does not cause long-term weight loss, is taxing to the kidneys and heart. The short-term effects of dehydration can cause long-term, underlying health problems. The athletes also skip meals, often only eating one meal a day, which is a major nutrition concern.

The last question asked of the jockeys addressed issues in nutrition and weight maintenance that they would like to learn about. Based on 12 out of 20 jockeys showing interest in some form of education, it is apparent there is a gap in their knowledge of how to eat and maintain weight healthfully. The jockeys who did not wish to partake in any education seemed to be those who maintain their weight easily and those who have been racing the longest. The others, the 12 interested, were open to education in areas such as meal planning and patterns of eating, meal and snack ideas and healthy weight-loss methods. Due to language differences, materials should be provided in English and Spanish.

### Limitations

The results above were limited by a few factors. The ability to interview every single jockey was limited by their racing schedule on the days we visited the track. Some jockeys who rode in every race of the day were not able to spend the time participating in an interview with us. Also, some who were finished after just a few races left before being able to participate. None of the jockeys interviewed declined to answer any questions. Those who had the time and saw the interviews taking place were glad to participate. It can be assumed that those jockeys who did not participate would probably not be any different than those who did since lack of participation was due to lack of time rather than disinterest. The results of non-participant interviews would be very similar to those who did participate for a few reasons. All the jockeys must follow the same weight restrictions, so their weights would not be much different than the other riders. Also, the jockeys have learned their weight-loss habits from each other. They are

methods that have been taught to one jockey from another. Those few who did not get captured by the interview process would likely have answers that followed the very similar patterns as the other jockeys. The last limitation to this study is that weight and height were self-reported. All the jockeys reported their height and weight without hesitation, but self-reporting is not as accurate as actual measurements. However, because the jockeys are weighed in before the race by track officials, it is likely that their self-reported weights are fairly accurate.

### Conclusion

The data collected from this project was utilized by Cooperative Extension and Delaware Park to develop and conduct nutrition education that was as specific to the needs and desires of the riders as possible. Family members were also invited to be involved in the education. An extension nutrition professional worked with the riders and served as the leader in the educational process and ongoing efforts to better the nutrition status of the jockeys at Delaware Park. Programs evolving from this project are available to be shared with others and can provide the preliminary steps towards changes in nutrition across the jockey industry nationwide. Hopefully, the future of horse racing will see weight limit increases to benefit the jockeys.

### References

1. The New York Times. Low Weight Limit Hurting Jockeys. <http://www.nytimes.com/2000/12/24/sports/1-low-weight-limit-hurting-jockeys-137375.html?pagewanted=1>. Accessed 22 April, 2010.
2. NBS sports. Jockeys are still battling weight issues. <http://nbc.sports.msnbc.com/id/24320254/>. Accessed 12 April, 2010.
3. Leydon, M. A., & 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.
4. Beals, K., & Manore, M. (1998). Nutrition status of female athletes with subclinical eating disorders. *Journal of the American Dietetic Association*, 98, 419–425.
5. McNulty, K., Adams, C., Anderson, J., & Affenito, S. (2001). Development and validation of a screening tool to identify eating disorders in female athletes. *Journal of the American Dietetic Association*, 101, 886–892.
6. DePalma, M., Koszewski, W., Romani, W., Case, J., Zuiderhof, N., & McCoy, P. (2002). Identifying college athletes at risk for pathogenic eating. *Journal of Sports Medicine*, 36, 45–50.
7. Kukidome, T., Shirai, K., Matsushima, Y., Yanagisawa, O., Homma, T., & Aizawa, K. (2008). MRI evaluation of body composition changes in wrestlers undergoing rapid weight loss. *British Journal of Sports Medicine*, 42, 814–818.
8. Maffulli, N. (1992). Making weight: a case study of two elite wrestlers. *Journal of Sports Medicine*, 26, 107–110.