

**Nutritional, Dietary, and Exercise Habits of  
High School and College Wrestlers**

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An Interactive Qualifying Project Report  
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## *Abstract*

The purpose of this study is to examine the weight loss practices of wrestlers. Data were obtained through a survey of over 154 wrestlers and a questionnaire distributed to 7 high school coaches. The results indicate that current wrestlers often practice poor nutritional and dietary habits, which impedes their performance. Binge eating after weigh-ins is another problem that leads to weight fluctuation and dehydration. The NCAA has imposed regulations to limit weight fluctuations, however poor weight management practices still persist.

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## NUTRITION IN WRESTLING

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## **Introduction**

Wrestling is a sport of strength, endurance, balance, speed, and intelligence. The concept of weight classes has led many wrestlers to engage in poor weight loss practices. This study measures and analyzes the physically harmful effects of “cutting weight” which include dehydration, malnutrition, and poor exercise regimens. In an attempt to accurately analyze these habits, three main areas were established; nutritional practices, dietary practices and exercise practices. Once established, these areas could be defined. Nutritional practices take into account the quality of the food consumed. Dietary practices analyzed the rate and amount of consumption. Exercise practices explored the physical training required by a wrestler to condition and make weight.

It is no secret that a vast majority of wrestlers actively participate in some form of unhealthy practices. A series of improvements have been created from the research. The advice provided by this study will improve stamina, energy, and overall performance of a wrestler. In addition to improving physical performance, the implication of positive practices will provided for a less miserable wrestling season.

Following the death of several wrestlers in a short period of time, the NCAA established weight loss regulations to reduce weight fluctuations. These regulations have effectively lowered some of the risk and hindered dangerous weight fluctuations. These problems tarnish the sport of wrestling. Many wrestlers still participate in rapid weight loss practices; leading to questions concerning the effectiveness of weight certifications. Opinions provided by current wrestlers aided in creating an alternative method to help minimize rapid weight loss further.

Extensive research has shown that detailed studies have been completed in regards to these topics. Though thorough, these studies generally only examine a narrow range of

information. The following review will attempt to piece together information into one practical study. Whiling researching the topic, it seemed difficult to locate useful information without buying a book or journal subscription. Not all wrestlers have the resources to search for and obtain this information. With this notion in mind the following periodical will be provided in a manner that can be easily located by any wrestler. With a publication in *Wrestling USA Magazine*, this review will be nationally distributed to the wrestlers, coaches and parents, for whom it was intended.

## Objectives

- 1) Analyze and give an improvement plan regarding nutrition.
  - Nutritional Intake
    - Provide quantifiable data regarding daily caloric intake.
    - Analyze the difference between actual and desired nutritional intake.
    - Effects of lower caloric intake on metabolism.
    - Desired amount of carbohydrate, fat, calorie and protein.
  - Correlate caloric difference and weight loss practices.
    - The percent of wrestlers that actively use each weight loss practice.
    - What practices are prevalent in each caloric difference range.
  - Hydration
    - Daily water Intake
    - Effects of dehydration of bodily functions.
      - The effect at different levels of dehydration.
    - Effects on performance.
    - Time required to rehydrate vs. time given.
    - Coaches and wrestlers attitude on dehydration to make weight.
- 2) To develop the optimal dietary plan
  - Binge eating and weight Fluctuation.
    - Prevalence of bingeing.
    - Preferred Diet while bingeing.
    - Extent of fluctuation between competitions and over a season.
  - Weight loss practices
    - What harmful practices are used
    - The rate at which they are used
  - Weight lost prior to a weigh-in.
    - How much do wrestlers lose a couple days before a weigh-in
    - Compare high school habits to collegiate habits.
- 3) Analyze the exercise practices during the season.
  - Exercise out of practice
    - Amount coaches prefer.
    - Actual amount done by wrestlers.
    - Types of exercise.
  - Effects of poor nutrition and diets on exercise.
    - Affect on workouts.
    - Affect on competition performance.

- 4) Effectiveness in league sanctioned weight certification.
  - NCAA weight certification.
    - Purpose.
    - Process of weight certification.
    - Banned practices.
  - Wrestlers and weight certification.
    - Wrestlers altering results.
    - Perception of effectiveness.
  - Corrections to the current system.

## Methodology

The purpose of this study was to research, analyze and improve the current state of the sport of wrestling. In order to obtain information on the dietary and exercise habits of wrestlers, a survey containing about 23 questions was developed (see Paper 1). To distribute this survey Mike Atlas, the Web Site Coordinator of Masswrestling.com, forwarded a link for the survey to the alias of masswrestling users. Emails are provided in Appendix I. 154 current wrestlers participated in the survey. 115 participants were high school wrestlers, and 43 were collegiate wrestlers. Of the 154 forms that were emailed, 8 returned forms were unusable as a result of an incomplete submission, resulting in a final sample size of 146. The survey examined the athlete's height, weight, dietary caloric intake, weight fluctuations, weight loss methods, and attempted alterations in the weight certification process.

A questionnaire was distributed to past and current wrestling coaches. Again, Mr. Atlas provided his assistance by forwarding our questionnaire to his Coaches' alias (Appendix I). This information was vital in gauging the influences coaches have on the wrestlers. The questionnaire was completed by 7 high school coaches (Appendix II). Information concerning tenure length, team division, team success, views on diet and exercise outside of practice, and whether a nutritionist meets with the team was collected.

A thorough review of the existing information was conducted to determine the practices employed by typical wrestlers. The Journals were first identified through a search of the WPI database for journal articles pertaining to diet, nutrition, and exercise related to the sport of wrestling. Various on-line search methods were used to acquire additional journal articles. When a source was unavailable for viewing, WPI's Illiad was utilized to provide access to that source. The references in the articles that were used provided further journal articles for research.

An objective of this project is to create a useful source in which a wrestler can find information regarding healthy weight loss techniques. Through research, multiple wrestling magazines were found in which this information could be presented. Such magazines included, *USA Wrestling*, *WIN-Magazine* and *Wrestling USA Magazine*. After contacting each magazine about the possibility of publication, *Wrestling USA Magazine* seemed to be the most interested. Once it was established that *Wrestling USA* would publish our study, the project was tailored to the publication guidelines provided by Editor Cody Bryant. Mr. Bryant suggested that in order to conform to the magazine restrictions on size, our article be split into two articles; the first



regarding the current state of wrestling, and a latter article regarding techniques for improvements of weight management standards. Appendix III provides the correspondence between John Gikas, Chris Spinelli, and the *Wrestling USA* Editor Cody Bryant. The two articles that were submitted to *Wrestling USA* are presented in the following sections.

**Article #1**

**“Evaluation of Nutritional, Dietary  
and Exercise Habits of Wrestlers”**

**submitted to *Wrestling USA Magazine***

# Evaluation of Nutritional, Dietary and Exercise Habits of Wrestlers

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## **Abstract**

*Modern day wrestling has developed a negative image among the general population as a sport that does not sufficiently promote healthy weight control habits and dietary practices. The purpose of this study is to measure and analyze data on the nutritional, dietary and exercise habits of wrestlers. A survey of high school and collegiate wrestlers was conducted to examine various issues related to weight control. Additionally a questionnaire was distributed to current and past coaches to determine the influence coaches can have on wrestlers. Generally, wrestlers are well informed about proper nutritional and exercise habits, despite the fact that athletes in other sports have a minimal knowledge in such areas. However, it is quite obvious that wrestlers do not always apply this knowledge while “cutting weight.” Significant differences were found in the practices between high school and college wrestlers, particularly in the areas of weight fluctuation and dehydration.*

## **Introduction**

Despite wrestling’s long tradition, there appears to be various unhealthy and performance debilitating habits that are not only practiced, but accepted. The effects of these habits result in dehydration, malnutrition, and poor exercise regimens. These behaviors stem from a desire by the wrestler to weigh in at the lowest possible specified weight class. Many wrestlers believe that by weighing in at the lowest possible weight, the negative effects of a poor diet and dehydration are being counteracted. This behavior is present despite a consensus from coaches pleading to the contrary. The connection between wrestling and unhealthy eating habits has resulted in deterring many athletes from entering the sport. <sup>[1]</sup> In addition, this pattern of malnutrition and dehydration has also encouraged wrestlers to pursue other activities. The NCAA and other state level organizations have made attempts to limit the rate at which a wrestler can lose weight. <sup>[2, 3]</sup> These regulations were imposed with the hopes to minimize

dehydration and malnutrition. The implementations of these policy changes have helped curtail some of the unhealthy weight loss that is experienced in wrestling. However, many unhealthy weight loss methods are still widely accepted in the sport of wrestling. This article will examine the detrimental effects of poor nutrition and dehydration that are experienced by wrestlers. Two surveys were conducted, one aimed towards wrestlers and another designed for coaches (Appendix A). It is hoped that the information obtained from this research can be utilized to increase the interest in the sport and also help curtail some of the unhealthy habits associated with weight control.

### **Nutrition Habits**

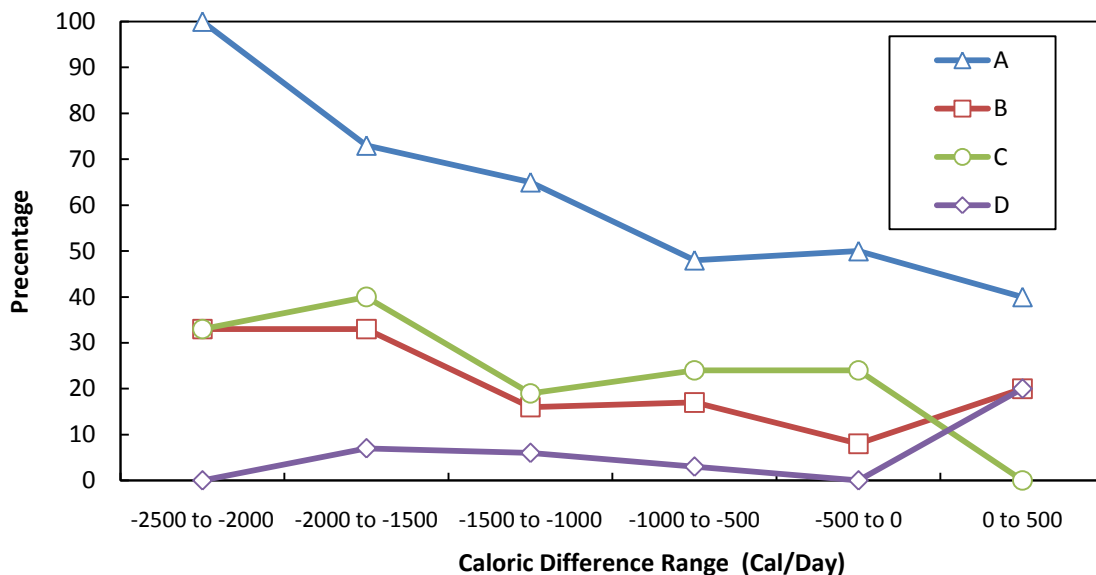
After an extensive review of the literature, three main areas were identified as potentially harmful to the well being of amateur wrestlers. Nutritional habits are the first area. Wrestling is a demanding sport that stresses the importance of keeping one's body in great condition. However, in an attempt to make the weight, it is common to reduce a diet's caloric intake down to the very minimal level. Wrestlers will reduce the calories they eat in order to minimize the amount exercise they perform. With less caloric intake, there is less weight to lose. As stated by Roemmish and Sinning,<sup>[4,5]</sup> wrestlers typically consume foods high in carbohydrates (61%) and fats (24%). Carbohydrates are vital for a wrestler to maintain peak performance.<sup>[6]</sup> Despite the importance of a high protein diet,<sup>[7]</sup> wrestlers on average only consumed about 0.9 g\*kg of protein a day. The survey from the present study indicates that the average daily caloric intake for high school and college wrestlers in Massachusetts was 1966. The National Association of Biology Teachers indicated that 3000 calories a day is not even enough to sustain primary body functions in a wrestler.<sup>[8]</sup> Calories are crucial for maintaining a high level of energy and stamina for any athlete. As any coach would agree, the wrestler that has more stamina will win more often than not, and be less likely to be injured.

A difference in the overall caloric intake of wrestlers who participate in various questionable weight loss methods was observed. Data on the Caloric Difference (calorie intakes - calories expended) of wrestlers with various weight control habits are shown in Fig. 1. It is generally observed that the use of sauna suits is more prevalent among participants. A lesser percentage of wrestlers in a caloric difference range (for example practice D in Fig. 1) is desirable because it would indicate that fewer wrestlers are participating in these practices. Even

when sustaining a 3000 calorie diet a wrestler should only lose less than a pound a day.<sup>[9]</sup>

Rubber suits have higher percentages with increasingly negative caloric differences (for example practice A in Fig. 1) because these practices are the most common habits used to make weight.

The two least common are at the bottom; vomiting and diet pills. Despite having relatively low overall percentage of usage, when the caloric differences of wrestlers decreases vomiting and laxative usage increases. It is evident that in order to eliminate the final few pounds necessary for weight qualification, wrestlers resort to these extreme methods.



*Figure 1. Variation of total net caloric intake of wrestlers with an array of poor weight management practices. The caloric difference range was calculated as the difference between total intake and total caloric expenditure. Each line corresponds to a specific practice. Practice A represents the Sauna and Rubber Suit users. Practice B represents people who intentionally vomit. Practice C represents people who take laxatives. Practice D represents people who take diet pills.*

## Hydration

Hydration is a critical factor in wrestling, more so compared with other sports. In order to maintain weight, wrestlers may reduce fluid intake and thereby create problems with dehydration. When losing 20 pounds to make a weight class, losing the last 3 to 5 pounds as water weight, does not seem to be that big of an issue. Robinson<sup>[10]</sup> demonstrates that many bodily fluids and functions are lowered upon the onset of dehydration. Plasma volumes are

reduced up to 6.5% with a 3% water decrease. Robinson<sup>[10]</sup> also cites that average oxygen intake of an active male who is dehydrated decreases at a rate of 0.22 liters a minute. Dehydration impairs the body's ability to let off heat, as stated by Calbet *et al.*<sup>[11]</sup> Robinson<sup>[10]</sup> conducted similar experiments proving that body temperature increases constantly with decreases in body water. In the present study, multiple coaches indicate that dehydration before weigh-ins is not beneficial. Despite this information, 50% of wrestlers still believe that dehydrating and rehydrating right after weigh-ins increases the chances of success. Collegiate wrestlers tend to remain slightly more hydrated than high school wrestlers.<sup>[12]</sup> A wrestler generally gets one hour to rehydrate after making weight despite the fact that up to 5 hours could be required to achieve the full performance level.<sup>[13]</sup>

### **Eating Habits and Weight Fluctuation**

A factor that goes along with nutrition habits is the dietary plan of wrestlers. While nutrition refers to the quality of the food, the diet indicates the rate and conditions in which the food is consumed. Realistically wrestlers tend to eat less than the bare minimum a day or two before a meet. After meets, 66% of wrestlers admit to bingeing between wrestling competitions. About 63% say that the food preferred while bingeing is less healthy than the diet used to make weight. Figure 2 depicts the weight loss tendencies of wrestlers a day or two before a weigh-in. A vast difference in collegiate and high school tendencies is evident. As indicated, 80 % of high school wrestlers tend to lose, on average, 1 to 5 pounds the days leading up to a meet. College wrestlers, on the contrary, are more distributed, 54% lose between 3-7 pounds. Rubber suits are a common practice to achieve this weight loss: 65% admit to having used rubber suits to make weight at least once; 27% use them two thirds of the time or more.

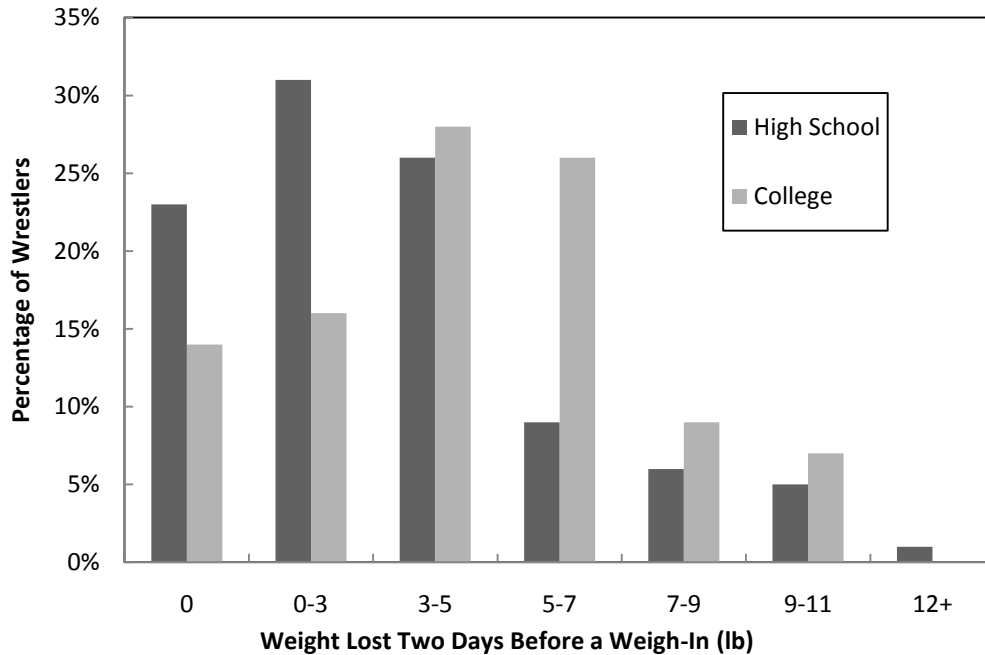


Figure 2. Comparison of the percentage of wrestlers that lose a specific amount of weight about 1 to 2 days prior to a competition. Data are shown for collegiate and high school wrestlers.

Through examination of the fluctuation of weight between weigh-ins, a pattern of poor weight management is prevalent. Of the participants 51% were found to have fluctuated up to 10 pounds, 37% fluctuate between 5-7.5 pounds. Human bodies were not meant to have such rapid weight fluctuations consistently over a 4 to 6 month period. Ransone and Hughes <sup>[14]</sup> claim that the weight loss patterns of wrestlers imitate those of bulimics. They show that the prominent negative effect of fluctuating weight is the water balance and hydration of the body. With respect to nutrition, the caloric intake may be skewed. In the survey, it is assumed that the responses to the question of daily caloric intake did not take into account the periods of binge. The caloric and nutritional intakes do however make sense with respect to the rapid weight loss. In order to lose several pounds, a wrestlers' consumption is limited to little or nothing.

### Exercise Practices

It appears that wrestlers are well informed about proper exercise practices. <sup>[15]</sup> The questionnaire that was given to the coaches shows that it is typical to require lifting and conditioning in practice at least 3 times a week. This conditioning is good for wrestlers as muscle mass would deteriorate without this regimen. It was common for coaches to supply

information to the wrestlers about maintaining muscle and increasing stamina through cardiovascular workout. However, most of the wrestlers exercising outside of practice, are not exercising to maintain strength, but to dehydrate themselves. As stated above, the use of rubber suits and the lack of nutritional intake to fuel these workouts make these actions potentially dangerous. Generally, wrestlers are not getting enough energy to wrestle let alone add lifting on top of wrestling. In order to make this additional physical activity realistic, a steady balanced diet must be established. <sup>[11]</sup> The paradox is that once calories, carbohydrates and fats are removed from the diet, the body needs to get energy from somewhere. The act of lifting to maintain muscle mass without having stored fat, and no caloric intake, forces the body to take energy from the muscles; resulting in the weakening of muscles. This poor management of the balance between nutrition and exercise habits leads to muscle atrophy and impairs performance.

One coach gave a testimony of a situation in which he allowed a wrestler to go down to the lowest weight. *“I let a kid cut too much many years ago, it was his decision... He did not perform well... He also suffered through many bouts of muscle cramps”* (Appendix B). Choma *et al* <sup>[16]</sup> indicated that rapid weight loss correlates directly with mood swings and poor performance.

### **Conclusion**

Over the years habits have developed that do not benefit the health and performance of wrestlers. Generally these practices are those that have originated from laziness. Wrestlers make low weights to wrestle lighter opponents and have an easier time. It appears as though personal health is tossed aside to minimize the amount of work is necessary in order to make weight. The issue is that the body gets sacrificed, hampering the ability to maximize full wrestling potential. This problem may not be prevalent among all wrestlers, but it is in a very high percentage. In a future article, the data that was collected will be analyzed with the purpose of supplying useful realistic weight control plans to help wrestlers at any level compete efficiently.



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# Appendix A

*Table 1: Survey used in this study to collect and analyze the dietary and exercise practices of wrestlers. This survey was distributed to active wrestlers through an open forum for Massachusetts wrestlers (masswrestling.com). 154 current wrestlers participated in the survey; among which 115 participants were high school wrestlers, and 43 were collegiate wrestlers.*

	Question	Possible Answers		Question3	Possible Answers4
1	Are you a wrestler in high school or college?	High School, College	13	Do you binge on food when you have a break between weigh-ins.	Yes/No
2	What is your height	< 5' too > 6'4" (Intervals of 2")	14	If you binge on food between weigh-ins, is the food typically much more unhealthy than what you should eat?	Yes/No, Do not binge
3	What is your Age?	14 - 24 yrs ( Intervals of 2 yrs)	15	Do you feel you wrestle better when you have:	Cut a lot of Weight, Cut Moderate Amount of Weight, Cut Little to No Weight
4	What weight class do you wrestle(High School Weights)	14 High School Weights, In College	16	After weigh-ins how do you rehydrate?	Gatorade, Water, Both
5	What weight class do you wrestle(College Weights)	10 College Weights, In High School	17	Do you feel you would wrestle better if you didn't need to rehydrate after weigh-ins?	Yes/No
6	Are you a Starter or Back Up?	Starter, Back-Up, or Both	18	Do you think weight certification is effective in preventing unhealthy weight loss?	Very Effective, Somewhat Effective, Slightly Effective, Not Effective
7	How many Hours a week do you work out outside of Practice and Meets?	0 hrs too >12 hrs (Intervals of 2 hrs)	19	Have you attempted to alter your weigh certification results?	No, Yes- Weight, Yes - Hydration, Yes - Both, Prefer Not to Answer
8	What Division do you wrestle?	Div. 1, Div. 2, Div. 3	20	How much on average does your weigh fluctuate in between weigh-ins?	< 5 lbs too >12.5 lbs (Intervals of 2.5 lbs)
9	How many calories do you take in on average every day?	< 1200 Cal. Too >3000 Cal. (Intervals of 300 Cal)	21	Over the course of your wrestling career have you ever received nutritional and/or weight loss instruction from a professional	Yes - High School, Yes - college, Yes - Did Not Use, No
10	In order to make weight for wrestling I must	Gain Weight, Neither Gain nor Lose Weight, Lose < 5 lbs too > 35 lbs (Intervals of 10 lbs)	22	Have you ever used a sauna or a rubber suit to make weight?	Frequently (> 2/3 of Weigh-Ins), Sometimes(1/3 - 2/3 of Weigh-Ins), Rarely (< 1/3 of Weigh-Ins), No
11	One or two nights before a meet or tournament I must cut on average	0 lbs too > 12 lbs ( Intervals of 2 lbs)	23	To make weight, have you ever used	Laxatives, Vomiting, Diet Pills, None of Above
12	During the wrestling season I:	Drink Alcohol, Smoke Weed, Smoke Cigarettes, All of the above, None of the Above	24	Do you have any comments, recommendations, or concerns?	Open Response

*Table 2: A Questionnaire designed to obtain the influence of coaches on weight management of wrestlers. The perspective of active coaches on general weight loss practices was examined. This questionnaire was completed by 7 high school coaches.*

	Questions		Questions
1	How long have you been coaching?	7	Do you have a lifting plan for wrestlers outside of practice?
2	How many teams have you coached, and what divisions/level?	8	Do you think saunas and sweat suits are beneficial for the wrestler, or not?
3	How many winning seasons have you have?	9	Do you think wrestlers lose a lot of stamina from cutting a lot of weight the night before?
4	Do you feel that cutting weight the night before is beneficial or not, and if there is an acceptable range what do you think it is?	10	When you are trying to arrange weight classes for your team, do you try to have all the wrestlers go down to their lowest allowed weight class, or do you keep in mind the possibility of someone sucking to much weight?
5	How many hours outside of practice would you like your wrestlers to work out every week?	11	How often do you think a wrestler should lift outside of practice?
6	What advice would you give someone trying to lose weight healthfully for wrestling, and maintain strength?	12	Do you have a nutritionist come in and meet with your team, or do you provide educated sources for your wrestlers on how to properly lose the weight?

# Appendix B

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*A Testimony to the Negative Effect of Cutting Too Much Weight Provided by a High School Wrestling Coach. The Actual statement the coach provided is presented here to highlight the negative impact of uncontrolled weight loss.*

“I let a kid cut too much many years ago (it was his decision and I was a young coach) and he did not perform well. He ended up as a State finalist but could just as well have been second at the next weight class up as well; he had a regular season over him. He also suffered through many bouts of muscle cramps and over all misery during the season and did not perform up to ability at the All-States. I learned from that experience and keep a much closer eye on the kids now. This year we kept one kid up two weights to balance the team. He wrestled at 135 but could have made 125 with some cutting though he then would have been JV.”

***End of Article # 1***

**Article #2**

**“A Comprehensive Plan to Improve Weight Management  
Practices in Wrestling”**

**submitted to *Wrestling USA Magazine***

# A Comprehensive Plan to Improve Weight Management Practices in Wrestling

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## **Abstract**

*The elimination of poor weight management practices is vital to improving the performance and health of wrestlers. The objective of this study is to examine weight fluctuations in active wrestlers and to highlight various consequences resulting from poorly managed weight loss or gain. Data were obtained primarily through a survey of over 154 wrestlers. It was analyzed to evaluate the wrestler's weight management practices. Although new NCAA regulations inhibit large weight fluctuations, poor weight management practices are still very prevalent.*

## **Introduction**

In a previous article<sup>[1]</sup>, the authors had examined the current state of wrestling with respect to diet and nutritional habits. Not only do undesirable weight loss practices impair the physical strength and stamina of the wrestler, but they could also have serious health repercussions. Wrestling as a sport is imbedded with a wide array of methods for making weight.<sup>[1-3]</sup> The effect of dehydration, binge eating, and poor diet is widely accepted as devastating for an athlete's performance.<sup>[4, 5]</sup> The NCAA as well as numerous high school athletic associations, have imposed a weight certification process to try and curb many negative habits associated with "cutting weight".<sup>[6]</sup> Nonetheless, the survey found that many wrestlers modify results during this process, allowing such practices to continue. With proper diet, exercise outside of practice, and a mat-side weigh-in wrestlers can compete in a healthy and safe manner. These changes in weight management will contribute to improvements on current wrestlers' dietary, nutritional, and

exercise habits. Lakin *et al* <sup>[4]</sup> have collected data on a broad range of subjects pertaining to wrestling. To evaluate the dietary and nutritional habits of wrestlers, the present authors have conducted a survey of 154 high school and collegiate wrestlers. The objective of this work is to analyze the data to develop optimum weight management practices. These guidelines may be utilized to improve the strength and performance of wrestlers on the mat.

### Caloric Intake of wrestlers

One of the main reasons wrestlers have unhealthy nutritional habits is binge eating. Wrestlers often binge following a meet, after abstaining from food during the week to make weight. Research has shown that roughly 97% of wrestlers <sup>[2]</sup> binge eat, with 85% binge eating a minimum of once a week. A more recent survey conducted by the present authors found that roughly 2/3 of wrestlers' admits to binge eating. Of the wrestlers that binge 63% typically binge on foods that are less healthy than what is typically eaten while cutting weight. The first problem with binge eating is that the wrestler is consuming a majority of his entire week's calories in one day. This causes not only a decrease in the intake of food during the week, but bingeing also hampers performance both during practices and meets by lowering the available energy for those events. Many wrestlers forego proper nutrition in order to satisfy a desire to binge on unhealthy food. This bingeing should be rectified with a steady healthy diet. In regards to the total calories consumed by wrestlers, carbohydrates should contribute 60%, proteins should contribute 20%, and fats should contribute 20%. <sup>[7, 8]</sup>

Since the height, weight, and exercise level can vary in the general population, every individual has a different caloric requirement. An estimate for the daily recommended calories is calculated through the Mifflin formula: <sup>[9]</sup>

$$REE(males) = 10 * W + 6.25 * H - 5 * y + 5 \quad (1)$$

$W$  is the weight in kg,  $H$  is the height in cm and  $y$  is the age in years. In addition, a series of other parameters are also defined for determining desired total caloric intake:

$$DTC = REE * AF \quad (2)$$

*DTC* is the Desired Total daily Calories, *REE* is the Resting Energy Expenditure, and *AF* is the Activity Factor. The activity factor is a series of constants that depend on quantity and difficulty of exercise that the individual performs. An activity level is applied to 1.3 for sedentary individuals, and 1.7 for people that exercise daily and intensely. So by combining eqn(1) and eqn(2) an estimate for an average wrestler's daily caloric intake needs can be demonstrated. A 145 lb (65.8kg), 5'9" (175.26cm) male that is 17 years old, and works out an additional 4-6 hours a week on top of practice should consume roughly 2800 calories a day. Wrestlers on average however, only consume 67% of the expected caloric intake (for those with a high activity level) as calculated by eqn(3).<sup>[10]</sup>

$$\% \text{ Difference of AWC and DTC} = (\text{SAWC} - \text{SDTC}) / \text{SDTC} * 100 \quad (3)$$

AWC is the Actual Wrestler's total daily Calories and *S* represents the summation in the corresponding groups. Lemon's study indicates that on average wrestlers consume about 80% of the daily caloric intake recommended for sedentary individuals.<sup>[10]</sup> Similar numbers were calculated in the present study from the survey data. Most wrestlers consumed 88% of the daily caloric intake recommended for sedentary individuals as calculated from eqn (4):

$$\% \text{ Difference of AWC and SSC} = (\text{SAWC} - \text{SSSC}) / \text{SSSC} * 100 \quad (4)$$

SSC is the calories calculated for sedentary individuals and *S* represents the summation in the corresponding groups. This low calorie need may stem from a decrease in the wrestlers resting metabolic rate. As a result, the *REE* may decrease by as much as 20% during the season to compensate for cutting weight.<sup>[11]</sup> All wrestlers are recommended to follow the caloric estimates obtained from eqn (1) and eqn (2) and to avoid binge eating. Eating small regular meals and high fiber diets can help improve an individual's metabolism to maintain relatively uniform blood glucose levels. Diets high in fiber satisfy hunger, due to the expansion of volume as exhibited by high fiber foods.<sup>[12]</sup> Fiber also regulates the absorption of sugar, so that energy levels remain nearly constant for the athlete. Saturated and *Trans* fats should be avoided and a higher emphasis should be placed on unsaturated fats.<sup>[12]</sup> Foods high in salts will increase the amount of water retained in a wrestler, and should be avoided within 24 hours of a weigh-in.<sup>[14]</sup>



## **Exercise habits**

Wrestling is a sport, where exercising only during practice, is not sufficient to being successful. Successful wrestlers know that exercising outside of practice is important not only for maintaining weight, but also, as coaches will agree, for improving strength and endurance.<sup>[2]</sup> Multiple studies indicate that approximately 86% to 97% of wrestlers exercise outside of practice.<sup>[1, 2]</sup> Many wrestlers stick to long distance running for cutting weight and maintaining endurance. However, as the loss of strength is commonly experienced by wrestlers throughout a season, a lifting plan is also important to wrestlers that are fully matured.<sup>[14]</sup> In addition to practice, wrestlers are recommended to lift weights that utilize all major muscle groups at least once a week.<sup>[15]</sup>

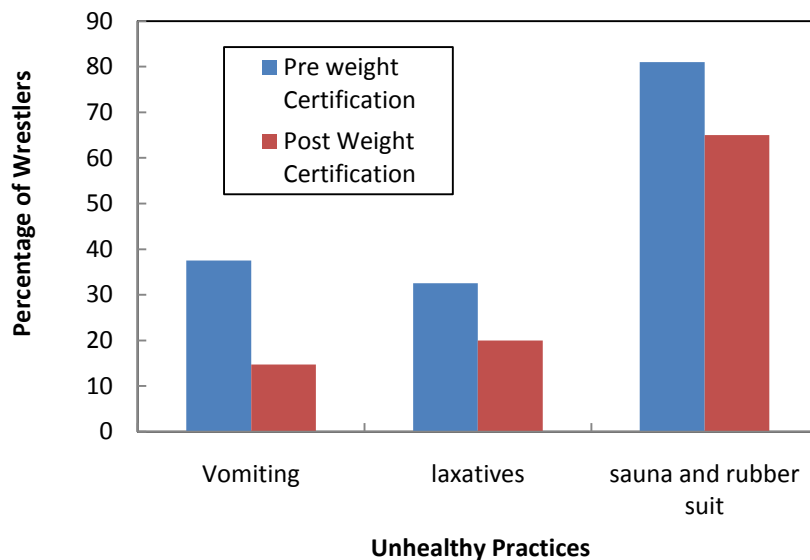
## **Dehydration**

Dehydration is a major concern for wrestlers.<sup>[12, 14, 16]</sup> Most wrestlers lose water weight in order to make weight. This dehydration can have major effects on a wrestler's performance and health. A simple loss of 2-3% of a wrestler's body weight through dehydration can cause a significant loss of strength and endurance.<sup>[4]</sup> Research indicates that oxygen intake decreases by as much as 10 %, and maximum strength decreases up to 22%.<sup>[4]</sup> A loss of 4-6% amplifies the loss of strength and endurance, with oxygen intake decreasing by 27% and strength by 48%. Another side effect of dehydration is a decrease in cognitive functions by the wrestler.<sup>[16]</sup> When a subject has lost 5% of its body weight in water, short term memory may be reduced by as much as 12%.<sup>[16]</sup> All effects appear to be temporary, and completely reversible after a rehydration period. It is estimated that the average healthy male, that exercises for at least 90 minutes a day, should consume at least 3% of his body weight in water.<sup>[17]</sup> Dehydration should be avoided in order to maximize a wrestler's potential on the mat.

## **Weight Certification**

The purpose for a weight certification is to limit the dangerous effects of dehydration in the sport of wrestling. The idea was first introduced in 1997 after 3 wrestlers died of dehydration in a short 33 day span.<sup>[6]</sup> The weight certification hoped to prevent rapid weight loss through the

use of a 5% body fat minimum, a weekly 1.5% bodyweight reduction plan, and less than a 1.02 urine specific gravity measurement (to test for hydration level).<sup>[6]</sup> These levels are usually tested by a wrestler urinating in the bathroom and then stepping on a scale, and finally having a skin fold measurement performed to determine body fat. The problem with the current system is that there are a large number of wrestlers who disregard protocol. In a recent survey, 25% of wrestlers confirmed that they altered weight certification results, and an additional 22% modified the results in the hydration certification. The NCAA weight certification not only limited the amount and rate of weight loss, but it also limited the type of weight loss. It banned rubber suits, saunas, steam rooms, laxatives, heated wrestling rooms over 75 degrees, vomiting, and excessive food and fluid restriction.<sup>[6]</sup> An examination of the percentage of wrestlers that had engaged in some of these practices before weight certification, and post weight certification can be seen in figure 1.<sup>[1, 2, 3]</sup>



*Figure 1. Comparison of the percentage of wrestlers that practice vomiting, use laxatives, or use a sauna or rubber suit, before the implementation of Weight Certification (Pre weight certification, 1998) and in 2010 (post weight certification).*

While these results show some success in limiting unhealthy traditions in wrestling, additional steps can be taken to continue the reduction of such poor practices. Most wrestlers realize the faults with the current system as well (Figure 2). A simple solution to the weight certification process would be to have mat-side weigh-ins. A mat-side weigh-in is the practice of

a wrestler stepping on the scale right before the match, (shoes and singlet included), and then wrestling immediately after. This concept has been introduced before, and there have been benefits and drawbacks, as there are to the current system. The strength of this system is that rehydration is not available as an option, so the effects of dehydration would be even more prevalent than the previous system. Thus the wrestler is persuaded to abandon cutting weight and the unhealthy practices that are related to it. The weakness of this system would be the fact that the wrestler has not only the stress of stepping on the scale possibly six or seven times during a tournament day, but also the stress of maintaining a minimal weight over the course of a day. Another weakness would be the added time to a tournament that a thousand more weigh-ins would add. Despite the added stress of a mat-side weigh in, it is necessary to fully correct all the negative stigmas, and practices that are brought on in wrestling.

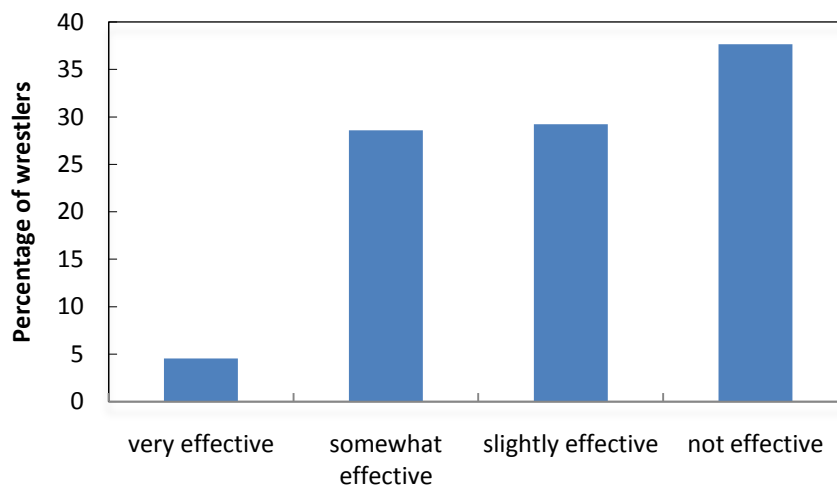


Figure 2. *Wrestler's opinions on the effectiveness of weight certification.*

## Conclusion

Despite the NCAA's best efforts to limit unhealthy weight management in the sport of wrestling, poor weight management is still very prevalent. Vomiting, laxatives, saunas, and rubber suits weaken a wrestler's performance, and yet the widespread use in wrestling remains

abundant. The only way these habits can be eliminated is if the wrestler practices well balanced nutrition, sufficient hydration, and a regimental exercise program outside of practice. Mat-side weigh-ins would also curb poor weight management practices. By highlighting the effects of dehydration on a wrestler's performance, a reduction in the amount of athletes who participate in these habits can be achieved.

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# Appendix A

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*Table 1: Survey used in this study to collect and analyze the dietary and exercise practices of wrestlers. The questions shown below were used to obtain relevant information. This survey was distributed to active wrestlers through an open forum for Massachusetts wrestlers (masswrestling.com). 154 current wrestlers participated in the survey; among which 115 participants were high school wrestlers, and 43 were collegiate wrestlers (Gikas & Spinelli, 2010).*

	Questions	Possible Answers
1	Are you a wrestler in high school or college?	High School, College
2	What is your height	< 5' too > 6'4" (Intervals of 2")
3	What is your Age?	14 - 24 yrs ( Intervals of 2 yrs)
4	What weight class do you wrestle(High School Weights)	14 High School Weights, In College
5	What weight class do you wrestle(College Weights)	10 College Weights, In High School
7	How many Hours a week do you work out outside of Practice and Meets?	0 hrs too >12 hrs (Intervals of 2 hrs)
9	How many calories do you take in on average every day?	< 1200 Cal. Too >3000 Cal. (Intervals of 300 Cal)
13	Do you binge on food when you have a break between weigh-ins.	Yes/No
14	If you binge on food between weigh-ins, is the food typically much more unhealthy than what you should eat?	Yes/No, Do not binge
18	Do you think weight certification is effective in preventing unhealthy weight loss?	Very Effective, Somewhat Effective, Slightly Effective, Not Effective
19	Have you attempted to alter your weigh certification results?	No, Yes- Weight, Yes - Hydration, Yes - Both, Prefer Not to Answer
22	Have you ever used a sauna or a rubber suit to make weight?	Frequently (> 2/3 of Weigh-Ins), Sometimes(1/3 - 2/3 of Weigh-Ins), Rarely (< 1/3 of Weigh-Ins), No
23	To make weight, have you ever used	Laxatives, Vomiting, Diet Pills, None of Above

***End of Article # 2***

**The conclusions for the overall IQP are summarized in the next page**

## Conclusions

Despite regulations, poor weight management practices are still widely used in the sport of wrestling. The research conducted on these topics has been published in two separate articles in *Wrestling USA*. Large percentages of wrestlers do not practice proper nutrition and binge after competitions. This bingeing, consequently results in a lower net caloric intake during the week, which increases the likelihood of that wrestler adopting poor weight management practices. Weight certifications have been established to eliminate some of the unhealthy practices associated with wrestling; nevertheless detrimental habits continue to prevail.

A steady diet in which carbohydrates contribute 60%, proteins contribute 20%, and fats contribute 20% to a wrestler's daily caloric intake is favorable. Dehydration has strong repercussions for a wrestler's strength and endurance. With a reduction of 2% in body water weight, oxygen intake decreases by 10%. A wrestler should consume roughly 3% of his body weight in water to reduce dehydration. Exercise programs in addition to practices are encouraged. Weight Lifting is a crucial component to these exercise programs, resulting in minimal strength loss during the season.



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# Appendix I

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## **Correspondence with Mr. Mike Atlas about survey distribution**

Coaches: Please fill out this survey when you can and please send your responses to [jgikas@wpi.edu](mailto:jgikas@wpi.edu)

Please don't send your response to the coaches mailing list.

=====

### Interview questions

A very limited amount of research has been conducted by interviewing wrestling coaches. All research conducted has been from the viewpoint of an individual coach, not from a collective body of coaches. Since there is no broad opinion from numerous coaches, this project will try to learn and appease a collective body of coaches. This will be beneficial because there will be a broader spectrum of data than would otherwise be obtained from a single individual coach.

These interviews are important because the information attained will grant us an overall view of coach's perspective towards wrestling, nutrition, weight loss, and external exercise. The information attained will differ from what has already been established, because it will have a clear focus on information that is scattered in numerous different interviews.

1. How long have you been coaching?
2. How many teams have you coached, and what divisions/level?
3. How many winning seasons have you have?
4. Do you feel that cutting weight the night before is beneficial or not, and if there is an acceptable range what do you think it is?
5. How many hours outside of practice would you like your wrestlers to work out every week?
6. What advice would you give someone trying to lose weight healthfully for wrestling, and maintain strength?
7. Do you have a lifting plan for wrestlers outside of practice?
8. Do you think saunas and sweat suits are beneficial for the wrestler, or not?
9. Do you think wrestlers lose a lot of stamina from cutting a lot of weight the night before?

10. When you are trying to arrange weight classes for your team, do you try to have all the wrestlers go down to their lowest allowed weight class, or do you keep in mind the possibility of someone sucking to much weight?
11. How often do you think a wrestler should lift outside of practice?
12. Do you have a nutritionist come in and meet with your team, or do you provide educated sources for your wrestlers on how to properly lose the weight?

[Mike Atlas]

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That would be great.

John Gikas  
Industrial Engineering  
Class of 2011

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Should coaches send the document to you at [jgikas@wpi.edu](mailto:jgikas@wpi.edu)

[Mike Atlas]

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Hey,

The link for the active wrestlers survey, Colligate and high school, is:  
<http://www.surveymonkey.com/s/wrestlenutrition>

We have a questionnaire for the coach's attached as a word document.

Thank you for your help,

John Gikas  
Industrial Engineering  
Class of 2011

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Yes, I can help pass it out. Do you have a link?

[Mike Atlas]

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Hey Mike,

My partner, Chris Spinelli (formerly of Lynnfield 2007), and I, formerly of North Andover 2007, are doing a project at WPI on the improvement of the nutritional habits of wrestlers. We were wondering if you could fill out a brief questionnaire on the subject. We'd love to get you input.

Thanks,

John Gikas  
Industrial Engineering  
Class of 2011

# Appendix II

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## Responses to the questionnaire from coaches

### Coach 1

To whom it may concern,

1. How long have you been coaching? **9years**
2. How many teams have you coached, and what divisions/level? **3 teams-2 different H.S., 1 middle school.**
3. How many winning seasons? **6**
4. Do you feel cutting weight the night before is beneficial or not, and if there is an acceptable range what do you think it is? **Yes it can be beneficial if it is not too much 2-4 lbs okay**
5. How many hours outside of practice would you like your wrestlers to work out every week? **4-6 hours assuming school work is done**
6. What advice would you give someone trying to lose weight healthfully for wrestling, and maintain strength? **lift in morning, eat right and take a 2-4 mile run at night 20 min. after your dinner**
7. Do you have a lifting plan for wrestlers outside of practice? I open the weight room after practice and encourage the wrestlers to work out/lift with me. **If they don't have school work to do.**
8. Do you think saunas and sweat suits are beneficial for wrestlers or not? **I don't think they are used the right way and that they get abused. I don't like sweat suits, but I do like saunas if it is being used as a way to relax your muscles after a hard lifting work out. Don't like either of them if they are being used to lose weight. They are not healthy.**
9. Do you think wrestlers lose a lot of stamina from cutting a lot of weight the night before? **It depends on the individual and the amount of weight. 2-4 lbs no I don't think they lose stamina. Over 4lbs yea they probably would be a little drained.**
10. When you are trying to arrange weight classes for your team, do you try to have all the wrestlers go down to their lowest allowed weight class, or do you keep in mind the possibility of someone sucking to much weight? **I very rarely want them to go to their lowest weight. I usually always leave it up to them.**
11. How often do you think a wrestler should lift outside of practice? **4-5 times per week**
12. Do you have a nutritionist come in and meet with your team, or do you provide educated sources for your wrestlers on how to properly lose the weight? **I tell them what worked for me, but also explain how everyone's body is different. I first off don't promote the wrestlers to cut weight. My practices are hard enough the weight will come off them. I just promote a healthy way to live. Ex: not eating food that is bad for you, do you school work, stay out of trouble; think before you act etc...**

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### Coach 2

1. How long have you been coaching **7 as head coach, 3 as asst. coach**

2. How many teams have you coached, and what divisions/level? **2 teams, Both Division 2 high School in Mass**
  3. How many winning seasons have you have? **Head coach 1, asst. coach 3**
  4. Do you feel that cutting weight the night before is beneficial or not, and if there is an acceptable range what do you think it is? **Depends on the wrestler usually I would rather they stay fully hydrated until the night before. Range depends on the kid some sweat easy and some have difficulty with sucking weight.**
  5. How many hours outside of practice would you like your wrestlers to work out every week? **I would like them to run for about ½ hour on Sunday and maybe lift two times a week**
  6. What advice would you give someone trying to lose weight healthfully for wrestling, and maintain strength? **Do it slowly starting with extra workouts and diet. Sweating weight off comes last and should only be for a few pounds**
  7. Do you have a lifting plan for wrestlers outside of practice? **yes but it needs improvement**
  8. Do you think saunas and sweat suits are beneficial for the wrestler, or not? **never**
  9. Do you think wrestlers lose a lot of stamina from cutting a lot of weight the night before? **yes they can be sucked out the next day but it depends on the wrestler**
  10. When you are trying to arrange weight classes for your team, do you try to have all the wrestlers go down to their lowest allowed weight class, or do you keep in mind the possibility of someone sucking to much weight? **No I let them wrestle where they are comfortable. I have asked kids to go up a weight and down due to safety and level of success.**
  11. How often do you think a wrestler should lift outside of practice? **two times a week to keep their strength up. we get in the weight room as a team at the beginning of the season but by the end we end up failing to get in there enough.**
  12. Do you have a nutritionist come in and meet with your team, or do you provide educated sources for your wrestlers on how to properly lose the weight? **yes we have a coach/nutritionist /trainer by trade that speaks with the parents and the athletes both before the season**
- 

### Coach 3

1. How long have you been coaching? **19 years**
2. How many teams have you coached, and what divisions/level? **2 teams; 12 years HS, 9 years Head coach, 3 years Asst, 7 years youth**
3. How many winning seasons have you have? **As HS coach – 8 winning seasons**
4. Do you feel that cutting weight the night before is beneficial or not, and if there is an acceptable range what do you think it is? **Beneficial – no more than 3-4 pounds depending on the weigh-in process**
5. How many hours outside of practice would you like your wrestlers to work out every week? **1 hour a day –**
6. What advice would you give someone trying to lose weight healthfully for wrestling, and maintain strength? **Eat small, balanced meals throughout the day, Start before the season starts (at least a month), Read Nancy Clark’s book on sports nutrition**
7. Do you have a lifting plan for wrestlers outside of practice? **yes**

8. Do you think saunas and sweat suits are beneficial for the wrestler, or not? **absolutely not Sweat suits maybe for a quick pound or two the night before a weigh in, But saunas are bad – I think they drain the body too quickly and do not offer the added benefit of conditioning to lose weight**
9. Do you think wrestlers lose a lot of stamina from cutting a lot of weight the night before? **It depends on the amount but usually not, but when they do it is very evident if they are only limiting liquid intake the night before I don't think It is when they limit liquid intake more than 12-18 hours prior to a weigh-in that I think it starts to show. The body doesn't re-hydrate as quickly after weigh-in and I also think it causes them to be more susceptible to getting sick and or injured**
10. When you are trying to arrange weight classes for your team, do you try to have all the wrestlers go down to their lowest allowed weight class, or do you keep in mind the possibility of someone sucking to much weight? **the kids decide where they want to go Definitely account for too much cutting – I let a kids cut too much many years ago (it was his decision and I was a young coach) and he did not perform well He ended up as a State finalist but could just as well have been second at the next weight class up as well – (he had a regular season over him) He also suffered through many bouts of muscle cramps and over all misery during the season and did not perform up to ability at the All-States I learned from that experience and keep a much closer eye on the kids now This year we kept one kid up two weights to balance the team (he wrestled at 135 but could have made 125 with some cutting – though he then would have been JV)**
11. How often do you think a wrestler should lift outside of practice? **in season – 2x/week**
12. Do you have a nutritionist come in and meet with your team, or do you provide educated sources for your wrestlers on how to properly lose the weight? **No nutritionist Speak personally with the kids trying to cut**

Let me know what you find out

---

## Coach 4

1. How long have you been coaching? **12 years**
2. How many teams have you coached, and what divisions/level? **1 town, high school and youth**
3. How many winning seasons have you have? **8**
4. Do you feel that cutting weight the night before is beneficial or not, and if there is an acceptable range what do you think it is? **I think 3-5 pounds is an acceptable range and if you aren't doing that you are at a disadvantage**
5. How many hours outside of practice would you like your wrestlers to work out every week? **8**
6. What advice would you give someone trying to lose weight healthfully for wrestling, and maintain strength? **Eat right, lift in the morning**
7. Do you have a lifting plan for wrestlers outside of practice? **Yes**

8. Do you think saunas and sweat suits are beneficial for the wrestler, or not? **I don't like saunas but sweat suits can help with the last pound or 2 of water weight.**
  9. Do you think wrestlers lose a lot of stamina from cutting a lot of weight the night before? **I think if it's in the 3-5 pound range they get used to it and it doesn't have a huge effect**
  10. When you are trying to arrange weight classes for your team, do you try to have all the wrestlers go down to their lowest allowed weight class, or do you keep in mind the possibility of someone sucking to much weight? **I don't encourage the lowest allowed weight class; I usually leave it up to the individual wrestler**
  11. How often do you think a wrestler should lift outside of practice? **2-3 times per week**
  12. Do you have a nutritionist come in and meet with your team, or do you provide educated sources for your wrestlers on how to properly lose the weight? **I talk to the wrestlers about what they should eat and what they should do.**
- 

## Coach 5

1. How long have you been coaching? **6 years**
  2. How many teams have you coached, and what divisions/level? **1 high school team, 1 youth team and one club team**
  3. How many winning seasons have you have? **6**
  4. Do you feel that cutting weight the night before is beneficial or not, and if there is an acceptable range what do you think it is? **I think it depends on the wrestler and his or her health/discipline, and eating habits.**
  5. How many hours outside of practice would you like your wrestlers to work out every week? **About 3 to 4 which includes weight lifting and conditioning**
  6. What advice would you give someone trying to lose weight healthfully for wrestling, and maintain strength? **Lift weights, high reps low weight**
  7. Do you have a lifting plan for wrestlers outside of practice? **yes**
  8. Do you think saunas and sweat suits are beneficial for the wrestler, or not? **No**
  9. Do you think wrestlers lose a lot of stamina from cutting a lot of weight the night before? **Again I think it depends on the wrestler but most would**
  10. When you are trying to arrange weight classes for your team, do you try to have all the wrestlers go down to their lowest allowed weight class, or do you keep in mind the possibility of someone sucking to much weight? **I do not make any wrestler wrestle a specific weight. I allow them to decide what weight is best for them and as long as the doctor and parents agree than I am ok with it**
  11. How often do you think a wrestler should lift outside of practice? **Never, because we lift after practice as a team and I do not think they should over do it. Wrestlers need to give their body time to rest and recover**
  12. Do you have a nutritionist come in and meet with your team, or do you provide educated sources for your wrestlers on how to properly lose the weight? **I do, we have a nutritionist come in and give the body fat composition test with electrical bioimpedence. She calculates the results and when she returns them she also gives each wrestler an**
-



**individual nutrition plan explaining what and how much they should be eating to maintain a healthy weight. I am very proud of this system that we use and I believe it has been very helpful and beneficial to my team.**

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## **Coach 6**

1. How long have you been coaching? **11 years**
  2. How many teams have you coached, and what divisions/level? **3 teams. Div. 1 and 2 High School programs.**
  3. How many winning seasons have you have? **5**
  4. Do you feel that cutting weight the night before is beneficial or not, and if there is an acceptable range what do you think it is? **If its 1-2 pounds it's ok. I would rather wrestlers eat and rest instead of running the night before a match.**
  5. How many hours outside of practice would you like your wrestlers to work out every week? **4-5 hours**
  6. What advice would you give someone trying to lose weight healthfully for wrestling, and maintain strength? **I tell my wrestlers to eat until they are no longer hungry, not eat until you are full. Also weight loss for wrestling should be done gradually over time instead of rapidly.**
  7. Do you have a lifting plan for wrestlers outside of practice? **Yes a very basic lifting plan designed to maintain muscle mass rather than put it on.**
  8. Do you think saunas and sweat suits are beneficial for the wrestler, or not? **Saunas and sweat suits are a horrible practice that give our sport a bad name. There is a club team in mass, which not only has a sauna in their facility, but allows kids of all ages to use it for weight cutting purposes.**
  9. Do you think wrestlers lose a lot of stamina from cutting a lot of weight the night before? **Yes and not just from exercising but from not eating enough.**
  10. When you are trying to arrange weight classes for your team, do you try to have all the wrestlers go down to their lowest allowed weight class, or do you keep in mind the possibility of someone sucking to much weight? **For the majority of my wrestlers they wrestle at their natural weight. If the wrestler comes in with a high body fat reading, such as 15-20% body fat, then they will naturally lose weight as the season goes on.**
  11. How often do you think a wrestler should lift outside of practice? **2-3 times a week depending on the match schedule for that week.**
  12. Do you have a nutritionist come in and meet with your team, or do you provide educated sources for your wrestlers on how to properly lose the weight? **In the past I have had a nutritionist come in. I have keep a lot of the resources from that person and have a team meeting early in the year to discuss healthy dieting and weight loss.**
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## Coach 7

1. How long have you been coaching? **6 years**
  2. How many teams have you coached, and what divisions/level? **4 high school, I also coached youth while in High school.**
  3. How many winning seasons have you have? **6**
  4. Do you feel that cutting weight the night before is beneficial or not, and if there is an acceptable range what do you think it is? **Acceptable range 1-3pounds**
  5. How many hours outside of practice would you like your wrestlers to work out every week? **7 + hours**
  6. What advice would you give someone trying to lose weight healthfully for wrestling, and maintain strength? **Don't do it all at one time**
  7. Do you have a lifting plan for wrestlers outside of practice? **yes**
  8. Do you think saunas and sweat suits are beneficial for the wrestler, or not? **Beneficial to making weight but not actually wrestling.**
  9. Do you think wrestlers lose a lot of stamina from cutting a lot of weight the night before? **yes**
  10. When you are trying to arrange weight classes for your team, do you try to have all the wrestlers go down to their lowest allowed weight class, or do you keep in mind the possibility of someone sucking to much weight? **I know the kids pretty well so I know who can cut and who can't.**
  11. How often do you think a wrestler should lift outside of practice? **At least 3 times a week**
  12. Do you have a nutritionist come in and meet with your team, or do you provide educated sources for your wrestlers on how to properly lose the weight? **I provide.**
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# Appendix III

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## Correspondence with Mr. Cody Bryant, Editor, *Wrestling USA Magazine* about publication of our IQP

John,

I don't know until I see the article. I would suggest that you send it my way and then I could let you know if it needs to be cut back or not.

Cody

Cody Bryant  
Managing Editor  
*Wrestling USA Magazine, Inc.*  
109 Apple House Lane  
Missoula, MT 59802

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Cody,

We are writing two articles for your magazine, as we had to split them up. Before you said how we could have 2 articles at about 1500 words. How strict is that? For instance I have an article close to being done that is around 1750 words. Would this be an issue?

Thanks,

John Gikas  
Industrial Engineering  
Class of 2011

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John,

We will do the font changes and layout. If you can send it as a Word doc attachment that will work for us. As far as length, if I think it is too long I can try to edit it or break it down as part 1 and part 2. Most of our articles are around 1500 words.

Cody

Cody Bryant  
Managing Editor

*Wrestling USA Magazine, Inc.*  
109 Apple House Lane  
Missoula, MT 59802

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Cody,

We appreciate your interest in our article. Our goal is to help the wrestling community in anyway we can. Getting published in the fall would not be a problem at all; we are both just excited to have the opportunity. Our final product would not be finished until later April; we will send what we have then.

Are there guidelines that we need to know while writing this article? For instance length, font, spacing, etc?

Thank You Again,

John Gikas  
Industrial Engineering  
Class of 2011

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John,

I don't see why this research wouldn't be an interest to the wrestling world particularly coaches and parents which is our target audience.

When you have this completed just send it my direction and I would be glad to take a look at it. It sounds like we wouldn't be able to publish it until this Fall at the earliest. Would this be a problem?

Cody

Cody Bryant  
Managing Editor  
*Wrestling USA Magazine, Inc.*  
109 Apple House Lane  
Missoula, MT 59802

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Hi Guys,

I think that WUSA Magazine would certainly publish it, but I'm not the guy in charge. You need to contact **Cody Bryant, Managing Editor**. I think he will be VERY INTERESTED in publishing it! I am 99% sure he will love it. His e-mail and phone are below:

[XXX@wrestlingusa.com](mailto:XXX@wrestlingusa.com)

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(XXX) XXX-XXXX

Sincerely,

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Bill Welker, EdD

BILL WELKER  
Contributing Writer

We are two wrestlers and undergraduate students at Worcester Polytechnic Institute, Worcester, MA. We are currently completing a junior level school interdisciplinary project on the nutritional needs and restrictions of wrestlers. We are also examining the dietary requirements and workout plan suited to college wrestlers. We are analyzing the literature and are conducting surveys and interviews to examine active wrestlers nutritional and exercise regimens outside of practice, at both the collegiate and high school level. We are Studies are also being conducted on the short term dehydration, and its effects on strength, speed, and endurance. After completion of this work, we are exploring the possibility of getting our research published in your journal. We anticipate our work to be completed in April, 2010. We would be grateful if you could let us know whether this research is appropriate for publication in your journal. If this research is not suitable for your journal, please suggest other potential journals which may be appropriate. Please email us the instructions for authors. Thank you for your help.

Sincerely,

John Gikas  
Industrial Engineering  
Class of 2011

Chris Spinelli  
Biochemistry  
Class of 2011